Comprehensive Research Paper: Creating a Working AI Agent for Secure Use Cases

Abstract

This research paper provides a comprehensive guide for University students on creating working AI agents, with a specific focus on highly secure use cases. It delves into the foundational components of AI agents, explores leading open-source platforms and frameworks, and thoroughly addresses critical security considerations such as data privacy, hallucination prevention, and compliance. The paper offers conceptual guidance on practical implementation strategies, including prompt engineering and tool integration via APIs and schemas. It also presents various published use cases relevant to secure environments. An addendum offers insights into advanced paid services that provide enterprise-grade security and scalability. The objective is to equip students with the knowledge to develop robust, secure, and effective AI agents.

1. Introduction

The advent of AI agents marks a significant evolution in artificial intelligence, moving beyond mere conversational chatbots to intelligent digital workers capable of understanding instructions and taking autonomous or semi-autonomous actions to complete complex tasks. These agents, likened to digital employees, can perform various functions such as managing schedules, sending emails, updating databases, and conducting research.

However, the deployment of AI agents, particularly in sensitive domains like healthcare, finance, or cybersecurity, necessitates a stringent focus on security, data privacy, and reliability. This paper aims to guide university students through the process of building AI agents, emphasizing open-source solutions and best practices for highly secure use cases. We will explore fundamental components, popular open-source platforms, crucial security measures, and practical implementation advice, along with an addendum on advanced paid services for enterprise-level deployments.

2. Fundamentals of AI Agents

At their core, AI agents are sophisticated systems built upon several interconnected components that enable their intelligent behavior and task execution. Understanding these foundational elements is crucial for effective and secure agent development. An AI agent typically requires five key parts to function correctly:

2.1. The Brain: Large Language Models (LLMs)

The "brain" of an AI agent is a Large Language Model (LLM). These powerful models, such as GPT from OpenAI, Claude from Anthropic, or Gemini from Google, serve as a super-smart interpreter, capable of understanding human language instructions and figuring out how to accomplish tasks based on those instructions. The choice of LLM impacts the agent's general intelligence, reasoning capabilities, and cost.

2.2. Instructions: Prompting

Prompting is how you program an agent's behavior, often without writing traditional code. By crafting clear and concise instructions, developers can guide the LLM on how to behave, what tasks to prioritize, and what outputs to generate. This is particularly important for secure use cases, as well-defined prompts can constrain agent actions and prevent unintended behavior, including "hallucinations". Effective prompting strategies include giving clear instructions, using system instructions, providing few-shot examples, adding contextual information, structuring prompts, and instructing the model to explain its reasoning.

2.3. Memory

Memory allows an AI agent to maintain context across interactions, remembering past conversations and tasks. This prevents the agent from forgetting previous messages or actions, enabling more natural and coherent multi-turn dialogues and task progressions. In many AI agent platforms, the memory component is handled automatically, simplifying development.

2.4. External Knowledge

While LLMs are pre-trained on vast datasets, their knowledge is typically cut off at a certain point. For domain-specific or business-specific tasks, agents need additional, external knowledge. This can be provided through company documents (PDFs), spreadsheets with product information, customer service transcripts, or any other text-based information. This component is vital for creating agents that provide accurate, up-to-date, and relevant information without relying on the LLM's general (and potentially outdated or inaccurate) knowledge, which is a key security measure.

2.5. Tools

Tools are what empower an AI agent to move beyond just conversation and actually perform actions. They grant the agent access to digital functionalities, much like an employee using various software applications. Tools allow agents to check real-time data, update databases, send messages and notifications, create documents, book appointments, and much more. Agents typically use Application Programming Interfaces (APIs) to interact with these tools.

Schemas play a crucial role in tool integration. A schema acts as a one-page instruction manual for an API, explaining to the AI agent what the tool does, what information it needs as input, and what kind of information to expect as output. Modern AI models can read these schemas and intelligently determine not only *how* to use a tool but also *when* it is appropriate to use it based on the user's request.

3. Open-Source AI Agent Platforms and Frameworks for Secure Use Cases

For highly secure use cases, open-source solutions offer unparalleled transparency and control, allowing developers to audit, modify, and deploy the software on-premise, thereby mitigating risks associated with third-party data handling.

3.1. Rasa

Rasa is a pioneer in open-source Natural Language Understanding (NLU) engines and a well-established bot-building framework. It focuses on a "story approach" for building chatbots, where developers create training data scenarios to train the bot instead of defining visual flows and intents.

- **Security & Control**: Rasa's standard NLU engine is fully open source and can be installed on-premises. This provides maximum control over data and infrastructure, crucial for secure use cases.
- **Strengths**: Strong focus on AI, continuous improvement of AI assistants. Rasa X offers tools for reviewing conversations and improving the assistant.
- **Weaknesses**: Works best with large training datasets, often in the form of customer service chat logs. The story approach can make it difficult to predict bot responses at times, presenting a "black box" risk, though this is reduced with high-quality training data.
- **Use Cases**: Customer service chatbots, building internal AI assistants.

3.2. Botpress

Botpress is an open-source conversational AI software designed to build chatbots using visual flows and minimal training data (intents, entities, slots). It features a visual conversation builder, an emulator for testing, and a built-in JavaScript code editor for custom actions.

- **Security & Control**: Being open-source, it offers transparency and control. It's primarily built for developers requiring an open system with maximum control.
- **Strengths**: Reduces development cost and barrier to entry due to low data requirements. Supports collaboration between developers and conversation designers. Actively maintains integrations with popular messaging services like Facebook Messenger, Slack, Microsoft Teams, and Telegram.
- **Weaknesses**: While open-source for the core, specific integrations or underlying LLMs might introduce dependencies on external services.
- **Use Cases**: Shopping assistant, lead generation, employee experience, ticket management.

3.3. DeepPavlov

DeepPavlov is an open-source conversational AI framework specifically designed for deep learning, end-to-end dialogue systems, and chatbots. It caters to both beginners and experts,

offering flexible tools for creating production-ready conversational skills and complex multi-skill assistants.

- **Security & Control**: DeepPavlov models are containerized for easy deployment (Nvidia NGC and Docker Hub), enabling on-premise or private cloud deployment for enhanced security. It is written in Python and licensed under Apache 2.0.
- **Strengths**: Leverages state-of-the-art deep learning models like BERT for NLP tasks (classification, NER, Q&A). DeepPavlov Agent allows industrial solutions with multi-skill integration via API services.
- **Weaknesses**: Requires understanding of deep learning concepts for advanced customization.
- **Use Cases**: Complex multi-skill conversational assistants, Q&A systems in sensitive domains like medical text analysis.

3.4. OpenDialog

OpenDialog is an enterprise-scale, open-source conversational AI platform. It emphasizes efficient deployment, integration, and training with a smart conversation engine and flexible NLU support. It also offers a no-code conversation designer for rapid prototyping.

- **Security & Control**: Open-source and easily extendable architecture supports innovation and reusability of components. Can work as a server unit and has low memory usage (less than 64MB for 20,000 words). Licensed under Apache License, Version 2.0.
- **Strengths**: No-code platform, making it accessible even without coding experience. Supports real-time Speech-to-Text (STT).
- **Weaknesses**: Primarily written in PHP, which might be a consideration depending on the development team's expertise.
- **Use Cases**: Enterprise conversational AI strategies, custom integrations.

3.5. Tock

Tock is an open-source conversational AI platform providing a complete solution for building agents and bots without relying on 3rd-party APIs.

- **Security & Control**: Its independence from 3rd-party APIs is a significant advantage for secure use cases, as it reduces external dependencies. It can be deployed anywhere in the cloud or on-premise with Docker, offering high control. Licensed under Apache License, Version 2.0.
- **Strengths**: Features for building stories and analytics, conversational DSL for Kotlin, Node.js, Python, and REST APIs. Connects to numerous text/voice channels (Messenger, WhatsApp, Google Assistant, Alexa, Twitter) and provides toolkits for custom web/mobile integration with React and Flutter.
- **Weaknesses**: Does not explicitly mention advanced security features beyond on-premise deployment.

- **Use Cases**: Conversational agents for diverse channels, custom integrations.

3.6. n8n

n8n is an open-source automation tool that can be self-hosted, making it highly suitable for secure AI agent workflows. It allows for creating complex automations and agents that interact with various tools.

- **Security & Control**: The ability to self-host means organizations retain full control over their data and execution environment, critical for highly secure scenarios. It's more versatile than many other no-code platforms and allows the creation of automated agents. *Note: While described as open-source, n8n operates under a "Sustainable Use" license, which permits self-hosting for internal use.*
- **Strengths**: Excellent for automated workflows and integrating tools. Supports a visual builder for creating workflows.
- **Weaknesses**: Requires some technical understanding for self-hosting and complex integrations.
- **Use Cases**: Automated lead qualification, internal organization knowledge bots, multi-step automation processes.

3.7. CrewAI

CrewAI is a Pythonic framework specifically designed for building multi-agent AI systems. It allows for the orchestration of multiple specialized agents working together to achieve a common goal.

- **Security & Control**: As a Python framework, it offers high control and customization capabilities. Deployment depends on the underlying infrastructure (local, private cloud). It is a free Python framework.
- **Strengths**: Excellent for complex tasks requiring collaboration between agents. Supports a "planning, action, reflection" loop for intelligent problem-solving.
- **Weaknesses**: Requires Python coding expertise. Multi-step tasks can be unreliable and require human supervision in complex workflows.
- **Use Cases**: Automated research, content generation, cybersecurity agentic workflows.

3.8. LangChain / LangGraph / LlamaIndex

These are modular frameworks (Python-based) that provide more granular control for building AI agent solutions.

- **Security & Control**: Offer high flexibility and control over agent architecture, which can be adapted for specific security requirements. They are code-based, allowing for in-depth customization and integration with secure infrastructures.
- **Strengths**: LangChain is known for its comprehensive breadth and various configurations. LangGraph is particularly recommended when fine-grained control is

needed for workflow and multi-agent setups. LlamaIndex focuses on data framework for LLM applications.
- **Weaknesses**: Can be over-engineered for simple tasks. Requires significant coding expertise.
- **Use Cases**: Building agents that interact with multiple data sources, complex agentic solutions requiring detailed control over each step.

3.9. Golem

Golem is a Python framework for chatbots that stands out due to its linguistic universal approach to language analysis, rather than statistical (neural networks) or grammatical methods.

- **Security & Control**: Written in Python and works on Linux, Windows, and macOS, licensed under GPL-3.0. The on-premise deployment is implicit with a Python framework, offering good control.
- **Strengths**: Easily extracts entities from messages and features its own web GUI for testing. It is inherently multilingual and claims not to require extensive training, as the AI already possesses linguistic understanding common to human languages. Configuration focuses on describing expected elements and providing business-specific vocabulary.
- **Weaknesses**: The "no training needed" claim might limit deep customization for highly specific or niche domain understanding compared to data-intensive NLU engines.
- **Use Cases**: Chatbots for Messenger and Telegram where rapid deployment and multilingual support are key, without extensive data training.

4. Security Considerations for AI Agents

Building AI agents for highly secure use cases necessitates a proactive and comprehensive approach to security. This involves addressing potential vulnerabilities, ensuring data integrity, and adhering to regulatory compliance.

4.1. Data Privacy and Confidentiality

A paramount concern in secure AI agent deployment is preventing the unauthorized leakage of sensitive data. Many organizations prohibit or restrict the use of cloud-based AI services like ChatGPT due to intellectual property risks and fear of proprietary data being inadvertently sent to third-party services.

- **Mitigation**: Prioritize on-premise or private cloud deployments for open-source frameworks (e.g., Rasa, Tock, DeepPavlov) to keep data within controlled boundaries. Implement robust data anonymization and encryption for any data processed by external LLMs or tools.
- **Governance**: Establish clear policies on data handling, mandating what types of data can be processed by AI agents and under what conditions.

4.2. Hallucination Prevention and Reliability

LLMs have a tendency to "hallucinate" or "confabulate," meaning they generate false or made-up facts. In secure contexts, such as medical advice or financial reporting, this unpredictability can be disastrous.

- **Mitigation through Fine-Tuning**: Train the LLM to recognize when it doesn't know an answer, rather than guessing. This can be achieved by fine-tuning the model with training data that includes explicit "yes/no" or "none found" responses for specific queries. Setting the LLM's "temperature" parameter to zero makes its output more deterministic and less creative, which is desirable for factual question-answering.

