Building Advanced Agentic Systems on AWS Training

Duration: **1 Day**

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Overview

Learn how to design and implement production-ready multi-agent systems using Amazon Bedrock AgentCore. This course focuses on advanced topics including multi-agent architecture patterns, context optimisation, security configuration, monitoring and observability.

The program is designed to help learners move beyond proof-of-concept implementations and develop scalable, secure and observable agentic AI solutions suitable for real production environments.

Learners explore how multiple agents can work together, how to select suitable communication patterns, how to manage memory and state, and how to optimise context usage across complex workflows.

The course also covers the operational and security capabilities required for production deployment, including policy-based access control with AgentCore Policy Engine, VPC integration, distributed tracing, evaluation frameworks, enterprise observability integration and audit logging.

By the end of the course, learners will be prepared to design, deploy and continuously improve advanced agentic AI systems capable of supporting real-world production workloads.

Prerequisites

Learners are recommended to have attended, or possess knowledge equivalent to:

- Agentic AI Foundations
- Building Agentic AI with Amazon Bedrock AgentCore

Who Should Attend

This course is suitable for:

- Software developers looking to build advanced agentic AI systems
- Technical professionals exploring more sophisticated AI capabilities
- Development teams creating production-grade agentic AI solutions

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What You Will Learn

By the end of the course, learners will be able to:

- Analyse scenarios that benefit from multi-agent architectures
- Explain common multi-agent communication patterns and their use cases
- Configure agent-as-tool patterns for production use
- Implement shared memory using available platform capabilities
- Apply context management strategies to production workloads
- Design context compression and optimisation mechanisms
- Optimise resource usage and cost across multi-agent systems
- Configure policy-based access control with AgentCore Policy Engine
- Implement VPC integration for secure agent deployments
- Apply distributed tracing and monitoring across multi-agent environments
- Build comprehensive agent evaluation frameworks
- Configure integration patterns for enterprise observability platforms
- Establish audit trails and compliance monitoring
- Integrate agentic systems with production APIs and services
- Design deployment strategies for production environments
- Assess production readiness and establish continuous improvement processes

Outline

Module 1: Multi-Agent Architecture and Communication Patterns

- Limitations of single-agent approaches
- Benefits of multi-agent systems
- Multi-agent communication patterns
- Memory and state management

Instructor Demonstration

Building and Deploying Intelligent Financial Agents with Amazon Bedrock Strands and AgentCore

- Task 1: Building a Personal Budget Assistant with Strands Agents
- Task 2: Building a Multi-Agent System for Complex Financial Analysis

Module 2: Context Engineering and Performance Optimisation

- Understanding context as a finite resource
- Context optimisation techniques
- Designing tools for context efficiency
- Reducing unnecessary context usage across agents
- Performance and cost optimisation

Module 3: Security and Compliance Implementation

- Production Identity and Access Management
- Policy-based access control with AgentCore Policy Engine
- VPC integration

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- Network security
- Secure deployment patterns for agentic systems

Module 4: Production Monitoring, Observability and Evaluation

- Monitoring architecture
- AgentCore Evaluation
- Enterprise observability integration
- Distributed tracing
- Agent performance evaluation
- Audit trails and compliance monitoring

Instructor Demonstration

Building and Deploying Intelligent Financial Agents with Amazon Bedrock Strands and AgentCore

- Task 3: Deploying Production-Ready Agents with Amazon Bedrock AgentCore

Module 5: Well-Architected Agentic AI Systems

- Applying the Well-Architected approach to agentic AI systems
- Well-Architected deployment principles
- Production readiness
- Scalability, security and operational resilience
- Assessing deployment readiness

Module 6: Course Wrap-Up

- Recommended next steps
- Additional resources
- Review of key concepts
- Course summary