

Day - 1

- **Introduction to Multi-Agent Systems and OpenAI Swarm**

- Principles of Multi-Agent Systems (MAS) and their applications.
- OpenAI Swarm: An overview of architecture and features.
- Benefits and use cases across industries.
- Hands-On Lab: Setting up Swarm in your environment.

- **Swarm Framework Essentials**

- Swarm components: Agents, handoffs, and routines.
- Setting up Swarm configurations and environments.
- Key concepts: Task allocation, coordination, and communication.
- Hands-On Lab: Configuring agents and setting up communication pipelines.

- **Agent Development in Swarm**

- Designing agents for specific roles and tasks.
- Building agents using Python and Swarm SDK.
- Implementing agent-to-agent handoffs.
- Hands-On Lab: Developing an agent-based file processing system.

- **Automating Complex Workflows**

- Workflow design principles in multi-agent environments.
- Using Swarm routines for task sequencing.
- Error handling and resilience in workflows.
- Hands-On Lab: Automating a multi-step data processing pipeline.

- **Integrating APIs and External Services**

- Leveraging APIs to extend Swarm functionality.
- Authentication and secure API integration.
- Real-time data exchange between agents and external systems.
- Hands-On Lab: Building an agent integrated with a third-party API.

- **Scaling and Optimizing Swarm Applications**

- Strategies for deploying Swarm applications in production.
- Monitoring performance using OpenAI tools and third-party services.
- Optimizing agent resource allocation and cost management.
- Hands-On Lab: Deploying a scalable Swarm workflow on a cloud platform.

- **Certification Preparation and Q&A**

- Recap of key learning points.
- Mock certification exam and discussion.
- Q&A session with trainers.