Example Code Concept (Python/JSONL for Fine-Tuning):
{"prompt": "The following is a patient chart: [MEDICAL_TEXT]\n\nWas a diagnosis given? Yes or No.\n\nCompletion: Yes"}
{"prompt": "The following is a patient chart: [MEDICAL_TEXT]\n\nWhat is the diagnosis?\n\nCompletion: Mesothelioma"}
{"prompt": "The following is a patient chart: [MEDICAL_TEXT]\n\nWas a prognosis given? Yes or No.\n\nCompletion: No"}
{"prompt": "The following is a patient chart: [MEDICAL_TEXT]\n\nWhat is the prognosis?\n\nCompletion: None found"}

    - This approach teaches the model to first determine if information exists (boolean check) and then, if it does, to list it, otherwise explicitly state "None found," preventing confabulation.
- **Human-in-the-Loop (HITL)**: For mission-critical tasks, incorporate human oversight or approval mechanisms, especially when an agent's confidence in a decision is low or the stakes are high.

4.3. Compliance and Governance

Organizations must adhere to a complex web of national and international regulations (e.g., GDPR, HIPAA). AI agents must comply with these standards.

- **Audit Logs**: Implement comprehensive logging of all agent decisions and actions for audit purposes.
- **Permission Controls**: Utilize Identity and Access Management (IAM) for role-based control over agent actions, ensuring only authorized personnel can configure or interact with sensitive agent functionalities.
- **Data Lineage and Quality**: Embed data quality checks within integration pipelines, build enterprise-wide metadata catalogs, and use master data management (MDM) to merge duplicate records. This ensures AI/ML models operate on high-quality, auditable data.

4.4. Secure Tool Integration and Sandboxing

Autonomous agents can pose security risks if not properly sandboxed or if their tools interact with systems in an unconstrained manner.

- **API Security**: When integrating tools via APIs, manage evolving schemas, implement diverse authentication methods, handle rate limits, and ensure robust error handling and retry logic.
- **Sandboxing**: Deploy agents in isolated environments to limit their access to critical systems and data, mitigating the impact of potential vulnerabilities. Additional security layers may be required on top of agent platforms.
- **Prompt Engineering for Tool Use**: Clearly define in prompts *when* and *how* an agent should use a tool, including any constraints or conditions. Schemas provided to the agent should be precise manuals for tool use.

4.5. On-Premise Deployment

For the highest level of security, deploying open-source AI agent frameworks (like Rasa, DeepPavlov, Tock, self-hosted n8n) on-premises or in a private cloud environment is often preferred. This ensures that all data processing and storage occur within the organization's existing secure infrastructure, minimizing reliance on external vendors and their security practices.

5. Published Use Cases (Open-Source Focused)

AI agents powered by open-source frameworks are being leveraged across various industries, often customized for secure and specific needs.

- **Domain-Specific Customer Support**: Chatbots can provide automated assistance in specialized fields. For example, a medical chatbot could answer patient queries based on internal, secure medical texts, reducing the risk of hallucination through fine-tuning. A financial institution could use an on-premise agent to handle customer inquiries, ensuring data privacy.
- **Automated Lead Qualification**: In sales and marketing, agents can research and qualify new leads by searching public information and internal CRMs, and then notify sales representatives. With n8n, such an agent can be configured to use internal data and external APIs securely, classifying leads based on predefined criteria and sending automated emails or notifications.
- **Internal Knowledge Bots**: Organizations can deploy agents to serve as internal assistants, providing employees with quick access to company policies, HR information, or IT support documentation. By using frameworks like DeepPavlov or Rasa with a secure internal knowledge base, these agents ensure employees get accurate information without exposing sensitive data externally.
- **Research Agents**: Automated research agents can gather and summarize information from diverse sources, such as market data, legal documents, or cybersecurity intelligence feeds. Using CrewAI, a multi-agent system could have specialized agents for data collection, analysis, and summarization, operating within a controlled environment

to ensure the integrity and security of the research. For cybersecurity, agents can be built to monitor SIEMs (Security Information and Event Management) and generate reports.

- **Coding Agents**: Open-source tools like CursorAI combined with CrewAI allow developers to prompt AI to write code, build applications, or automate development tasks. This can be particularly useful in secure development environments where code quality and adherence to internal standards are critical.
- **Voice AI Assistants**: Beyond text, agents can be deployed as voice assistants for customer support or internal operations. Platforms like Tock or Voiceflow (though Voiceflow has paid tiers, the underlying principles apply) can integrate with telephony services to provide voice-based interactions while processing sensitive information securely, especially if the core NLU is open-source and on-premise.

Addendum: Additional Guidance for Advanced Paid Services

While open-source solutions offer immense control and flexibility, advanced paid services provide enterprise-grade features, managed infrastructure, and specialized support, often simplifying deployment and scaling for complex, high-volume, and highly regulated environments.

A. Google Vertex AI Agent Engine

Vertex AI Agent Engine (formerly LangChain on Vertex AI or Vertex AI Reasoning Engine) is a suite of services offered by Google Cloud for deploying, managing, and scaling AI agents in production.

- **Advanced Security Features**:
    - **VPC Service Controls (VPC-SC)**: Supports VPC-SC to strengthen data security and mitigate data exfiltration risks. When configured, it effectively blocks public internet access, confining data movement to authorized network boundaries, and retaining secure access to Google APIs and services (e.g., BigQuery API, Cloud SQL Admin API, Vertex AI API).
    - **Authentication and IAM**: Provides robust authentication and Identity and Access Management for fine-grained access control.
    - **Observability**: Offers built-in support for Google Cloud Trace (OpenTelemetry), Cloud Monitoring, and Cloud Logging to understand agent behavior and debug issues.
- **Capabilities**: Provides a managed runtime for deploying and scaling agents, context management (sessions for conversational context, Example Store for few-shot examples), and integrated Gen AI Evaluation for quality assessment.
- **Supported Frameworks**: Supports various Python frameworks like Agent Development Kit (ADK), LangChain, LangGraph (full integration), AG2, LlamaIndex (SDK integration), and CrewAI (custom templates).

- **Deployment**: Offers an Agent Starter Pack with production-ready templates (ReAct, RAG, multi-agent), an interactive playground, automated infrastructure (Terraform), and CI/CD pipelines (Cloud Build).
- **Use Cases**: Building agents that connect to public APIs (e.g., currency exchange, Google Maps API), databases (AlloyDB, Cloud SQL for PostgreSQL), and various structured/graph/vector datastores.

B. Cohere

Cohere provides enterprise AI solutions focusing on secure and scalable deployments. While details on specific security features like VPC-SC are not explicitly provided in the excerpts, enterprise offerings typically include such controls.

- **Capabilities**: Focuses on building generative AI agents. Provides tools for tasks like embedding and classification for recommender systems.
- **Strengths**: Designed for enterprise-scale AI, offering scalability and security tailored for business needs.
- **Use Cases**: Generative AI applications, article recommenders, advanced content understanding, and generation in enterprise settings.

C. LiveChatAI

LiveChatAI is an AI agent builder for customer support, designed for businesses to create intelligent, responsive agents without coding.

- **Capabilities**: Transforms chatbots into true AI agents by enabling "AI Actions" such as fetching order statuses, sending emails, posting data to CRMs, and showing real-time updates. These actions are triggered via webhooks, Make.com, Zapier, or OpenAPI.
- **Features for Secure Use**: Multilingual support (95+ languages), live agent handoff to human support, 24/7 availability, powerful analytics, custom data training, visitor identification, and user data collection (names, emails, phone numbers). It also features long-term memory for context across conversations and weekly site sync to keep knowledge bases current.
- **Ease of Use**: No coding required to set up and embed the agent on a website.
- **Use Cases**: Customer support, lead generation, order tracking, booking appointments, FAQ answering.

D. HubSpot

HubSpot offers a free chatbot creation tool with advanced features available in its paid offers, suitable for businesses looking for integrated sales, marketing, and customer service solutions.

- **Capabilities**: Visual editor, ready-to-use templates for creating conversational bots on websites or Facebook Messenger without code. Personalizes chatbot responses using CRM data, qualifies leads, automates appointment scheduling, and integrates FAQ answers for 24/7 support.

- **Integration**: Seamlessly integrates with HubSpot's CRM ecosystem.
- **Strengths**: User-centric approach, intuitive, reduces workload for support teams.
- **Use Cases**: Lead qualification, automated appointment scheduling, 24/7 customer support, email campaign triggering.

E. OpenText

OpenText specializes in enterprise information management, facing significant challenges in securing sensitive information and complying with increasing regulations, especially with the integration of AI.

- **Challenges**: Large organizations using OpenText deal with legacy systems, pervasive data silos, massive data volumes, and complex compliance requirements (e.g., GDPR, HIPAA). They face difficulties securing sensitive information and integrating data from APIs due to evolving schemas, diverse authentication, and rate limits.
- **Capabilities**: Offers solutions for managing structured and unstructured data, software development, and IT operations. Used by large enterprises in finance, healthcare, government, telecommunications, and manufacturing to manage extensive testing processes, support legacy systems, and ensure compliance. Provides integration capabilities with SAP, Salesforce, and Microsoft.
- **Limitations (Security/Integration)**: Users report issues with outdated documentation, limited automation, and integration capabilities. Support responsiveness can be slow, and the complexity of its UI and architecture can be challenging for some users.
- **Mitigation for Data Integration**: To overcome integration challenges with legacy systems and diverse data sources, modern data integration platforms with AI capabilities, built-in data quality features, and native connectors are essential.

6. Conclusion

The landscape of AI agent development is rapidly evolving, offering unprecedented opportunities for automation and efficiency across various domains. For University students aiming to build working AI agents, especially for highly secure use cases, a deep understanding of both open-source frameworks and advanced paid services is essential.

Open-source solutions like Rasa, DeepPavlov, Tock, n8n, CrewAI, and the LangChain ecosystem provide the transparency and control necessary for secure, on-premise deployments, allowing full auditability and customization of the underlying code and data flows. These platforms empower developers to implement robust security measures, including stringent data privacy protocols, effective hallucination prevention through fine-tuning, and comprehensive compliance mechanisms.

Meanwhile, advanced paid services such as Google Vertex AI Agent Engine, Cohere, LiveChatAI, HubSpot, and OpenText offer managed infrastructure, enterprise-grade security controls (like VPC-SC), and specialized support, simplifying deployment and scaling for complex, high-volume applications in regulated industries.

Ultimately, the choice between open-source and proprietary solutions, or a hybrid approach, depends on the specific use case, available resources, and the required level of control and scalability. By mastering the fundamentals of AI agents, understanding their components, and prioritizing security considerations, students can build powerful, reliable, and secure AI agents that contribute significantly to real-world outcomes. The continuous evolution of this field demands ongoing learning and adaptation to new tools and best practices to stay at the forefront of AI innovation.

7. Citation Section

- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Lists Botpress's integrations, LLM providers, solutions, and use cases, including WhatsApp, Instagram, Messenger, Slack, HubSpot, Notion, Jira, Calendly, OpenAI, Anthropic, Groq, Hugging Face, Ecommerce, Education, Finance, Hospitality, Sales, Engineering, Product, ITSM, Shopping Assistant, Lead Generation, Employee Experience, and Ticket Management.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Introduces the article about top open-source chatbot platforms in 2025 and emphasizes that the best choice depends on specific building needs like experience, coding language, capabilities, and use case.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Defines open-source chatbots as messaging applications that mimic human conversation, with freely distributed and modifiable code, promoting transparency, efficiency, and control.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Describes Botpress as an open-source conversational AI software supporting many NLU libraries, designed for building chatbots with visual flows and minimal training data to reduce development costs.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Details Botpress's visual conversation builder, emulator, JavaScript code editor, NLU module for intents, entities, and slots, and integrations with popular messaging services, highlighting its developer-centric design with collaboration features.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Notes that Microsoft Bot Framework (MBF) is an open-source platform primarily code-driven and aimed at developers, offering fine-grained control and numerous functions and connectors.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Explains that MBF offers extensive tools but is not entirely open-source due to its proprietary NLU engine, Luis, which cannot be installed on-prem and is a paid service.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: States that Botkit is now part of the Microsoft Bot Framework, is code-centric, and provides a base for developers in multiple programming languages.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Highlights Botkit's numerous plugins for chat platforms, recent visual conversation

builder for non-coders, and its use of Luis as an NLU engine, with integration possibilities for other NLU engines.

- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Describes Rasa as an open-source bot-building framework focused on a "story approach" for training chatbots, known for its open-source NLU engine and on-premises deployment.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Notes that Rasa works best with large training datasets, often from customer service chat logs, and that its story approach can make bot responses unpredictable due to the "black box" nature of its underlying logic.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Introduces Wit.ai as an open-source chatbot framework acquired by Facebook, offering a well-documented API and easy deployment on Facebook Messenger.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Highlights Wit.ai's robust NLP engine comparable to competitors, SDK availability in multiple languages (Python, Ruby, NodeJS), broad platform integration, and notes the laborious nature of its training due to a lack of slots and parameters.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Describes OpenDialog as an enterprise-scale, open-source conversational AI platform providing efficient deployment, integration, and training, with flexible NLU support and a no-code conversation designer.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Details OpenDialog's features, including real-time STT processes, low memory usage, N-best/Word-graph output, server unit capability, and its no-code approach for building conversational applications without prior coding experience.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: States that OpenDialog is a no-code platform written in PHP, compatible with Linux, Windows, macOS, and licensed under the Apache License, Version 2.0.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Presents Botonic as a React framework for building conversational apps with full-stack serverless solutions, enabling chatbots and modern conversational apps across web, mobile, and messaging platforms (Messenger, Whatsapp, Telegram).
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Introduces HubSpot's free chatbot creation tool, allowing code-free bot creation with an intuitive visual editor and templates, seamlessly integrating with HubSpot's CRM ecosystem for personalized responses.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Lists key features of the HubSpot chatbot, including live communication, lead qualification, automated appointment scheduling, 24/7 FAQ support, lead scoring, and mentions a free version with advanced features in paid offers.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Describes Claudia Bot Builder as an extension library for Claudia.js, designed to simplify bot creation for multiple messaging platforms by removing boilerplate code and automating infrastructure tasks.

- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Explains that Claudia Bot Builder simplifies messaging workflows by converting incoming messages into a common format and automatically packaging text responses, operating under the MIT License.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Describes Tock as an open-source conversational AI platform that's a complete solution for building agents and bots, featuring stories, analytics, conversational DSLs for various languages, connections to numerous text/voice channels, and on-premise deployment with Docker under the Apache License, Version 2.0.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Introduces BotMan as a free, framework-agnostic PHP framework for chatbot development, simplifying bot creation for multiple messaging platforms with expressive syntax and full documentation under the MIT License.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Presents Bottender as a framework for building conversational user interfaces on Messaging APIs, optimized for real-world use cases with easy setup, automatic batching, and intuitive APIs, making code predictable and debuggable.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Highlights Bottender's minimal configuration for channel integration, automatic server listening, webhook setup, and signature verification, supporting app creation across every channel without compromising user experience.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Describes DeepPavlov as an open-source conversational AI framework for deep learning, end-to-end dialogue systems, and chatbots, enabling both beginners and experts to create production-ready conversational skills and multi-skill assistants.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Details DeepPavlov's capabilities, including the use of state-of-the-art deep learning models (like BERT) for NLP tasks, multi-skill integration via API services (DeepPavlov Agent), and easy deployment in containers on Nvidia NGC and Docker Hub, written in Python under the Apache 2.0 license.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Introduces Golem as a Python framework for building chatbots, featuring entity extraction, a web GUI for testing, and a linguistic universal approach to language analysis that requires no training and is easily multilingual.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: States that Golem is written in Python, works on Linux, Windows, and macOS, and is licensed under GPL-3.0 License.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Advises understanding planned usage and required functionalities before choosing open-source chatbot software, recommending experimentation with products and visiting forums for guidance.
- ** Excerpts from "14 Best Open Source Chatbot Platforms to Use in 2025 - Botpress"**: Provides additional resources, including articles on AI agent implementation blueprints, common chatbot mistakes, and a guide to AI in customer service.

- ** Excerpts from "AI Agent End-to-End Workshop"**: A Google Share link to an "AI Agent End to End - Workshop."
- ** Excerpts from "AI Revolutionizes Automation: Eliminating Workflow Errors"**: A Flip.it link to an article about n8n MCP allowing AI to create entire automations, aiming to eliminate workflow errors.
- ** Excerpts from "AI-Tutorial-Codes-Included/graphagent_gemini_advanced_tutorial_Marktechpost.ipynb at main · Marktechpost/AI-Tutorial-Codes-Included · GitHub"**: GitHub navigation menu with features like Copilot, Spark, Models, Advanced Security, Actions, Codespaces, Issues, Code Review, Discussions, and Code Search.
- ** Excerpts from "AI-Tutorial-Codes-Included/graphagent_gemini_advanced_tutorial_Marktechpost.ipynb at main · Marktechpost/AI-Tutorial-Codes-Included · GitHub"**: GitHub exploration options by company size, use case, industry, and topics, including AI, DevOps, Security, and Software Development.
- ** Excerpts from "AI-Tutorial-Codes-Included/graphagent_gemini_advanced_tutorial_Marktechpost.ipynb at main · Marktechpost/AI-Tutorial-Codes-Included · GitHub"**: GitHub repository options, available add-ons (Advanced Security, Copilot for business, Premium Support), and pricing information.
- ** Excerpts from "AI-Tutorial-Codes-Included/graphagent_gemini_advanced_tutorial_Marktechpost.ipynb at main · Marktechpost/AI-Tutorial-Codes-Included · GitHub"**: GitHub repository details for "Marktechpost / AI-Tutorial-Codes-Included," including notifications, forks (108), and stars (555).
- ** Excerpts from "Agent Factory: Building Your First AI Agent"**: A Microsoft Azure Blog link to "Agent Factory: Building your first AI agent with the tools to deliver real-world outcomes."
- ** Excerpts from "Article Recommender: Embedding & Classification"**: A Cohere share link to "Article Recommender via Embedding & Classification."
- ** Excerpts from "Building AI Assistants with Cursor AI"**: A Flip.it link to "Build Your Own AI Assistant an Local AI Agent Quickly with Cursor AI (No Code)."
- ** Excerpts from "Building Your Own AI Assistant: A 2025 Guide"**: A Flip.it link to "Easily Build Your Own AI Assistant From Scratch : Full Guide for 2025."
- ** Excerpts from "Building a Coding Agent with GitHub"**: A GitHub share link to "GitHub - ghuntley/how-to-build-a-coding-agent at ghuntley.com."
- ** Excerpts from "Building a Coding Agent: Free Workshop"**: A Google Share link to "how to build a coding agent: free workshop."
- ** Excerpts from "Building a Generative AI Agent with Cohere"**: A Cohere share link to "Building a Generative AI Agent with Cohere."
- ** Excerpts from "Building an AI Agent From Scratch"**: A Google Share link to "How to Build an AI Agent from Scratch?"
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Title and publishing details for

the research paper "Chatbot Performance Evaluation" in the International Journal of Advanced Research in Science, Communication and Technology (IJARSCT).

- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Abstract for the research paper, defining chatbots as intelligent conversational programs mimicking human conversation for automated online assistance, commonly used in customer support.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Continues the abstract, noting that chatbots use AI (NLP and Machine Learning), but face challenges like understanding complex inquiries and potential errors, and overviews AI's role in chatbot development.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Further describes the abstract, discussing challenges and limitations of chatbots, current research trends in NLP, Machine Learning, and UI design, and identifies knowledge gaps in user interaction, context awareness, and response generation.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Concludes the abstract, providing recommendations for future research in chatbot development, including complex user inquiry understanding, new algorithms for context awareness/response generation, and exploration of new user interface designs.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Introduces the research, emphasizing the importance of understanding factors influencing chatbot performance and user experience for optimization, aiming to identify defects and enhance effectiveness.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: States the motivation to evaluate online chatbots and understand how defects impact user experience, noting varying performance metrics across industries (e.g., banking focus on efficiency and cost reduction).
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Acknowledges a gap in research regarding effective chatbot performance metrics and user experience influence, aiming to bridge this through comparative analysis to identify key evaluation criteria.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Continues the explanation of the study's aim, which is to identify key evaluation criteria that reliably assess chatbot performance and understand how user experience can be improved.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Details the primary objective of chatbot performance evaluation: to assess quality and effectiveness in conversing with human users, including understanding inputs, providing accurate information, and

enhancing overall user experience, with insights informing the development of a domain-specific chatbot.

- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: In the literature review, it mentions Karolina Kuligowska's paper, which illustrates the relevance of performance, usability, and quality evaluation for commercial virtual assistants based on 10 factors, including speech synthesis, knowledge base, conversational skills, and content sensitivity.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: In the literature review, it cites Vijayaraghavan V et al.'s research on chatbot performance evaluation strategies, focusing on testing chatbot output with Chattest (120 questions) and algorithm examination (Naive Bayes, SVM, NLP including Grammar, Parsing Algorithms, Statistical Parsing, Verification, and Validation).
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: In the literature review, it refers to Ram G Athreya et al.'s paper on enhancing community interaction with a knowledge graph-driven chatbot (DBpedia Chatbot), describing its internal workings: TF-IDF vectorization, K-means Clustering, rule-based dialogue, query fulfillment, and NLP questions.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: In the literature review, it references Guendalina Caldarini et al.'s survey on recent advancements in chatbot technology, exploring their evolution, current state, challenges, the role of NLP in performance improvement, and future research directions for intelligence and capabilities.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: In the literature review, it cites J. Haun et al.'s systematic review on chatbots in healthcare, which evaluates chatbots using objective measures like response time and user satisfaction, suggesting machine learning for chat log analysis and improvement.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Describes the initial step in evaluating chatbot performance as determining the research design, offering user-based (measuring satisfaction via surveys, interviews, ratings) or task-based (assessing task completion, accuracy, response time) evaluations.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Explains that a user-based evaluation measures user satisfaction and experience, collecting feedback on needs, ease of use, and helpfulness, while a task-based evaluation assesses functional performance through metrics like task completion rate, response accuracy, and response time.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Reiterates that choosing

between user-based and task-based evaluations depends on research goals, with user-based informing design and usability, and task-based identifying functional performance enhancements.

- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Details data collection methods: surveys or questionnaires for user-based evaluation to capture feedback, and recording interactions during specific task assignments for task-based evaluation (monitoring completion, accuracy, response time, challenges).
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Explains that data collection in both evaluation types provides insights into chatbot performance from different perspectives (user satisfaction and task accomplishment), guiding analysis of effectiveness.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Discusses suitable evaluation metrics: user satisfaction, ease of use, and perceived helpfulness for user-based evaluations, measuring content with performance, navigation ease, and valuable assistance.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Continues with evaluation metrics: accuracy, speed, and completion rate for task-based evaluations, gauging correctness, efficiency, and task accomplishment capability of the chatbot.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Explains that appropriate evaluation metrics quantify and analyze chatbot performance from different perspectives (user satisfaction and task performance), providing measurable indicators for effectiveness and guiding future development.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Describes participant selection: demographic/psychographic characteristics for user-based evaluations for a representative sample, and proficiency/skills for task-based evaluations to reflect performance in specific tasks.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Concludes on participant selection, stating that careful choice based on research design ensures relevant and meaningful data, leading to an accurate and comprehensive assessment of chatbot performance.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Details the implementation phase, which involves deploying the chatbot on a suitable platform like Facebook Messenger, Slack, or a website, with the choice depending on the target audience and evaluation context.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Explains that implementing the

chatbot on the chosen platform allows users to interact in real-world or simulated environments, providing insights into its functionality, usability, and user satisfaction, with proper implementation ensuring accessibility.

- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Explains that proper implementation ensures the chatbot is accessible to the intended audience, facilitating a comprehensive evaluation of its performance.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Describes data analysis: descriptive statistics for user-based evaluations (satisfaction, ease of use, helpfulness), inferential statistics for task-based evaluations (accuracy, speed, completion rate), and qualitative methods (sentiment, thematic analysis) for deeper understanding.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Concludes on data analysis, stating that combining quantitative and qualitative techniques yields comprehensive insights for a robust evaluation of chatbot performance.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Discusses study limitations, such as sample size and participant bias, noting their potential impact on generalizability and results, and emphasizing the importance of transparently discussing these limitations.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Addresses ethical considerations, including obtaining informed consent, protecting participant confidentiality, ensuring safety and well-being, and minimizing harm during chatbot interactions.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Describes the results section, where a study was conducted involving interactions with different chatbot models (text and AI avatar based) using domain-specific and general questions, collecting psychophysiological information and questionnaire responses from participants.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Presents a key finding that domain-oriented users preferred simple text chatbots for quick, exact outputs, while non-domain-oriented users favored AI Avatar chatbots (like Replika) for trustworthy, human-like conversations.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Notes that Replika AI stores user personal information for pertinent output, while simple text chatbots struggled with conversations outside their domain.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Discusses automated chatbot testing as a scalable alternative to time-consuming human testing, focusing on two evaluation methods: BLEU (Bi-Lingual Evaluation Understudy) and F-score.

- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Defines BLEU score as a similarity metric (0 to 1) for machine-translated text against high-quality reference translations, and F-score as a metric for information retrieval systems and machine learning models in NLP.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Describes experimentation with popular chatbot algorithms like RNN, CNN, LSTM, and GRU, noting that RNN generally surpasses CNN for chatbots, with LSTM and GRU being components of RNN.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Explains the gate mechanisms in LSTM and GRU networks, with LSTM having an input, forget, and output gate to manage long-term memory, and GRU using update and reset gates to determine information flow and past relevance for the next state.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Emphasizes the importance of tracking conversation history for conversational agents, noting that GRUs are easier and faster to train than LSTMs but may be less suitable for long-term dependencies, concluding that both serve different purposes.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Presents "TABLE 1: Overview of the ratings of each functionality of the commercial Chabot’s on a scale of 1 (very poor) to 5 (very good)," listing chatbots like REPLIKA, Nia, Quinn, Naukri.com, EVA, Domino's, ChatGPT, Dotie, and Alfered with their ratings across various functionalities.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Continues "TABLE 1: Overview of the ratings of each functionality of the commercial Chabot’s on a scale of 1 (very poor) to 5 (very good)," providing overall quality ratings and noting that the ranking is based on research papers.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Concludes the research project, stating its aim to investigate the relationship between chatbot dialogues and performance by identifying automatically measurable parameters and developing six new performance criteria.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Summarizes the research's examination of NLP approaches and algorithms for measuring chatbot performance, comparing questionnaire-based (expert/user feedback on quality of service and experience) and automatic metrics.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Describes the automatic metrics approach, which uses natural language analysis to measure authenticity, confidence, readability, and sentiment, providing objective measures of chatbot

performance (e.g., human-like sound, accurate responses, message clarity, response tone).

- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Identifies six fundamental reasons users avoid internet chatbots: user interface issues, trust factors, effective communication, query misunderstandings, insufficient dataset answers, and language barriers, highlighting important design considerations.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Concludes the research project by emphasizing the significance of evaluating chatbots using multiple performance criteria and automatic metrics for objective assessment, contributing to the advancement of chatbot development and user-friendly systems.
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Lists references through for the research paper, including "Commercial Chatbot Performance Evaluation," "Algorithm Inspection for Chatbot Performance Evaluation," "Enhancing community interaction with data driven chatbot," and "In bot we trust: A new methodology of chatbot performance measures."
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Lists references through for the research paper, including "A Literature Survey of Recent Advances in Chatbots," "Open Data Chatbot: Towards Linked Open Data Conversational Interfaces," "The Impact of Chatbots in Healthcare Processes: A Systematic Review," and "Unsupervised Context Rewriting for Open Domain Conversation."
- ** Excerpts from "Chatbot Performance Evaluation - International Journal of Advanced Research in Science, Communication and Technology"**: Lists references through for the research paper, including "A longitudinal study of human–chatbot relationships," "SLA as a mechanism to manage risks related to chatbot services," "Chappie, A Semi-Automatic Intelligent Chatbot," and "How to Make chatbots productive– A user-oriented implementation framework."
- ** Excerpts from "Closing the Agentic Loop with PulseMCP"**: A Google Share link to "The Killer MCP Use Case: Closing The Agentic Loop | PulseMCP."
- ** Excerpts from "Cohere: Enterprise AI Pricing & Scalability"**: A Cohere share link to their "Pricing | Secure and Scalable Enterprise AI" page.
- ** Excerpts from "Colab Tutorial Part 7"**: A Google Share link to a Colab notebook titled "tutorial_pt7_v2.ipynb."
- ** Excerpts from "Curbing AI Hallucinations in OpenAI APIs"**: An OpenAI Developer Community link to "How to prevent Open AI from making up an answer - API."
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Introduces Astera AI Agent Builder, highlighting its upcoming release, ability to design and launch intelligent AI agents with a drag-and-drop visual builder, and various solutions and use cases across industries.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Discusses the growing data integration challenges faced by organizations

due to inconsistent data formats, evolving sources, and slow processes, especially in the context of AI-driven fast-paced environments.

- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Details data integration challenges for medium-sized organizations, including a growing number of diverse systems, the need for automated workflows (often lacking in-house expertise), and emerging data governance issues leading to distrust in data.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Describes data integration challenges for large organizations (enterprises), stemming from legacy systems, pervasive data silos, massive data volume and variety, and complex compliance and security regulations (GDPR, HIPAA).
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Discusses the challenges of integrating data from APIs, including managing evolving schemas, diverse authentication methods, error handling, data consistency, and adhering to varying rate limits and versioning changes.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Provides strategies to overcome API integration challenges: establishing a centralized connector framework, fetching only changed data to reduce strain, and designing integrations to retry temporary errors and flag persistent ones.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Highlights managing data quality during integration as a significant challenge for AI and analytics initiatives, emphasizing the need to define "good" data quality and addressing pitfalls like transformation logic errors, mismatched schemas, and duplicate records.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Offers solutions for managing data quality during integration: storing incoming data in a reliable "landing zone," designing idempotent processing steps, implementing checkpointing, including dynamic branching logic, and using modern data pipeline tools to quarantine corrupt records.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Focuses on preparing and integrating data for AI and ML, highlighting the challenge of mapping, transforming, and reconciling data from various sources (operational systems, logs, cloud storage, SaaS) due to varying structures and formats.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Outlines strategies to overcome data integration challenges for AI: embedding data quality checks, using integration platforms with AI data mapping, building an enterprise-wide metadata catalog, and employing master data management to merge duplicate records.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Provides guidance on choosing the right data integration platform: understanding business needs (ETL, ELT, API, hybrid), evaluating vendor support and ecosystem fit, checking support for specific data sources/destinations, prioritizing ease of use and AI automation, and looking for built-in monitoring, error handling, and data lineage.

- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Introduces Astera Data Pipeline Builder as an end-to-end data integration platform with AI capabilities, offering a unified platform for various integration techniques (ETL, ELT, CDC, API), user-friendly UI with AI automation, built-in data quality, parallel processing, pre-built transformations, handling source data structure changes, and native connectors.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Addresses frequently asked questions about data integration: clarifying it as both a technical and business issue, listing common problems (unclear goals, poor data quality, weak governance), discussing enterprise challenges in 2025 (distributed data, regulatory scrutiny), and recommending modern AI-driven platforms.
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Lists related blog posts by Khurram Haider, including "Top 15 Data Integration Tools & Software for 2025," "10 Best Data Management Tools, Software, and Platforms (DMPs) in 2025," and "15 Best ETL Tools in 2025 for Scalable Data Integration."
- ** Excerpts from "Data Integration Challenges and How to Overcome Them - Astera Software"**: Copyright information for Astera Software, dated 2025, including links to Privacy Policy, Terms of Use, and Site Map.
- ** Excerpts from "Data Management Challenges with Stephen McNulty at OpenText World 2024"**: Highlights rising data management challenges due to unstructured data, difficulties in securing sensitive information with AI, security risks from unencrypted data, increasing regulations, and the need for clear problem definitions and AI output validation.
- ** Excerpts from "Data Management Challenges with Stephen McNulty at OpenText World 2024"**: Provides details about a video discussing data management challenges with Stephen McNulty at OpenText World 2024, focusing on AI, data management, and security, and includes copyright information for Techstrong Group, Inc.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Discusses the problem of GPT-3 "making stuff up" (hallucination or confabulation) when asked about patient data, proposing to train GPT-3 to recognize when it lacks information, similar to human brain signals.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Details the process of preparing medical texts for fine-tuning GPT-3, explaining prompt engineering to break down tasks (e.g., "was a medication prescribed? yes or no," "list medications prescribed") and turning the temperature down to zero for deterministic output.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Explains how GPT-3, when given a specific prompt, can accurately identify prescribed medications or prognoses, but notes that prompt variations can yield different

results and that a temperature of zero makes the model deterministic and reliable for yes/no answers.

- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Emphasizes that fine-tuning helps GPT-3 overcome its tendency to confabulate (like a neurological disorder) by training it in "information literacy" or "theory of mind," making it less creative and more consistent for question-answering, by breaking problems into multiple cognitive tasks.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Illustrates how to structure prompts for fine-tuning by breaking down problems into boolean (yes/no) and list tasks for medications and prognoses, aiming for a single, consolidated output after fine-tuning.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Continues to detail the fine-tuning process by creating boolean and list prompts for diagnosis and medical tests, emphasizing the challenge of working with real-world data compared to synthetic datasets.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Shows a mock-up of the desired JSONL format for fine-tuning data, where the completion is either "none found" or a "list of medications," consolidating boolean and list answers.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Describes the Python script's functions for opening/saving files, handling GPT-3 completion (stripping excess and logging), and accumulating data for the final output, particularly for boolean answers where "no" results in "done."
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Explains the use of a distinct all-caps demarcator (e.g., "DIAGNOSIS") in prompts to clearly signal the end of input and the start of the desired output, making the prompt more unique for multi-task fine-tuning.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce halluculation)" uploaded on the YouTube channel "David Shapiro"**: Details the script's logic: if a boolean answer is "no," the data is appended; if "yes," a new prompt is generated (e.g., changing "bool" to "list" in the filename) to get the specific list answer, with the LLM temperature set to zero for deterministic results.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Details the debugging process, including printing variables to identify issues and correcting a mistake where the `file_name` variable was not re-initialized within a loop, leading to incorrect prompt generation.

- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Continues the debugging and data generation process, explaining that the script randomly picks medical texts for 50 iterations for each of the four prompts, aiming for 200 distinct samples to train GPT-3 more effectively by forcing it to think harder with varied contexts and questions.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Discusses fixing a critical mistake where `json` was not imported and data was not saved iteratively, then demonstrates the successful generation of 199 samples, noting that some errors in training data can be smoothed out by a large number of other examples.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Shows the final formatted `medical.jsonl` data with examples of "none found" completions and explains that even with some errors, a large dataset helps smooth out inconsistencies, before proceeding with fine-tuning on a cheaper model (Curie).
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Tests the fine-tuned model (on Curie) with random medical contexts for medication, tests, diagnosis, and prognosis, noting that it shows only mild success with repetitive outputs and concluding that Curie might be too complex for the task without more training data or a more powerful model like Davinci.
- ** Excerpts from the transcript of the video "Finetune multiple cognitive tasks with GPT-3 on medical texts (and reduce hallucination)" uploaded on the YouTube channel "David Shapiro"**: Concludes the fine-tuning experiment, stating that the Curie model was not sufficient for the task and suggesting that more training data and/or using Davinci would yield better results, encouraging the audience to try it themselves with the provided scripts.
- ** Excerpts from "Gemini AI Agent with MCP-Agent Framework"**: A MarkTechPost share link to "Building an MCP-Powered AI Agent with Gemini and mcp-agent Framework: A Step-by-Step Implementation Guide."
- ** Excerpts from "Google AI: 5 New Agents for Developers"**: A Flip.it link to an article about "Google AI Released 5 New AI Agents/Platforms for Developers."
- ** Excerpts from "Help Needed with Integration Issues in OpenText"**: A forum post by Thomas Elis asking for help with authentication and authorization issues during OpenText Intelligent Viewing and Content Server integration, listing troubleshooting steps already taken.
- ** Excerpts from "Help Needed with Integration Issues in OpenText"**: An accepted answer from "appuq" on OpenText forums, providing a detailed 15-step troubleshooting guide for integration issues, specifically for OpenText Directory Services (OTDS) and OpenText Intelligent Viewing (OTIV) with Content Server (OTCS).

