

AI253

Creating Machine Learning Models with Python and Red Hat OpenShift AI

Course Description

An introduction to Python programming, to machine learning concepts, and how to use Red Hat OpenShift AI to train ML models.

Python is a popular programming language used by system administrators, data scientists, and developers to create applications, perform statistical analysis, and train AI/ML models. This course introduces the Python language and teaches students basic machine learning concepts, and the different types of machine learning. This course helps students build core skills such as using Red Hat OpenShift AI to train ML models and how to apply best practices when training models through hands-on experience.

This course is based on Python 3, RHEL 9.0, Red Hat OpenShift® 4.14, and Red Hat OpenShift AI 2.8.

Recommended training

- Experience with Git is required
- Experience in Red Hat OpenShift is required, or completion of the [Red Hat OpenShift Developer II: Building and Deploying Cloud-native Applications \(DO288\)](#) course
- Basic experience in the AI, data science, and machine learning fields is recommended

Course Outline

Introduction to Python and setting up the developer environment.

Basic Python Syntax

Explore the basic syntax and semantics of Python

Language Components

Understand the basic control flow features and operators

Collections

Write programs that manipulate compound data using lists, sets, tuples and dictionaries

Functions

Decompose your programs into composable functions

Modules

Organize your code using Modules for flexibility and reuse

Classes in Python

Explore Object Oriented Programming (OOP) with classes and objects

Exceptions

Handle runtime errors using Exceptions

Input and Output

Implement programs that read and write files

Data Structures

Use advanced data structures like generators and comprehensions to reduce boilerplate code

Parsing JSON

Read and write JSON data

Debugging

Debug Python programs using the Python debugger (pdb)

Introduction to Machine Learning

Describe basic machine learning concepts, different types of machine learning, and machine learning workflows

Training Models

Train models by using default and custom workbenches

Enhancing Model Training with RHOAI

Use RHOAI to apply best practices in machine learning and data science