

Agentic AI, LLM and Generative AI

Understanding Smart, Creative, and Goal-Oriented AI Systems of the Future

"A research-based exploration of how modern AI can think, plan, and create like humans"

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What is Agentic AI?

- 1 Agentic AI means an AI that can act like an “agent”. It can plan, think, and do tasks on its own.
- 2 It doesn't just answer questions but it also works to achieve goals.
- 3 Example: An AI that books your travel without asking for each step.

What are LLMs?

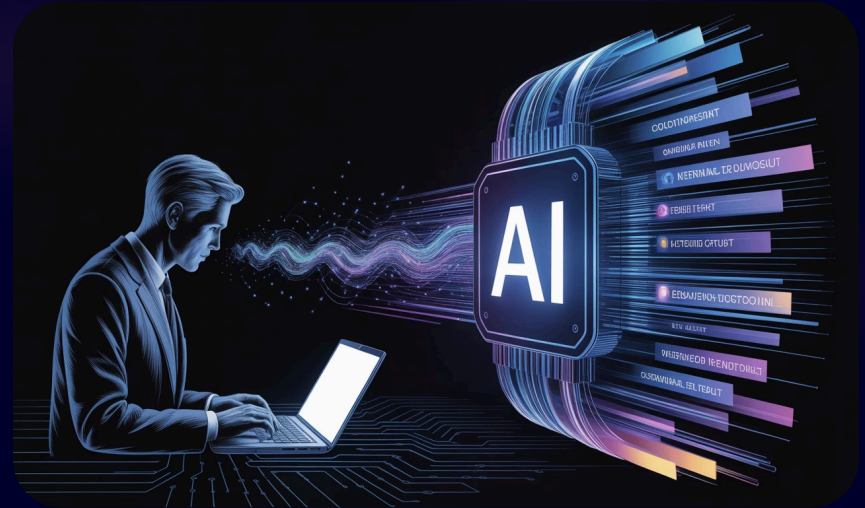
LLMs or Large Language Models, are powerful artificial intelligence systems that are trained using huge amounts of text data. They learn patterns in human language and can understand and generate text just like a person. These models are used in many AI tools like ChatGPT, Google Bard, and others. LLMs don't "think" like humans, but they are very good at predicting what should come next in a sentence, answering questions, translating languages, writing stories, and even helping with coding. Some famous examples of LLMs are GPT-3, GPT-4, and BERT.



What is Generative AI?

Content-creating AI that responds to prompts without autonomous planning capabilities.

- Generative AI creates new content like text, images, or music.
- It needs a prompt or question to start working.
- It cannot plan or think on its own.
- Example: You write "Write a poem" → AI gives a poem.



Agentic vs. Generative AI

Feature	Generative AI	Agentic AI
Works on Prompt	Yes	Only at Start
Makes a Plan	No	Yes
Uses Tools	No	Yes
Real Example	ChatGPT	Auto-GPT / AI Agents

Key Features of Agentic AI



Autonomy

Operates with minimal human intervention



Goal-Driven

Prioritizes tasks to achieve defined objectives



Adaptability

Learns from changing data and situations



Multi-Agent Coordination

Coordinates subtasks for complex challenges

Real-World Applications



Travel Planning

Books flights, hotels, and activities automatically based on preferences.



Project Management

Assigns and monitors multi-step workflow tasks without supervision.



Enterprise Operations

Streamlines business processes with real-time decision making.



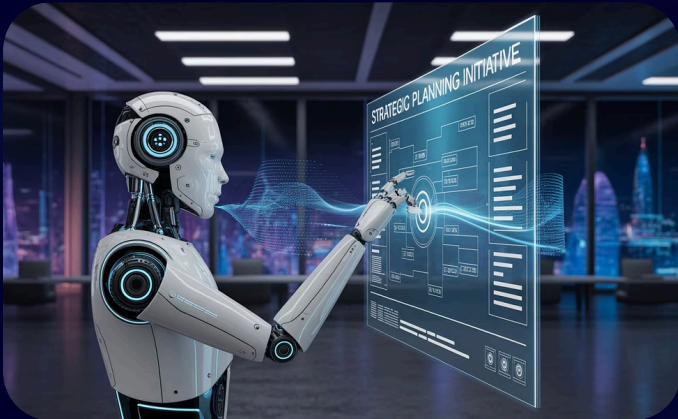
Process Automation

Adapts to new data and anomalies without human oversight.



OpenAI's Agents SDK:

A developer toolkit that enables building AI systems capable of planning, memory retention, and tool usage to complete complex tasks autonomously.



Planning Capabilities

SDK-built agents can break down complex tasks into logical steps and plan their execution sequence independently.



Memory Retention

Agents remember important information across multiple interactions, creating continuity in complex tasks.



Tool Integration

The SDK allows agents to use external tools like calculators or file search to complete tasks more effectively.

We are using this SDK in class to learn how real AI agents work and to build our own simple agents for practice. SDK stands for **Software Development Kit**, which means a collection of tools and code that makes it easier to create software.

Summary:

- Agentic AI = Autonomous systems that plan, adapt, and execute tasks with minimal human intervention
- LLMs = Large Language Models that process and generate human-like text based on vast training data
- Generative AI = Creates content on demand but lacks autonomous planning capabilities
- Agents SDK = OpenAI's toolkit enabling developers to build AI with planning, memory, and tool integration