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Liam Ottley's introduction to his course on building and monetizing AI agents, sharing his journey from no prior AI experience to generating over $5 million in revenue, emphasizing the value of this skill for entrepreneurs and employees.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Discusses Liam Ottley's background, including his AI automation agency Morningside AI, his AI agent SaaS platform Agentive, and his large AI business community, highlighting the massive opportunity in AI despite predictions of job automation.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Emphasizes the enormous opportunity for those with AI skills, as 66% of employers plan to hire AI-literate talent, and encourages viewers to achieve AI literacy to empower themselves rather than be replaced.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Defines an AI agent as a "digital worker that can understand instructions and take actions in order to complete tasks," differentiating them from basic chatbots by their ability to take action (e.g., booking appointments, updating CRMs).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains that an AI agent needs five key parts to work: a "brain" (Large Language Model or LLM like GPT, Claude, Gemini), which acts as a super smart intern understanding instructions.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes the other key components of an AI agent: prompting (instructions for behavior), memory (remembering conversations and tasks), and external knowledge (additional company-specific data beyond the LLM's pre-training).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Identifies tools as the most important part that transforms an AI agent from just chatting to actively getting things done (e.g., checking real-time data, updating databases, sending messages), similar to giving a digital employee access to software.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains that AI agents use APIs (Application Programming Interfaces) to interact with the internet and other software, just like humans use browsers to send requests and receive responses, highlighting GET and POST requests.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Further explains APIs as "waiters" that take requests to servers and bring back responses, distinguishing between GET requests (asking for information) and POST requests (sending information).

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Details how a tool is made: first a function (e.g., text capitalization), then wrapped in an API to make it accessible over the internet, expecting specific inputs and providing outputs.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Introduces schemas as one-page instruction manuals for APIs, allowing AI agents to understand what a tool does, its inputs, and outputs, enabling intelligent use of tools by modern AI models like ChatGPT.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Illustrates how an AI agent uses a schema to capitalize text: it identifies the tool, extracts the necessary input from the user's message, sends it to the API, receives the raw JSON response, and then uses the LLM to transform it into a natural language answer.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Emphasizes that the real power of AI agents is unleashed when they are given multiple tools and the ability to use them together to achieve complex goals, breaking down tasks like a human would.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains how powerful reasoning models (like OpenAI's 01 and 03) enable agents to plan, take actions, reflect, and replan, tackling multi-step tasks and even allowing multiple specialized agents to work collaboratively towards a common goal.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Categorizes AI agents into conversational (human interaction via chat, phone, DMs) and automated (triggered by events like emails or form submissions, working in the background).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Further distinguishes automated agents as those triggered by non-human inputs (e.g., new emails, form submissions, schedules) and working in the background, opening up vast business use cases.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Discusses real-world AI agent use cases, categorizing them into personal assistants (likely dominated by big tech), co-pilots for specific business roles (e.g., customer support co-pilot with knowledge base and tools), and lead generation/appointment setting agents.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Details more real-world AI agent use cases: lead generation and appointment setting (on websites, WhatsApp, Instagram, phone) for instant answers and booking, and research agents for

automatically qualifying leads and providing sales teams with detailed briefs and strategies.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Summarizes the foundational knowledge required for building AI agents and provides calls to action for business owners (Morningside AI services), job seekers (Morningside AI hiring), and viewers (liking, subscribing, sharing the video).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Introduces the second chapter on building AI agents, outlining four no-code tutorials across different platforms: a sales co-pilot with Relevance AI, an automated lead qualification agent with n8n, a website/phone-based lead generation agent with Voiceflow, and a WhatsApp agent with Agentive.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes the approach for the building tutorials, where the instructor will demonstrate the process step-by-step, explaining thought processes and concepts, and providing Figma boards and templates for learners to follow along or use directly.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Details the first AI agent build: a sales co-pilot with Relevance AI for "Big Boy Recruits" (a hypothetical recruitment firm), involving three custom research tools (company researcher, prospect researcher, pre-call report generator) to help sales reps prepare for calls.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains the functionality of the three custom tools for the sales co-pilot: company researcher (scrapes company URL for summary), prospect researcher (scrapes LinkedIn URL for person summary), and pre-call report generator (combines summaries to create a personalized sales strategy).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Guides on starting with Relevance AI, creating a new "research company" tool, defining its description (takes company URL, scrapes, returns AI-generated summary), and setting up the input field for the company URL with required HTTPS format.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Continues the Relevance AI tool creation, explaining the initial use of "extract website content" step, then showing a more advanced approach using Firecrawl web scraper to crawl multiple subpages for more comprehensive data.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Details setting up Firecrawl for web scraping, including getting an API key, configuring it in Relevance AI settings, and using it to crawl multiple pages (e.g., 5 pages) to extract main content, yielding richer data than simple website content extraction.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Guides on obtaining and integrating a Firecrawl API key into Relevance AI for enhanced web scraping, emphasizing that the instructor is sharing tools he uses and likes, not sponsored content.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes the process of integrating the Firecrawl API key into Relevance AI and configuring the web scraping step to crawl subpages, extract main content, and set a page limit (e.g., five pages) to get comprehensive website data.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains creating an LLM step for the "research company" tool to generate a 300-word natural language summary of website content, outlining key areas (overview, products, team) helpful for a sales rep, using GPT-4o Mini and integrating an OpenAI API key.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates the successful output of the company research tool (summary of Morningside AI) and highlights Relevance AI's "use" section for sharing tools, emphasizing its value for content repurposing and sharing with clients.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Moves to creating the second tool, "prospect researcher," which takes a LinkedIn URL, scrapes the profile, and generates a summary, utilizing Relevance AI's LinkedIn integration for user profiles.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Continues with the prospect researcher tool, showing the output of a LinkedIn profile scrape (Liam Ottley's about section, company, experience), suggesting an additional step to scrape LinkedIn posts for updated information, and then creating an LLM step with a pre-written prompt to summarize the data using GPT-4o Mini.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes creating the third tool, "pre-call report tool," which takes company and prospect summaries as long text inputs and uses an LLM step with a detailed prompt (developed using a "perfect prompt" tool) to generate a strategic pre-call report for Big Boy Recruits sales reps, suggesting GPT-3.5 or smarter models.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains the "perfect prompt" writing tool used to generate the detailed pre-call report prompt, emphasizing its research-backed techniques and ability to create high-performing prompts by incorporating context, examples, and specific instructions for AI agents.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates running the pre-call report tool with inputs about Liam Ottley and Morningside AI,

showing the generated report with key business challenges, prospect analysis, strategic talking points, and anticipated objections, linking its value to increased sales conversion rates.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Proceeds to build the sales co-pilot agent in Relevance AI, giving it core instructions (using an "AI agent perfect prompt generator"), defining its role, task, and explicitly listing the three research tools it has access to, and selecting GPT-4o Mini for fast responses.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Configures the tools within the Relevance AI agent, setting them to "auto run" and adding quick descriptions for their usage, then tests the agent by simulating a sales call scenario and observing its debug output as it sequentially uses the research tools to generate a pre-call report.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Presents the comprehensive pre-call report generated by the sales co-pilot agent, including an analysis of Morningside AI's challenges and Liam Ottley's profile, and discusses how the finished agent can be shared via a chat UI for clients or internal teams.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Introduces AI agent build number two: an n8n-based inbound lead qualification agent, an automated agent triggered by form submissions, designed to research, qualify leads based on criteria, and send notifications or disqualification emails, aiming to automate human-style research at scale.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes the workflow of the automated lead qualification agent: a form submission triggers research using a Relevance AI tool, the agent then determines qualification based on criteria, triggering either a "qualified lead" workflow for sales notification or an email for disqualified leads.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Guides on setting up n8n.io, creating a new workflow starting with a "Form Event" trigger (e.g., "work with us" form with first name, company website, inquiry), testing the form submission, and confirming data output.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains how to integrate the Relevance AI company researcher tool into n8n using an HTTP POST request, copying the API endpoint and request body from Relevance AI, and configuring it in n8n to dynamically inject the company URL from the form submission.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner's Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates successfully testing the HTTP request in n8n, confirming that the company summary

from Relevance AI is received, and clarifies the structure of the JSON request body for the POST request, which passes project ID and parameters (company URL).

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Proceeds to set up the n8n agent, selecting "tools agent" and configuring the chat model (brain) with OpenAI (e.g., GPT-3.5 or GPT-4), noting the agent's memory is mostly built-in, and tools/knowledge bases are connected separately.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains setting up OpenAI credentials in n8n for the agent's chat model (using GPT-3.5/GPT-4), then introduces the plan to connect two tools: an n8n workflow for qualified leads and a Gmail tool for disqualified leads.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes setting up the Gmail tool in n8n for sending disqualification emails, correcting an oversight by adding an email field to the form submission, and configuring the Gmail message to personalize responses with the user's name.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Details setting up a second n8n workflow ("qualified lead classifier and notifier") as a tool that the agent can call, triggering when executed by another workflow and defining its input fields (lead name, email, message, company information).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains how to connect the newly created n8n workflow as a tool within the agent, writing a natural language description (schema) for the tool (e.g., "call this tool when the lead is qualified..."), specifying its inputs (lead name, email, company summary), and defining the data format.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Continues configuring the n8n workflow tool, updating its input fields (lead name, email, message, qualified, company information) to match the agent's expected data, and demonstrates how AI can automatically fill out a boolean field like "qualified."
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Sets up the agent's main prompt, outlining its role as a lead qualification agent, its specialization (software-based businesses for Big Boy Recruits), and instructions on when to trigger the "lead is qualified" tool or the "Gmail send email" tool based on qualification.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates testing the agent's prompt, showing that it correctly uses the chat model and triggers the n8n workflow tool, sending lead information (name, email, message, company summary) and setting the "qualified" field to true based on the AI-generated summary.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Details the second n8n workflow ("qualified lead classifier and notifier"), adding a chat model step to classify qualified leads into either "SAS" or "development agency" categories based on company research, and then using a router to send emails to the respective sales teams.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes testing the n8n workflow by re-running a previous execution to get valid data for the Gmail steps, configuring emails for "new agency lead" and "new SAS lead" with dynamic company data to notify specialized sales reps.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates the end-to-end functionality of the automated lead qualification agent by submitting forms for qualified (Morningside AI, Agentive) and unqualified (McDonald's) leads, showing successful routing, email notifications, and disqualification emails.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Concludes the n8n agent build, highlighting the successful integration of AI agents with multiple workflows, the reuse of the Relevance AI researcher tool, and the instant email responses for disqualified leads, emphasizing the potential for complex automation.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Introduces AI agent build number three: a Voiceflow-based AI customer support and lead generation agent accessible via website chat and phone, designed to answer common questions, generate instant quotes, and capture lead information to increase sales and save support costs.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Details the design of the Voiceflow agent: a website with a chat widget and phone number, a knowledge base for FAQs, a Relevance AI tool for instant quotes (based on property type and size for a cleaning business), and lead capture into Google Sheets (CRM).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Guides on starting with Voiceflow, creating a new agent (Bonor's cleaning website and phone agent), provides a quick orientation to the platform's features (knowledge, workflows, integrations, transcripts, analytics, settings), and deletes the default template to start fresh.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Begins building the Voiceflow agent by adding a "talk" message ("Hey welcome to Connor's Cleaning") as the first bot response, advising against excessive punctuation for natural voice delivery, and then setting up a "listen" and "capture" step for the user's first reply into a variable.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains setting a "last response" variable using a new prompt that summarizes the user's question and asks for confirmation (e.g., "just to confirm this sounds like you're looking for this, yes or no"), leveraging conversation history for context.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates testing the welcome and summarization steps, showing how the agent summarizes a user's request for cleaning services and asks for confirmation, highlighting a potential misunderstanding (house vs. greenhouse).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Sets up a "choice" step based on user intent (yes/no) after the summarization, adding a "no match" path for error handling (e.g., "Sorry I didn't get that"), emphasizing the importance of fallbacks for production-grade assistants, especially for voice interactions.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains setting a "desired action" variable using an "intent classifier" prompt that takes conversation history and the user's input to determine if they want to "ask a question," "get a quote," or "other," routing them to the appropriate tool based on this classification.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Configures conditional paths in Voiceflow based on the "desired action" variable ("ask a question," "get a quote," "other"), setting up a router to direct the flow to different tools and including an "else" path for error handling if the LLM produces unexpected labels.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Guides on setting up the knowledge base in Voiceflow by uploading an FAQ document (Connor's cleaning FAQ), configuring settings like the LLM (e.g., GPT-4o Mini), temperature, max tokens, and chunk limit to control cost and response length.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes how to integrate the knowledge base into the workflow using a "KB search" step, constructing a query from the user's first message and summarized problem, saving the returned "chunks" of information for generating an answer.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Details creating a prompt step ("generate answer from chunks") that uses the retrieved knowledge base chunks and conversation history to formulate a short, clear, empathetic answer for the customer, keeping in mind it will be read over the phone.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates testing the knowledge base query, showing how the agent correctly identifies a question about location, asks for confirmation, and then provides the location based on the

