Advanced Programming Techniques with Python (v1.11)

Summary

Length: 24 hours Level: Foundational

Python continues to be a popular programming language, perhaps owing to its easy learning curve, small code footprint, and versatility for business, web, and scientific uses. Python is useful for developing custom software tools, applications, web services, and cloud applications. In this course, you'll build upon your basic Python skills, learning more advanced topics such as object-oriented programming patterns, development of graphical user interfaces, data management, creating web service-connected apps, performing data science tasks, unit testing, and creating and installing packages and executable applications.

Learning Objectives

In this course, you will expand your Python proficiencies. You will:
Select an object-oriented programming approach for Python applications.
Create object-oriented Python applications.
Create a desktop application.
Create data-driven applications.
Create and secure web service-connected applications.
Program Python for data science.
Implement unit testing and exception handling.
Package an application for distribution.

Course Outline

1. LESSON 1: SELECTING AN OBJECT-ORIENTED PROGRAMMING APPROACH FOR PYTHON APPLICATIONS

   Topic A: Implement Object-Oriented Design

   Topic B: Leverage the Benefits of Object-Oriented Programming

2. LESSON 2: CREATING OBJECT-ORIENTED PYTHON APPLICATIONS

   Topic A: Create a Class

   Topic B: Use Built-in Methods

   Topic C: Implement the Factory Design Pattern

3. LESSON 3: CREATING A DESKTOP APPLICATION

   Topic A: Design a Graphical User Interface (GUI)

   Topic B: Create Interactive Applications

4. LESSON 4: CREATING DATA-DRIVEN APPLICATIONS

   Topic A: Connect to Data

   Topic B: Store, Update, and Delete Data in a Database

5. LESSON 5: CREATING AND SECURING A WEB SERVICE-CONNECTED APP

   Topic A: Select a Network Application Protocol

Topic B: Create a RESTful Web Service

Topic C: Create a Web Service Client

Topic D: Secure Connected Applications

6. LESSON 6: PROGRAMMING PYTHON FOR DATA SCIENCE

Topic A: Clean Data with Python

Topic B: Visualize Data with Python

Topic C: Perform Linear Regression with Machine Learning

7. LESSON 7: IMPLEMENTING UNIT TESTING AND EXCEPTION HANDLING

Topic A: Handle Exceptions

Topic B: Write a Unit Test

Topic C: Execute a Unit Test

8. LESSON 8: PACKAGING AN APPLICATION FOR DISTRIBUTION

Topic A: Create and Install a Package

Topic B: Generate Alternative Distribution Files

Audience

This course is designed for existing Python programmers who have at least one year of Python experience and who want to expand their programming proficiency in Python 3. To ensure your success in this course, you should have experience with object-oriented programming and Python 2.x or 3.x. You can obtain this level of skills and knowledge by taking the following course: Introduction to Programming with Python