**Agentic AI – Assignment Submission**

**01 – Research Task**

**1. What are Large Language Models (LLMs)?**

Large Language Models (LLMs) are a kind of AI trained on huge amounts of text—from books, websites, and other sources. They learn to understand and generate human-like language by predicting the next word in a sentence. These models use advanced neural networks called transformers, which help them pick up on patterns, context, and meaning in language.

**Popular Examples:**

* GPT by OpenAI
* LLaMA by Meta
* Claude by Anthropic

**Common Uses:**

* Chatbots and virtual assistants
* Summarizing long texts
* Translating languages
* Writing code

Reference: [What are LLMs by IBM Technology.](https://youtu.be/5sLYAQS9sWQ?si=Xxp6Wfqrpwj9CDD4)

**2. What is Generative AI?**

Generative AI creates new content like text, images, music, or code. It learns patterns from training data and uses that knowledge to generate original outputs. However, it's mostly reactive—it responds to prompts but doesn’t take action on its own.

**Examples:**

* ChatGPT (for text)
* DALL·E (for images)
* GitHub Copilot (for code)

Reference: [What is Generative Ai by The Royal Institution](https://youtu.be/_6R7Ym6Vy_I?si=2ztr7DYuju7lpQTD)

**3. What is Agentic AI?**

Agentic AI takes things a step further. Instead of just generating content, it acts like an intelligent agent that can make decisions, plan, and complete tasks toward a goal. These systems can use tools, remember information, reason through problems, and work independently within set limits.

**Key Features:**

* Works autonomously
* Focuses on goals
* Can plan and reason
* Uses tools and memory

**Examples:**

* AutoGPT
* OpenAI’s Agents SDK
* Devin AI (an AI software engineer)

Reference: [What us Agentic Ai? By IBM Technology](https://youtu.be/F8NKVhkZZWI?si=R7wWRKwR-0pNapeH)

**4. Generative AI vs. Agentic AI**

| **Feature** | **Generative AI** | **Agentic AI** |
| --- | --- | --- |
| Output | Generates content | Takes actions to achieve goals |
| Autonomy | Low | High |
| Planning | Minimal | Can plan and execute multi-step tasks |
| Tool Use | Rare | Common (uses APIs, memory, etc.) |
| Examples | ChatGPT, DALL·E | AutoGPT, OpenAI Agents SDK |

Reference: [Generative AI vs. Agentic AI by IBM Technology](https://youtu.be/EDb37y_MhRw?si=tXsByItQoEx5wnce)

**5. What is OpenAI's Agents SDK?**

The OpenAI Agents SDK is a toolkit that helps developers build intelligent, goal-driven AI agents using LLMs. These agents can use tools, remember past interactions, and take action in interactive environments.

**What it does:**

* Helps create agents that interact with tools and remember past actions
* Makes it easier to build AI that works toward specific goals
* Works smoothly with OpenAI’s GPT models

**Why it’s useful:**

* Simplifies the creation of smart, autonomous agents
* Provides built-in memory and planning
* Supports tool and API integration for real-world tasks

Reference: [What is OpenAi Agents SDK? By Panaversity Urdu](https://www.youtube.com/live/83l01nAHG6E?si=ZOZju_yZiBThPWMd)

**6. Additional Tools in Agentic AI Projects**

As I explored further, I came across a few useful tools that help with building and managing agentic AI projects:

**uv – Fast Python Environment and Dependency Manager**

uv is a modern, fast alternative to tools like pip, virtualenv, and pip-tools. It helps create virtual environments and install packages much faster than traditional methods.

**Why use it?**

* Speed: Installs dependencies much faster than pip
* Simplicity: Combines environment and package management in one tool

**Example: (Running a command)**

uv venv # Create a virtual environment

uv pip install chainlit # Install packages

**swarm – Coordinating Multiple Agents**

swarm is used to run multiple AI agents that collaborate on solving tasks. Think of it like a team of AI workers, each with a different job, working toward the same goal.

**Why use it?**

* Useful in large agentic systems (e.g., AutoDevin)
* Allows agents to communicate and divide work

**Use case:** Automating software engineering or research workflows with multiple agents.

**chainlit – Frontend UI for Agents**

chainlit makes it easy to turn your Python LLM or agent script into a **ChatGPT-style web app**. It’s perfect for testing and sharing AI agents with a clean, user-friendly interface.

**Run a script like this:**

chainlit run hello\_agent.py

**02 – Practical Task**

**Completed:** Steps 01–05 of the *"*[*Learn Agentic AI – Step 01: ai\_agents\_first*](https://github.com/panaversity/learn-agentic-ai/tree/main/01_ai_agents_first)*"* repository, up to the “[Hello Agent](https://github.com/panaversity/learn-agentic-ai/tree/main/01_ai_agents_first/04_hello_agent)” example.

**What I did:**

* Set up the environment
* Explored the structure of an agent
* Wrote and ran the “Hello Agent” code

This hands-on experience helped me understand how agents are built, and how the Agents SDK brings together LLMs, tools, and memory to create intelligent behavior.

You can check out my completed practical assignment here: [Assignment 01 by Academic Excellence](https://github.com/Okashanadeem/GIAIC/tree/main/Quarter%203/Academic%20Excellence%20Assignments/Assignment%2001)

**Conclusion**

Through this assignment, I’ve built a strong foundation in understanding LLMs, Generative AI, and Agentic AI. I also got practical experience using the OpenAI Agents SDK. I now clearly see the difference between simply generating content and taking autonomous action—and how AI is evolving to become more capable and independent.

**References:**

1. OpenAI (2024). *OpenAI Agents SDK Documentation*.  
   <https://platform.openai.com/docs/assistants/overview>
2. AssemblyAI (2023). *What Are Large Language Models (LLMs)?*  
   <https://www.assemblyai.com/blog/what-are-large-language-models/>
3. Google AI Blog (2023). *What is Generative AI?*  
   <https://blog.google/technology/ai/generative-ai/>
4. ZDNet (2023). *What is AutoGPT? Everything to Know About the Powerful AI Tool*  
   <https://www.zdnet.com/article/what-is-autogpt-everything-to-know-about-the-next-powerful-ai-tool/>

I've also written a detailed README in my repository with extra explanations and helpful tips about the practical steps I completed. It’s a great resource for anyone starting out with Agentic AI and the OpenAI Agents SDK. Here is the [Link](https://github.com/Okashanadeem/GIAIC/tree/main/Quarter%203/classes/class%2011).