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Advanced Python Development (4 days)

Course overview

This course aims to extend and solidify your Python experience by exploring structural techniques and common Python APIs. You'll learn how to write OO and functional code, define and consume REST services and web sockets, implement multithreaded code, use popular Python data science libraries, implement Big Data solutions, and more.

What you'll learn

- Object-oriented Python programming
- Functional Python programming
- REST services and web sockets
- Defining and using decorators
- Asynchronous programming
- Python data science techniques
- Python Big Data and PySpark

Prerequisites

- Approx. 6 months Python experience

Course details

- Recap Essential Python Features: Language Fundamentals; Functions; Data Structures; Defining and Using Packages; Additional Techniques
- Object-Oriented Programming: Essential Concepts; Defining and Using a Class; Class-Wide Members
- Additional Object-Oriented Techniques: A Closer Look at Attributes; Implementing Special Methods; Inheritance
- XML Processing: XML Essentials; Reading XML Data in Python; Locating Content using XPath; Updating XML Data in Python; Using the Lxml Library
- Functional Programming: Functional Programming in Python; Higher Order Functions; Additional Techniques
- Web Processing: Python Web Servers; Python Rest Services; Python Web Sockets
- Decorators: Getting Started with Decorators; Additional Decorator Techniques; Parameterized Decorators
- Asynchronous Processing in Python: Getting Started with Asynchrony in Python; Creating Tasks to Run in Different Threads; Additional Task Techniques
- Getting Started with Python Data Science and NumPy: Introduction to Python Data Science; NumPy Arrays ; Manipulating Array Elements; Manipulating Array Shape

- NumPy Techniques: NumPy Universal Functions; Aggregations; Broadcasting; Manipulating Arrays using Boolean Logic; Additional Techniques
- Getting Started with Pandas: Introduction to Pandas; Creating a Series; Using a Series; Creating a DataFrame; Using a DataFrame
- Pandas Techniques: Universal Functions; Merging and Joining Datasets; A Closer Look at Joins
- Working with Time Series Data: Introduction to Time Series Data; Indexing and Plotting Time Series Data; Testing Data for Stationarity; Making Data Stationary; Forecasting Time Series Data; Scaling Back the ARIMA Results
- Introduction to Big Data: Setting the Scene; Introduction to Hadoop; Hadoop Components
- Getting Started with PySpark: Introduction to Spark; Spark Architecture; Application Execution; Using the Python Spark Shell
- Using the PySpark API: Essential Concepts; Creating an RDD; Working with RDDs
- RDD Operations: RDD Transformations; RDD Transformations on Key-Value Pairs; Actions; Caching; Spark Jobs - The Big Picture