

PART: 3

Building AI Agents & Agentic AI

Module 1. Introduction to AI Agents and Agent Use Cases

Introduction to AI Agents and Agent Use Cases

Understand AI Agents concepts, how they differ, apply ai agents and design agentic solutions.

Introduction to AI Agents and Agent Use Cases

- AI Agents and different types of agents
- Use cases best for building AI Agents and how can they help us
- Basic building blocks when designing Agentic workflows

Module 2. Explore Agentic Frameworks

Explore Agentic Frameworks

Understanding of Agentic frameworks, key capabilities, differences between different Agents

AI Agent Frameworks

- AI Agent Frameworks
- Prototyping, iterate, and improve their agent's capabilities
- Differences between the frameworks and tools
- Integrating into workflows or standalone solutions

Module 3. AI Agentic Design Principles

AI Agentic Design Principles

Understanding agentic design principles and their guidelines and understand how to build an agent using these principles

Agentic Design Principles

- Agentic Design Principle
- Guidelines to follow while implementing these design principles
- Examples of design principles

Module 4. Tool Use

Tool Use

Understanding tool use design pattern, use cases, elements needed to implement design pattern, special considerations for using this pattern.

Tool Use Design Pattern

- Tool use design pattern
- Use cases it can be applied to
- Elements/building blocks needed to implement the design pattern
- Special considerations for using the Tool Use Design Pattern to build trustworthy AI agents

Module 5. Agentic Rag

Agentic Rag

Understanding agentic rag, owning the reasoning process, workflow, handling failure modes and self-correction, practical use-cases

Agentics RAG

- Understand Agentic RAG
- Iterative Maker-Checker Style
- Practical Applications

Module 6. Building Trustworthy Agents

Building Trustworthy Agents

Identify and mitigate risks when creating AI Agents, security measures and create AI Agents that maintain data privacy

Building Trustworthy AI Agents

- Building and deploying safe and effective AI Agents
- Important security considerations
- Maintain data and user privacy when developing AI Agents.

Module 7. Planning Design

Planning Design

Identify and set overall goal for AI agent, decompose a complex task into manageable subtasks, equip agents with the right tools, evaluate subtask outcomes, measure performance, and iterate on actions to improve the final output.

Planning Design

- Defining clear overall goal and breaking complex task into manageable tasks.
- Leveraging structured output for more reliable and machine-readable responses.
- Applying an event-driven approach to handle dynamic tasks and unexpected inputs.

Module 8. Multi-Agent

Multi-Agent

Identify scenarios where multi-agents are applicable, advantages of using multi-agents over singular agent, implementing multi-agent design pattern.

Multi-agent design patterns

- Scenarios where multi-agents are applicable to
- Advantages of using multi-agents over just one singular agent doing multiple tasks
- Multi-agent design pattern
- Visibility to how the multiple agents are interacting with each other

Module 9. Metacognition

Metacognition

Apply metacognition in AI agent design.

Metacognition in AI Agents:

- Implications of reasoning loops in agent definitions.
- Planning and evaluation techniques to help self-correcting agents.
- Create your own agents capable of manipulating code to accomplish tasks.

Module 10. AI Agents in Production

AI Agents in Production

Techniques for improving performance, costs, and effectiveness of a production AI Agent system.

AI Agents in Production

- Plan the deployment of your AI Agent to production effectively.
- Common mistakes and issues when deploying your AI Agent to production.
- Manage costs while still maintaining the performance of your AI Agent.

Module 11. MCP

MCP

Understand what MCP is and its role in AI agent development

Model Context Protocol (MCP)

- Understand what MCP is and its role in AI agent development
- Set up and configure an MCP server for GitHub integration
- Build a multi-agent system using MCP tools