

Assignment 01 – Research Task

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Topic: Introduction to Agentic AI, LLMs, and OpenAI Agents SDK

1. What are LLMs (Large Language Models)?

LLMs, or **Large Language Models**, are a type of artificial intelligence trained on a huge amount of text data (like books, websites, conversations). Their goal is to understand and generate human-like text.

Some common examples include:

- ChatGPT (based on GPT-3.5 or GPT-4)
- Google's Gemini
- Meta's LLaMA

How they work (in simple terms):

- LLMs take a prompt (text you give it) and predict what should come next.
 - They don't "think" like humans but use patterns from training data to respond smartly.
 - They can write emails, answer questions, summarize articles, write code, etc.
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2. What is Generative AI?

Generative AI is a branch of AI that can **create** new content such as:

- Text (stories, code, answers)
- Images (AI art)
- Videos
- Music

It uses models like LLMs to "generate" things based on user input.

Example: If you ask ChatGPT to write a blog post, that's generative AI at work.

3. What is Agentic AI?

Agentic AI is a more **advanced use** of AI. Instead of just replying to your single prompt like ChatGPT does, Agentic AI can:

- **Plan steps**
- **Use tools**
- **Make decisions**
- **Remember previous actions**
- **Work towards a goal** over time

Think of it like giving AI the ability to act like an intelligent assistant or even a mini "robot brain" that can complete full tasks, not just give answers.

Example: You tell the agent, "Book me a hotel for next week." It can search, compare, decide, and even take actions (like sending an email or using an API).

4. Difference Between Generative AI and Agentic AI

Aspect	Generative AI	Agentic AI
Output	Generates content (text, image, etc.)	Performs actions, makes decisions
Example	ChatGPT writing an essay	AI agent booking a flight
Control	You give each prompt manually	Agent can think and act over time
Tools	Just language	Uses tools, APIs, memory, planning

5. What is OpenAI's Agents SDK?

The **OpenAI Agents SDK** is a toolkit that helps developers easily create **AI agents** using Python.

☒ What it does:

- Helps create **intelligent agents** that follow instructions
- Supports tool use, memory, and reasoning
- Can use different LLM providers (OpenAI, Gemini, etc.)

☒ Why we use it:

- It simplifies building **real-world AI agents**
- Saves time by handling complex parts like memory and decision-making
- Works with async and sync modes
- Great for developers working with both OpenAI and non-OpenAI models

☒ Benefits:

- Easy to use with simple Python code
 - Supports **custom models** (like Gemini via OpenAI-compatible API)
 - Can build agents that go beyond just answering — they **act**
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Summary

In this research, I learned the difference between Generative AI and Agentic AI. Generative AI creates content, while Agentic AI **acts like an intelligent assistant** that can complete tasks. LLMs are the foundation of both, and OpenAI's Agents SDK helps developers make powerful agents easily. This assignment gave me a solid overview without going too deep, and I'm now excited to build my first AI agent!