knowledge base, highlighting the debug process and suggesting prompt refinement for follow-up questions.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Moves to the "get a quote" path, where the agent asks for property type (house or apartment) and sets up custom intents for classification, providing examples for Voiceflow's AI engine to correctly identify the user's property type.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Continues setting up the "get a quote" path: creating intents for "apartment" with examples, adding a "no match" error handling, setting a "property type" variable (house/apartment) via logic, and then asking for property size in square feet, capturing the user's reply.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes extracting the numerical property size using an AI prompt, saving it to a "property size" variable, and then performing a JavaScript custom code step to cast this string variable into a number, as the external Relevance AI tool expects a numerical input.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Introduces integrating a pre-made Relevance AI tool for instant quotes, which takes property type (string) and square footage (number) to calculate an estimate, emphasizing the value of external API calls for advanced functionality while keeping the Voiceflow build confined.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains setting up the Relevance AI instant quote tool in Voiceflow via an API step (POST request), copying the endpoint URL and request body from Relevance AI, and configuring it to dynamically pass the "property type" and "property size" variables, handling authentication with an API key.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam response to a "raw quote data" variable for further processing and AI-generated summarization.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains creating a prompt step ("quote response") to generate a short, clear, one-paragraph explanation of the quote for customers, suitable for phone delivery, using the "raw quote data" and "property type" variables. It then demonstrates a full test run, successfully navigating through question summarization, quote generation, and providing an instant quote based on property type and size.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Adds a lead capture step to the Voiceflow agent using Google Sheets and Make.com, starting with a message asking for the user's name and phone number after a quote is provided, and capturing the entire user reply into a variable.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains setting up a "retry" loop for lead capture: an AI prompt attempts to extract name and phone number from the user's reply, confirms valid data, or outputs "retry" if invalid, which triggers a re-prompt, ensuring clean data before proceeding.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Details the final steps of lead capture: extracting the name and phone number into separate variables using AI prompts, then setting up a Make.com webhook to receive this data and send it to a Google Sheet (acting as a CRM).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains how to set up the Make.com webhook as the endpoint in Voiceflow for a GET request, sending lead data (timestamp, name, phone, property type, size, quoted prices, first question) as parameters, then waiting for Make.com to "pts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates a full test run of the lead capture functionality: the agent provides a quote, asks for name and phone, handles an invalid input with a "retry" message, successfully captures valid details, confirms them, and sends the data to Google Sheets via Make.com.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Guides on publishing the Voiceflow agent (V1), embedding it as a chat widget on a website (using a provided HTML template), and customizing its appearance (colors, logo, text), noting that the built functionality will work seamlessly on the website.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates embedding the Voiceflow agent widget into a local website and interacting with it, confirming its functionality, and discussing customization options for the widget's look and feel, including turning off "powered by Voiceflow."
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains how to connect the Voiceflow agent to a phone number using Twilio, guiding on setting up a Twilio account, buying a phone number, and using Twilio's documentation for integration.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide generation and lead capture route (getting a cleaning quote, providing name/phone, confirming details).
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Concludes the Voiceflow build, summarizing the extensive integrations (web chat, phone, webhooks to Make.com, Relevance AI tools, Google Sheets CRM), and introduces the final agent build on Agentive, focusing on WhatsApp integration.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Introduces AI

agent build number four: a WhatsApp-based customer support and lead generation agent built on Agentive (Liam Ottley's software), highlighting its ease of deployment to WhatsApp and Instagram, and its use of OpenAI's Assistant API for cost-effective token usage.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains AirTable), and selecting GPT-4o Mini for fast responses, emphasizing its rapid prototyping capability.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Details setting up the knowledge base in Agentive by uploading the same FAQ file used in Voiceflow, explaining that Agentive's design (built on Assistant API) allows knowledge bases to be independent and reusable across multiple agents, similar to tools.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains integrating the Relevance AI instant quote tool and an AirTable lead capture tool into Agentive, outlining the AirTable tool's function (capturing name, email, phone) and its use of a POST request to push data into AirTable.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Guides on setting up an AirTable base (using a clonable dummy CRM template), then details how to get AirTable API details (Builder Hub, Web API docs) to programmatically interact with the database from Relevance AI.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Describes configuring the Relevance AI tool to send data to AirTable: copying the AirTable API endpoint, adding authorization headers (Bearer [API_KEY]) and content type (application/json), and obtaining a personal access token from AirTable for authentication.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Details creating an AirTable personal access token with read/write scopes for the CRM base, integrating it into Relevance AI with a "Bearer " prefix, configuring the POST request body with fields (name, phone, email, status), and demonstrating a successful test that populates the AirTable CRM.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Emphasizes the importance of writing proper natural language descriptions for tools and their parameters in Relevance AI, as these descriptions are crucial for generating clear schemas that tell agents (like on Agentive) how and when to use the tools.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains how to integrate the tools from Relevance AI into Agentive by generating an OpenAPI schema and pasting it into Agentive, then quickly reviewing the schema's structure, including tool

titles, descriptions, and required input fields (name, email, phone) with their types and descriptions.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Completes the tool integration by adding custom authentication (API keys) for both tools in Agentive, then proceeds to write the agent's main prompt using a "perfect prompt" writer tool from Relevance AI, inputting context, knowledge, and tool descriptions.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Presents the AI-generated prompt for the Agentive agent, which defines its role (Connor's cleaning WhatsApp support/lead generation agent), task (engage customers, answer FAQs, provide quotes, capture leads), and explicitly instructs it on how and when to use the knowledge base and the two integrated tools.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates testing the Agentive agent's functionality through chat: it correctly answers location questions using the knowledge base, provides a quote based on property details using the instant quote tool, and captures lead information (name, email, phone) using the AirTable tool, with the lead appearing in the CRM.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam the number, and confirming the successful connection in Agentive.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Demonstrates interacting with the WhatsApp-connected agent: it greets the user, answers a location question from its knowledge base, provides a quote for cleaning services, asks for contact information, and successfully logs the lead into the AirTable CRM.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Concludes the Agentive build, highlighting the successful WhatsApp deployment, debugging features via transcripts, and mentioning other deployment options (Instagram, Messenger, Telegram, Discord), then transitions to the topic of monetizing AI agent skills by helping businesses implement AI.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Discusses the significant opportunity in helping small to medium-sized businesses (5-500 employees) adopt AI, citing industry experts like Kevin O'Leary and Mark Cuban, who emphasize the need for implementation and execution services rather than just consulting.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Highlights the untapped market for AI services among small businesses (1.7 million in the US making $500k-$10M/year), with a 1:1100 ratio of service providers to businesses needing help, emphasizing education, consulting, and implementation services as key monetization avenues.

- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains how to monetize AI agent skills through education, consulting, and implementation services, noting that a knowledge gap between the service provider and the business is the "money maker," and outlines a two-step process to extend this gap.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Continues the two-step process to extend knowledge gap: Step one is watching the video and taking notes, step two is building more AI agents through free courses to become more familiar with platforms and use cases, gaining "foundational knowledge."
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Discusses choosing a monetization path after gaining foundational knowledge: either delving deeper into technical building (like the instructor) or focusingHow to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Explains the "community content flywheel" for client acquisition, where individuals join a free community, create content (YouTube, LinkedIn) about their learning, share it back to the community for audience and credibility, citing Rory Ridges as a successful example.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Emphasizes that both warm outreach and the community content flywheel methods start with giving value first, and encourages viewers to join the free community, complete the free course material, and engage with the resources provided to build AI literacy and monetize their skills.
- ** Excerpts from the transcript of the video "How to Build & Sell AI Agents: Ultimate Beginner’s Guide" uploaded on the YouTube channel "Liam Ottley"**: Concludes the video by encouraging engagement (liking, commenting, sharing, subscribing), highlighting the benefits of AI literacy, and linking to a complete guide on building an AI business.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Introduces an article on creating AI agents for customer support, highlighting their ability to juggle multiple customers, answer questions correctly, and maintain personalization.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Explains that the article will guide users in creating an intelligent, responsive AI support agent to handle routine tasks, solve problems instantly, and free up human teams for complex customer experiences.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Defines an AI Agent in Customer Support as a highly successful assistant that crawls and saves information (product guides, FAQs, customer interactions, knowledge bases) to become an expert, enabling it to answer questions, assist with problems, and guide customers efficiently.

- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Explains that an AI agent is an intelligent system (not a chatbot withcerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Argues for using AI agents in customer support, stating they bring value in speed, accuracy, and consistency by handling routine questions automatically, allowing human agents to focus on complex issues.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Lists core features of modern customer-support AI agents, including LiveChatAI, comparing them to AI chatbots by their ability to chat and take real actions, understand context, and integrate with apps like HubSpot and Google Calendar.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Enumerates the benefits of using an AI agent for customer support, such as 24/7 availability, instant responses, and multilingual support, which reduce delays and communication barriers for a global audience.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Further details AI agent advantages: seamless integration with existing tools for automating tasks (order tracking, booking, FAQs), continuous learning, and adaptability to business needs.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Explains that creating an AI support agent is easy with no-code tools like LiveChatAI, involving connecting help documents, defining behavior, customizing tone, testing conversations, and connecting to support systems to handle repetitive tasks and provide instant customer help.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Provides a step-by-step guide to create an AI Agent with LiveChatAI, including signing up, logging in, creating an agent, and training it by uploading files, entering website URLs, or using YouTube/Notion URLs.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: **Details customization options for the AI agent in LiveChatAI: widget settings (position, preview text), branding settings (text color, logo, profile picture), welcome message customization, Agent for Customer Support (2025) - LiveChatAI"**: States that activating AI Actions transforms a chatbot into a problem-solving AI agent and that users can preview and test their agent before activation. It also mentions that LiveChatAI involves no more than 3 steps to create an AI agent.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Highlights LiveChatAI's standout features: multilingual support (95+ languages), AI Actions for real-time data interaction, live agent handoff, 24/7 availability, no coding, powerful analytics, custom data training, customizable appearance, visitor identification, user data collection, weekly site sync, smart integrations, free forever plan, and long-term memory.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Concludes that LiveChatAI engages, adapts, and evolves with

businesses by offering fast, personalized, and consistent service, acting as a true extension of the team for modern customer support.

- ** Excerpts from ".
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Concludes the article, emphasizing that AI agents are a present-day solution for customer support, offering real-time problem-solving, smarter conversations, and deep system integration, with tools like LiveChatAI making it easy to get started without technical skills.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Lists related blog posts, including "Rule-Based Chatbots vs AI Chatbots," "How to Implement a Chatbot without Coding," and "Create Your First Chatbot with Your Support Content."
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Provides information about the author, Türkü Elif Şimşek, a Content Marketing Specialist at Popupsmart with a background in English Language and Literature.
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Lists company information (About, Contact, Pricing, Roadmap), Help Center, Success Stories, Resources & Legal, Blog, GDPR, Free Tools (AI Tone Checker, AI Email Writer, Tweet Generator AI, AI Text Humanizer, AI Slogan Generator).
- ** Excerpts from "How to Create an AI Agent for Customer Support (2025) - LiveChatAI"**: Provides a list of more free tools, LLM cost calculators (GPT-4o, Grok 3, Llama 3.3, Gemini 2.5, Claude Sonnet 4, Claude Opus 4, Claude 3 Haiku, Claude 3.7 Sonnet), comparison alternatives for other AI chatbot platforms, and recent blog posts related to AI agents and chatbots.
- ** Excerpts from "Hugging Face AI Sheets: LLM Data Toolkit"**: A Marktechpost.com link about Hugging Face unveiling "AI Sheets," a free, open-source, no-code toolkit for LLM-powered datasets.
- ** Excerpts from "Information management and integration challenges MarketPulse Survey | OpenText"**: Introduces acerpts from "Information management and integration challenges MarketPulse Survey | OpenText"**: Highlights progress in digitizing documents, with only 15% having fully automated data capture, extraction, and classification from unstructured files, and 58% reporting completely manual data extraction.
- ** Excerpts from "Leading Open-Source Frameworks for Multi-Agent AI Systems"**: A Flip.it link to an article titled "Top 5 Open-Source Frameworks to Build Multi-Agent AI Systems in 2025."
- ** Excerpts from a newb) - Reddit"**: Reddit post by "laddermanUS" in r/AI_Agents, introducing a guide for beginners on tools for building AI agents, defining AI agents as LLMs with the ability to "use tools" autonomously or semi-autonomously.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author, an AI engineer in cybersecurity, provides background on his experience designing AI agents and automations, offering a friendly welcome and invitation for questions from beginners.

