

AWS-DGAI: Developing Generative AI Applications on AWS

Overview

The course focuses on the practical implementation of prompt engineering techniques, responsible AI practices with Amazon Bedrock Guardrails, open source framework integration, and architectural patterns for real-world business applications.

This course includes presentations, demonstrations, hands-on labs, and group exercises.

Discover opportunities in Malaysia's growing digital economy. With billions of dollars invested by global tech giants like AWS, Microsoft, Google, and Oracle, Malaysia is rapidly emerging as a hub for digital innovation. The demand for certified Data and AI professionals has never been higher, making it the perfect time to elevate your career.

Duration

2 Days

What are the skills covered

- Develop generative AI applications using Amazon Bedrock.
- Design architecture patterns of generative AI applications.
- Configure Amazon Bedrock APIs to invoke foundation models (FMs) programmatically.
- Develop agentic AI applications by integrating Amazon Bedrock tools and open source frameworks.
- Build custom solutions with Retrieval Augmented Generation (RAG) and Amazon Bedrock Knowledge Bases.
- Integrate open source SDKs with Amazon Bedrock to build business.
- Optimize model responses by applying prompt engineering techniques.
- Evaluate generative AI application components.
- Implement responsible AI practices to protect generative AI.

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Course Objectives

- Learn to build and customize AI solutions by using Amazon Bedrock programmatically
- Invoke foundation models through Amazon Bedrock APIs
- Implement Retrieval Augmented Generation (RAG) patterns with Amazon Bedrock Knowledge Bases
- Develop AI agents with tool integration

Who should attend this course

This course is intended for:

Software developers interested in leveraging large language models without fine-tuning

Pre-requisite

We recommend that attendees of this course have:

- Completed the Generative AI Essentials AWS instructor-led course
- Intermediate-level proficiency in Python
- Familiarity with AWS Cloud

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OUTLINE

DAY 1

Time	Module	Topic Coverage
8:30AM – 9:00AM	Registration	-
9:00AM – 10:30 AM	Module 1: Exploring Components of Generative AI Applications on AWS	- Understanding generative AI concepts - Identifying AWS generative AI stack components - Designing generative AI application components
10:30AM – 10.45 AM	Tea Break	-
10:45AM – 12:30 PM	Module 2: Programming with Amazon Bedrock	- Guiding model response generation - Using Amazon Bedrock programmatically - Hands-on lab: Develop with Amazon Bedrock APIs - Hands-on lab: Develop Streaming Patterns with Amazon Bedrock APIs
12.30PM – 1:30 PM	Lunch Break	-
1.30PM – 3:30PM	Module 3: Applying Prompt Engineering for Developers	- Introducing prompt engineering - Introducing prompt techniques - Optimizing prompts for better results
	Module 4: Using Amazon Bedrock APIs in Common Architectures	- Implementing architecture patterns with Amazon Bedrock APIs - Exploring common use cases - Adding conversational memory to extend context - Hands-on lab: Develop Conversation Patterns with Amazon Bedrock APIs
3:30PM – 3:45PM	Tea Break	• -
3:45PM – 5:00PM	Module 5: Customizing Generative AI Responses with RAG	- Implementing Retrieval Augmented Generation (RAG) - Using Amazon Bedrock Knowledge Bases - Hands-on lab: Develop Retrieval Augmented Generation (RAG) Applications with Amazon Bedrock Knowledge Bases

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DAY 2

Time	Module	Topic Coverage
8:30AM – 9:00AM	Registration	-
9:00AM – 10:30 AM	Module 6: Integrating Open Source Frameworks with Amazon Bedrock	- Invoking a foundation model in Amazon Bedrock using LangChain - Using LangChain for context-aware responses - Hands-on lab: Develop a Generative AI Application Pattern using Open Source Frameworks and Amazon Bedrock Knowledge Bases
10:30AM – 10.45 AM	Tea Break	-
10:45AM – 12:30 PM	Module 7: Evaluating Generative AI Application Components	- Evaluating application components - Evaluating model output - Evaluating RAG output - Optimizing latency and cost - Hands-on lab: Evaluating Retrieval Augmented Generation (RAG) Applications
12.30PM – 1:30 PM	Lunch Break	-
1.30PM – 3:30PM	Module 8: Implementing Responsible AI	- Understanding responsible AI - Mitigating bias and addressing prompt misuses - Using Amazon Bedrock Guardrails - Hands-on lab: Securing Generative AI Applications Using Bedrock Guardrails
	Module 9: Using Tools and Agents in Generative AI Applications	- Using tools - Understanding AI agents - Understanding open-source agentic frameworks - Understanding agent interoperability
3:30PM – 3:45PM	Tea Break	-
3:45PM – 5:00PM	Module 10: Developing Amazon Bedrock Agents	- Implementing Amazon Bedrock Flows - Designing Amazon Bedrock Agents - Developing Amazon Bedrock Inline Agents - Designing multi-agent collaboration - Using Amazon Bedrock AgentCore - Hands-on lab: Developing Amazon Bedrock Agents Integrated with Amazon Bedrock Knowledge Bases and Guardrails