Developing and Deploying AI/ML Applications on Red Hat OpenShift AI

Course Duration: 32 Hours **Course code: AI267**

1. Course Overview

The Developing and Deploying AI/ML Applications on Red Hat OpenShift AI (AI267) course equips learners with the skills to build, train, and deploy machine learning models in a cloud-native environment. Participants will explore AI/ML workflows, integrate data science tools, and leverage OpenShift AI's capabilities for scalable deployments. The course emphasizes best practices in model lifecycle management, security, and monitoring. By the end, learners will be able to deliver AI solutions optimized for hybrid and cloud platforms.

2. What you'll learn?

By the end of this course, learners will:

This course aims to empower participants with the skills needed to develop, deploy, and manage AI/ML applications using Red Hat OpenShift AI. Learners will explore the capabilities of OpenShift as a robust MLOps platform, from managing data science workflows to containerizing and scaling AI models. By the end of the course, participants will be able to design end-to-end pipelines, ensure model reproducibility, and streamline the delivery of AI-driven solutions with enterprise-grade security and governance. This course is ideal for

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developers, data scientists, and AI practitioners aiming to accelerate AI adoption.

3. Target Audience

- Data scientists and machine learning engineers
- AI application developers
- DevOps engineers working with AI/ML pipelines
- Platform engineers managing containerized AI workloads
- IT professionals seeking to operationalize AI/ML solutions
- Anyone interested in building and deploying ML models at scale on OpenShift

4. Pre-Requisites

Participants should have:

- Participants should have a solid understanding of basic data science workflows, including knowledge of Python and popular ML frameworks, as well as some familiarity with containers and Kubernetes concepts. This background will enable them to fully benefit from the hands-on, platform-focused skills taught in this program.
- Basic understanding of data science and machine learning fundamentals
- Familiarity with Python programming
- Awareness of container technologies (e.g., Docker)

- Introductory knowledge of Kubernetes or OpenShift (recommended but not mandatory)

5. Course content

Module 01 – Introduction to Python Programming

- Overview of Python and Its Applications
- Setting Up the Python Development Environment
- Understanding Python Syntax and Basic Operations

Module 02 – Working with Data in Python

- Variables, Data Types, and Operators
- Working with Strings, Lists, Tuples, and Dictionaries
- File Handling and Input/Output Operations

Module 03 – Python Control Structures and Functions

- Conditional Statements and Loops
- Defining and Using Functions
- Exception Handling and Debugging Techniques

Module 04 – Introduction to Data Analysis and Libraries

- Using Python Libraries: NumPy and Pandas Basics
- Data Manipulation and Analysis
- Introduction to Visualization with Matplotlib

Module 05 – Introduction to Red Hat OpenShift AI

- Overview of OpenShift AI and Cloud-Native AI Concepts
- Setting Up OpenShift AI Environment
- Exploring Key Features and Components of OpenShift AI

Module 06 – Building and Deploying AI/ML Models

- Basics of Machine Learning Workflows
- Integrating Python-Based Models with OpenShift AI
- Deploying AI Applications in Cloud and Hybrid Environments

Module 07 – Managing and Monitoring AI Workloads

- Monitoring AI Pipelines and Model Performance
- Securing AI Applications in OpenShift
- Best Practices for AI Model Lifecycle Management