- and CursorAI (IDE with built-in AI) for coding with CrewAI, suggesting their combined use.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Recommends Streamlit (Python package) for building quick web UIs for Python projects, including public-facing chatbots, and advises thinking of agents simply as code hosted online that uses an LLM and plugins.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: A comment from "gatsbtc1" thanking the author for the helpful guide for newcomers to the AI space, and the author's reply.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: A comment from "captain_racoon" recommending LangGraph over CrewAI for problems requiring more fine-grained control, and another from "Nixellion" criticizing LangChain as overengineered and taking away control.
- **8n equivalents (Flowise), Streamlit equivalents (Gradio), more granular frameworks (LangChain, LangGraph, LlamaIndex), and Cursor equivalents (Windsurf, Codeium). It also categorizes tools into Application Layer (AI Agents for specific tasks).
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Categorizes AI tools into Framework Layer (Low-code: Flowise, n8n, Gumloop, make.com, GPTs; Code-based: AutoGPT, CrewAI, Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author responds to a question, stating that GPTs and CursorAI can build agents with tools using only prompting, and "qooopuk" shares a link to "awesomepython.org" for agent-related GitHub repos and praises Streamlit.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Comments include thanks from "Dinul-anuka," a recommendation for Acerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") offers project ideas for beginners: building a GPT for a friend/colleague (uploading research papers to shape answers) and building a simple AI chatbot with n8n.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: A comment from "LemaLogic_com" asking for recommendations for a platform/combo that supports Assistant API style tools to use to build AI agents (if you are a newb) - Reddit"**: A comment from "ankbon" thanking the author for the amazing and helpful post, appreciating the simple explanations of complex concepts, and the author's reply about starting a YouTube channel for tutorials.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: A comment by "Fine-Degree431" referencing the AI agentic stack architecture, and "quattropole" saving the guide for later use.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Comments discussing Relevance.ai (one user hadn't used it, another found it good for rapid prototyping but risky for scaling due to cost), n8n (good for custom interfaces, self-hostable), and Python libraries (Instructor, Pydantic) for full control.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: what tools to use to build AI agents (if you are a newb) - Reddit"**: A

comment by "welcome-overlords" finding it hard to come up with AI agent ideas, "yadgire7" preferring LangChain/LangGraph for a year, and asking if they are missing better tools with more control.

- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") advises against FOMO (Fear Of Missing Out) and "Shiny Object syndromeMy guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Comments from "btongeo" asking for elaboration on using Cursor with CrewAI, and "Ok-Construction792" and "iam_warrior" offering thanks.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "Money-Read-9467" asks for reference/sample AI agents built with the recommended stack for evaluating ideas, and "laddermanUS"pts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") acknowledges the real desire for simplified information for AI newcomers, announces a new learning academy with courses and free AI agent templates, and "Medical-Wait-6960" confirms the effectiveness of CursorAI x CrewAI for multi-agent workflows.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Comments like "Less_Ad876," automation, asking for examples of multi-agents in CrewAI, and noting that n8n is not strictly open source but has a "Sustainable Use" license for internal use.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") encourages the use of CrewAI and acknowledges that there are many other multi-agent frameworks available.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Comments from "ak_boogy" praising the writing and asking about CrewAI for autonomous agents, and "tuvek2473" asking if CursorAI is worth it without CrewAI given no Python experience.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") advises learning basic Python for AI agents and mentions his AI Consultancy business and AI Academy for teaching coding and no-code tools.
- ** Excer someone with no Python knowledge, while "Marmoody" asks for a roadmap to becoming an AI engineer.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "ByteD0wn" asks if prior coding experience is needed and proposes a complex idea for investing agents that analyze news (Bloomberg, Fox Business, Nvidia, Tesla), summarize sentiment, predict market impact, and learn from past predictions.
- ** Excerpts from "My guide on what tools to use to build investing agent idea.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") advises "ByteD0wn" to learn to use an IDE like CursorAI to prompt AI to write applications, starting with simple functionality and iterating, and offers his course or free YouTube resources.

- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "ByteD no coding experience can get into the AI space, and "Effective_Way253" thanks for sharing expertise for free after being made redundant.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "FunTrack6843" asks for recommendations on building an AI agent for 3D animation and Adobe After Effects, and "No-Abbreviations-410" expresses interest in building an agent to optimize day-job processes after learning cyber security and software.
- **[32No_Nefariousness5239" wants to discuss a use case, "BayAreaVibes35" highlights the importance of getting ahead in AI, and "Proper-Amoeba-8975" calls the author a "great pal."
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "toinfinity_nbeyond" asks for advice on building an AI agent, "Upstairs-Pay6581" thanks for useful info, "Br "myamazonboxisbigger" likes Gumflow.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") recommends focusing on easy-to-learn and workable tools, and suggests agent project ideas like personal assistants, voice agents, and automation projects, including building GPTs for friends and chatbots for businesses.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit" to use to build AI agents (if you are a newb) - Reddit"**: "josejohnv" thanks the author for the cybersecurity agent video, "Runtelldat1" subscribes, and "Legal_Community5187" praises the intro for newbies and asks follow-up questions about using existing GPT APIs versus local LLM fine-tuning and pricing public agents.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "Green_Barber_6436" prefers34] Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") believes that the best agentic ideas will come from non-techy individuals with great ideas who can now implement them in code.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "bozkurt81" thanks the author, and "handerrehakon" asks for concrete use cases for AI agents. *PackOfWildCorndogs" asks for YouTube videos focusing on internal org knowledge bots or research agents, and the author ("laddermanUS") points to his cybersecurity agentic workflow video as an example.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "EdtechAgentAI" praises the content and videos, "Slow_Release_6144" asks for more explanation on GPTs as AI agents, and "socialpirate" requests information on which tools are open-source, free-) - Reddit"**: Comments from "emisofi" asking about n8n integration with WhatsApp, "Easy_Fix_8400" subscribing to YouTube, and "AdvantageRecruiting" noting the helpfulness of no-code editors.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") advises on deploying agents, suggesting cloud-based solutions like Amazon Fargate, Digital Ocean, and Replit for continuous availability, recommending Replit for new users due to his experience as a tech project

manager rolling out AI governance and building projects with AI tools, finding it addictive, and "PhoenixRising90" praises the content.

- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "Significant-Turnip41" questions whether no-code solutions are superior or just easier, "thomashoi2" asks about using Bubble.io for AI agents to research LinkedIn/company websites and write cold emails, and "visionkhawar512" asks if AI AI agents (if you are a newb) - Reddit"**: "Character-Welcome535" shares open-source GitHub Handbook, YouTube Channel, and Newsletter for AI agents, use cases, tutorials, and insights, inviting collaboration and brainstorming on exciting AI agent use cases.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The author ("laddermanUS") explains his preference for Streamlit for Python projects due to its ease of use, speed, and ability to deploy production-ready U Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "klam997" thanks the author, expresses interest in subscribing to his YouTube channel, and shares his personal motivation for building a "personal ChatGPT-like" assistant for his parents to manage home affairs and contact him automatically if needed.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "binary_trades" suggests Eliza OS, and a deleted user discusses token, working 70% of the time.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: The deleted user asks about token consumption details for frameworks like CrewAI, and "pxng0lin" asks if n8n is suitable for a local AI agent to search documents as context and produce results, considering Ollama with a downloaded model due to security constraints against OpenAI/cloud-based solutions.
- ** Excerpts from "My guide on what tools to use toFront_Veterinarian53" recommends Xceed Intelligence framework for the complete lifecycle of agents, and "Runatir" asks if agents can consume video content.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "kthxbubye" asks how to proceed with OpenAI SDK without external libraries like CrewAI or LangChain, "KIRAQUEEN" suggests Aiklyra for analytics on AI agent interactions, "Sea_Platform8134" mentions beyond-bot.ai (with bias), and "Edwin_Tam" asks how blogging agents handle knowledge cutoff problems for LLMs.
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: "Yougetwhat" asks about the easiest and best way for outbound/inbound calls with an agent using a Belgium phone number, and "jonnyyr65" asks about exposing AI agents to others over the internet, assuming via website or mobile app with a GUI.
- ** Excerpts from "My guide on59] Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit posts: "What's the best resource to learn AI agent for a non-technical person?" and "What tools do you use to build your AI agent?"
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit posts: "Need help learning to build AI agents" and

"Getting started with building AI agents – any advice?" where to start? Here's exactly what I did (step by step)."

- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit posts: "How to build an AI agent, Pls help" and "Lessons Learned from Building AI Agents."
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit posts: "Need some guidance on AI Agents research for you. Beginner friendly using no-code tools like N8N."
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit posts: "I'm a total noob, but I want to build real AI agents. where do I start?" and "Looking for Framework Advice for Building a Reliable AI Agent."
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit posts: "My guide on the mindset you absolutely MUST have to build effective AI agents" and "Where to get started developing AI agents."
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit posts: "Anyone building AI agents for enterprises?" and "I'm a total noob, but I want to build real AI agents. from building 50+ AI Agents last year (edited)" and "Using AI agents to setup your AWS infra. Usefull for developers with not much Devops expertise."
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit posts: "what i learned from building 50+ AI Agents last year (edited)" and "Using AI agents to setup your AWS infra. Usefull for developers with not much Devops expertise."
- ** Excerpts from "My
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit posts: "Where to get started developing AI agents" and "Anyone building AI agents for enterprises?"
- ** Excerpts from "My guide on what tools to use to build AI agents (if you are a newb) - Reddit"**: Displays related Reddit post: "Anyone building AI agents for enterprises?"
- ** Excerpts from "OpenText (Micro tracking), integrations, industries served (Banking, Insurance, Government, Medical, Tech), and team size capabilities (Enterprise, Small and Midsize Business).
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Introduces an article reviewing OpenText (formerly Micro Focus) Test Management System (TMS) in 2025, questioning if it's still a suitable solution despite its robust features and integrations, and highlighting that popular isn't always best.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Discusses the acquisition of Micro Focus by OpenText, aiming for a comprehensive platform for data management, software development, and IT operations, but notes user concerns about the cost of simplicity and efficiency for QA teams.

- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Explains how Micro Focus Test Management System (TMS) works to plan, manage, and track testing processes, enabling Worth It? - aqua cloud"**: Identifies OpenText (Micro Focus) users as primarily large enterprises in finance, healthcare, government, telecommunications, and manufacturing, relying on its TMS, ALM, and IT operations tools for extensive testing, legacy systems, and regulatory compliance.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Highlights limitations of Micro Focus (OpenText) TMS, such as the absence of nested test cases, item change history, and ability to reverse changes, contrasting it with aqua (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Continues listing Micro Focus test management features: managing comprehensive test cases, generating detailed test reports, performing bulk edits, using custom fields and parameterization, planning test activities with release cycles, and organizing test artifacts with folders and shared views.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Highlights Micro Focus's AI-driven test case management capabilities, specifically UFT One’s AI-powered object24: Is It Worth It? - aqua cloud"**: Details Micro Focus's comprehensive support for managing test data and its key integration features, including built-in support for popular CI/CD tools (Jenkins, GitHub), custom API integrations, and on-prem/cloud-based execution options.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Continues explaining Micro Focus's integration features, noting that setting them up can be time-consuming compared to cloud-native tools, but the flexibility lacking an internal bug-tracking system and introduces aqua cloud as a complete solution with native Capture integration for visual bug recording, 100% traceability, and full transparency in defect management.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Discusses Micro Focus (OpenText) support, noting reports of longer response times, which negatively impacts user experience, especially when compared to the fast response times needed for issue resolution.
- ** Excerpts from "OpenText (Micro per user, contrasting it with aqua's enhanced granularity for security and project management.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Details Micro Focus (OpenText) reporting features, offering test reports, execution history, and customizable dashboards for insights into project progress, but points out limitations like the lack of advanced capabilities such as custom layouts, pivot tables, and parameterization.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It400] Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Presents user reviews of OpenText (Micro Focus), noting its strengths in integration, version control, and non-agile environments, but also its struggles with Agile adaptation, high pricing, and outdated UI.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Summarizes user feedback on OpenText (Micro Focus), acknowledging its

strengths and weaknesses, and then It Worth It? - aqua cloud": Continues listing Micro Focus alternatives: TestLink (open-source, customizable, lacks advanced reporting), Katalon Studio (versatile, user-friendly, resource-intensive), and Bugzilla (underrated, open-source issue-tracking, outdated interface).

- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Concludes that while Micro Focus ALM is a solid enterprise choice, aqua cloud stands out as a more accessible and cost-effective alternative, integrating AI for enhanced testing, offering exceptional value for all team sizes, and providing up-to-date features with fast customer support.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Lists the sections covered in the article, provides an FAQ (Is Micro Focus worth it? - noting limitations in support, flexibility, pricing), related articles on test automation, and subscription options.
- ** Excerpts from "OpenText (Micro Focus) Review 2024: Is It Worth It?Text (Micro Focus) Review 2024: Is It Worth It? - aqua cloud"**: Provides a call to action to join aqua cloud's community for QA trends and insights, with a privacy policy statement.
- ** Excerpts from "OpenText Content Management reviews 2025 - PeerSpot"**: Lists categories of IT products reviewed on PeerSpot, including cybersecurity, IT management, cloud computing, data management (with Vector Databases), application development, data protection, enterprise communications, enterprise applications (AI-Powered Chatbots, AI Development Platforms), and digital experience platforms.
- workspace, and ability for users to access documents from multiple channels like Salesforce and Microsoft, while also noting support difficulties and customer attrition.
- ** Excerpts from "OpenText Content Management reviews 2025 - PeerSpot"**: Details areas for improvement in OpenText Content Management, including user interface, compatibility with external tools, performance stability, documentation, automation, integration capabilities, support responsiveness, records management, SmartUI, analytics, and cost.
- ** Excerpts from "OpenText Content Management reviews 2025 - PeerSpot"**: Discusses the PeerSpot"**: Describes the deployment of OpenText Content Management as often complex due to many interacting components and integration requirements, demanding expertise in infrastructure, networking, and security, and varying in duration from months to years.
- ** Excerpts from "OpenText Content Management reviews 2025 - PeerSpot"**: Provides an overview of OpenText Content Management, highlighting its seamless document storage, advanced search, integration with SAP and other applications, enhanced security, metadata categorization, customizable workflows, and collaboration tools, while noting challenges with support, performance, and complexity.
- ** lifecycle, archiving, records retention, and integration with platforms like ServiceNow for global operations.
- ** Excerpts from "OpenText Content Management reviews 2025 - PeerSpot"**: Lists previous names for OpenText Content Management (OpenText Content Suite Platform, OpenText Core Share), its customers (ATCO Australia, MSIG Asia, Orica, Salt River Project), and related questions about Enterprise Content Management (ECM) solutions.

- ** Excerpts from "OpenText Reviews, Ratings & Features 2025 | Gartner Peer Insights"**: Provides the: Practical MCP Integration with 4 Popular Agentic Frameworks."
- ** Excerpts from "Top OpenText Likes & Dislikes 2025 | Gartner Peer Insights"**: Provides the navigation and footer for Gartner Peer Insights, a platform for product reviews and vendor directory, specifically for "Likes and Dislikes," stating that content reflects individual end-user opinions, not Gartner's endorsement.
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Lists categories for Google Cloud products, including AI and ML overview | Generative AI on Vertex AI | Google Cloud"**: Details how to get started with Generative AI on Vertex AI, including sending text prompts to Gemini API, generating images with Imagen, deploying prompts as web applications, and provides overviews and tutorials for Vertex AI in express mode.
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Lists available Gemini models (2.5 Flash, 2.5 Pro, 2.5 Flash-Lite, 2.0 Flash, 2.0 Flash-Lite), Vertex Sonnet v2, 3.5 Haiku, 3 Haiku), and Mistral AI (OCR, Small 3.1, Large, Codestral), with overviews and model details.
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Lists open models available on Vertex AI, including DeepSeek (DeepSeek-R1-0528) and Llama (4 Maverick, 4 Scout, 3.3, 3.2, 3.1 405b/ Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Describes how to manage deployed agents on Vertex AI Agent Engine, including access control, tracing, logging, monitoring, managing context, Agent Engine Sessions, and Example Store for storing and retrieving few-shot examples.
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Details Agent Tools (built-in, Google Cloud, Model Context Protocol, Ecosystem tools), and Prompt Design strategies (clear instructions, system instructions, Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Details Imagen's capabilities for generating, configuring, editing (inpaint, outpaint, replace background, personalization, text prompts), and customizing images (subject, style, controlled, instruct customization), as well as upscaling and providing prompt/image attribute guides.
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Describes legacy features (Imagen 3 migration, visual captioning, visual question answering, video descriptions), video generation (text
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Details development tools (AI-powered prompt writing, prompt optimization, templates), RAG Engine (overview, quickstart, data ingestion, supported models, document parsing, vector database choices like RagManagedDb, Vertex AI Vector Search, Feature Store, Weaviate, Pinecone, Vertex AI Search), reranking, corpus management, CMEK, RAG quotas, and RAG in Gemini Live API.
- ** Excerpts from "Vertex AI Agent Engine: tutorial with Python SDK, defining metrics, preparing datasets, running/interpreting evaluations, using templates for model-based metrics, evaluating agents, customizing/configuring judge models, and alternative evaluation methods like AutoSxS and computation-based pipelines.

- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Details deployment options on Vertex AI, including optimizing cost, latency, and performance, deployment best practices, caching reused prompt context, batch prediction, Provisioned Throughput (overview, supported models, requirements, purchase, usage, troubleshooting error 429), Pro and Flash models will not be available in new projects without prior usage from April 29, 2025, and provides an overview of Vertex AI Agent Engine, stating its support for VPC-SC security control but not data residency, CMEK, or AXT controls.
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Introduces Vertex AI Agent Engine (formerly LangChain on Vertex AI or Vertex AI Reasoning Engine) as services for developers to deploy, manage, and scale AI agents in production, handling infrastructure so developersues detailing Vertex AI Agent Engine services: Quality and evaluation (Preview) with integrated Gen AI Evaluation and Gemini model training, and Observability (GA) with Google Cloud Trace, Cloud Monitoring, and Cloud Logging. It notes that Agent Engine is part of Vertex AI Agent Builder and that its API reference uses "ReasoningEngine."
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Provides a workflow for creating and deploying agents on Vertex AI Agent Engine, which includes setting up the environment, developing an agent, deploying it, using it via API requests, and-ready generative AI agent templates for Vertex AI Agent Engine, offering pre-built templates (ReAct, RAG, multi-agent), an interactive playground, automated infrastructure (Terraform), CI/CD pipelines (Cloud Build), and built-in observability (Cloud Trace, Cloud Logging).
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Lists use cases for Vertex AI Agent Engine with end-to-end examples, including building agents by connecting to public APIs (currency exchange, Google Maps), databases (AlloyDB, Cloud SQL supported regions for Vertex AI Agent Engine (us-central1, us-east4, us-west1, europe-west1, europe-west2, europe-west3, europe-west4, europe-southwest1, asia-east1, asia-northeast1, asia-south1, asia-southeast1, australia-southeast2), specifying supported versions (v1 for GA, v1beta1 for Preview) for each location.
- ** Excerpts from "Vertex AI Agent Engine overview | Generative AI on Vertex AI | Google Cloud"**: Details quotas ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Explores Agentic AI, RPA, and UiPath.ai, highlighting how AI and automation create powerful autonomous agents and the transformation of enterprise processes.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Describes UiPath's platform for Agentic Automation, where agents think, robots do, and people lead, focusing on orchestrating processes, building workflows (agentic, robotic, human-in-the-loop,, and test automation, and products like Test Cloud and Agent Builder for testers.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Lists UiPath solutions by industry (Banking, Healthcare, Manufacturing), department (Supply chain, Finance, HR), and technology (Specialized

agents, Peak.ai, LangChain, Microsoft, SAP), and provides a recap of the Agentic AI Summit.

- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Details UiPath resources: from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Introduces a UiPath Blog post titled "Technical Tuesday: why orchestration matters," discussing common challenges in deploying AI agents and potential solutions.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Highlights the challenges of building and deploying AI agents at scale, emphasizing their incredible impact once embedded, and quotes a UiPath customer on combining RPA, generative AI, and agentic technology for public services.
- ** Excerpts from "Why orchestration matters:Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Addresses the performance of underlying AI models (resource-intensive, slow, or low-performing smaller models) and the difficulty of trusting AI agents for mission-critical tasks due to reliability issues, often requiring simplification, strict constraints, or human intervention.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Explains the challenge of controlled agency and human-in-the-loop: human oversight and collaboration are essential for AI agents, as full autonomy is impractical due to mistakes or unclear decisions. Stri concerns for AI agents: expensive LLM APIs and infrastructure leading to potential cost blowouts, difficulty measuring ROI with low reliability, and strategies like model optimizations, usage policies, and caching to control costs.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Continues discussing cost and ROI concerns: vendor pricing models (per token, per call) influence model choice and quality, and justifying investment requires clear wins (revenue gain or cost savings) from automation. Teams aim for "cheapest bang for my buck" by mixing models for high-value use cases.
- to comply with regulations (GDPR, HIPAA) and organizational policies.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Details deployment and scaling difficulties: proof-of-concept agents often struggle with real-world scale, volume, and complexity, leading to latency and throughput issues, high operational overhead, and underdeveloped monitoring/logging/updating capabilities, slowing adoption.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: **Continues on deployment and scaling difficulties, including challenges Common challenges and solutions in deploying AI agents"**: Discusses model compatibility and integration challenges: lack of dominant AI agents, requiring custom adapters or glue code for tool/model integration (e.g., proprietary databases), with many frameworks being "heavy" or too basic, leading to boilerplate code if framework-agnostic.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Continues on model compatibility and integration challenges, highlighting the need for frameworks that allow easy swapping of AI models/services

(like "Instructor" for structured input/output across LLMs) andibility from committing to a single vendor's AI agent solution, with an explosion of frameworks causing confusion and some libraries implicitly locking users into specific providers or ecosystems.

- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Continues on vendor lock-in and interoperability issues, emphasizing the risk of being dependent on a vendor's updates, pricing, and policies without viable alternatives, and the lack of clear examples for integrating agents into existing software stacks and cloud services.
- ** Excerpts from "Why orchestration matters:482] Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Highlights human-in-the-loop integration as a key benefit of orchestration, enabling human checkpoints for approvals or high-stakes decisions, providing a consistent interface for escalation and learning from human corrections, aligning AI + human workflows for reliability and trust.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Details centralized governance and security benefits of orchestration: enforcing security and compliance uniformly, monitoring data sent to agents, scrubbing sensitive information, logging decisions for matters: Common challenges and solutions in deploying AI agents"**: Explains multi-agent coordination and specialization with orchestration: managing a team of specialized agents, handling task routing, state management, and error recovery, resulting in a more robust system where the platform catches failures through validations, retries, or fallbacks.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Details cost optimization and resource flexibility with orchestration: dynamically choosing models/routes to minimize cost, batching requests, caching results, adjusting agent run frequency, and leveraging pricing competition to switch to cost use case e-book or doing a deeper dive with a tutorial on UiPath Maestro sub-processes.
- ** Excerpts from "Why orchestration matters: Common challenges and solutions in deploying AI agents"**: Provides subscription options for articles from automation experts, and lists UiPath platform details, plans, pricing, customer support, and various products (Action Center, Agent Builder, AI Center, Apps, Assistant, Automation Hub, Orchestrator, Process Mining, Robots, Studio, Task Mining, Test Cloud).
- ** Excerpts from "Why orchestration matters: Common Report Ethical Concerns, Employment Scams) and contact details, along with legal terms and social media links.