Detailed Agenda - Broadridge

Embark on a ten-day comprehensive learning journey designed to elevate your Python skills. Each day is structured to build upon the last, ensuring a cohesive and in-depth understanding of Python's vast capabilities.

Day 1: Introduction to Python

- Overview and Potential of Python
- Environment Setup
- Basic Syntax, Variables, and Data Types
- Naming Conventions (PEP8), Operators
- Python Data Structures, Functions, Modules, and Packages
- Python Use Cases

Day 2: Advanced Python Concepts

- Strings in Python
- Inbuilt Functions & Modules
- Lambda Functions
- Arguments and Keyword Arguments
- Conditional and Iterable Statements
- Deep Dive into Data Structures (Lists, Dictionaries, Tuples, Sets)

Day 3: Python Functional Programming

- Closures and Decorators
- Map, Filter, and Reduce Functions
- Sorting Techniques

- Enums and Generators
- Understanding `__name__` Significance
- Exception Handling and Datetime Module

Day 4: Object-Oriented Python

- File Operations
- Introduction to Object-Oriented Programming (OOP) in Python
- Instances, Methods, Inheritance, and Method Resolution Order
- Special Methods and Polymorphism
- Project Work - Practical Implementation

Day 5: Python for Data Handling

- Virtual Environments and Package Management
- Working with JSON, CSV, and XML
- Rational Databases (SQLite & MySQL)
- NoSQL Databases (MongoDB)
- Requests Library for HTTP Requests
- Web Scraping using BeautifulSoup

Day 6: Graphical User Interfaces with Python

- GUI Development in Python
- Introduction to Tkinter
- Tkinter Widgets and Geometry Managers
- Canvas and Menu Widgets in Tkinter
- Integrating Tkinter with Databases
- Simple Project and Packaging Techniques

Day 7: Data Analytics with Python

- Introduction to Data Analytics
- NumPy: Operations, Data Types, Vectors, Matrices, Broadcasting, Linear Algebra
- Understanding ndarrays
- Saving and Loading Data with NumPy

Day 8: Data Manipulation with Pandas

- Introduction to Pandas
- Understanding Dataframes

- Working with Series and Categories

- Loading Data from Various Sources

- Data Indexing, Selecting & Manipulation

- Data Cleaning and Plotting with Pandas

Day 9: Data Visualization and Projects

- Introduction to Data Visualization

- Fundamentals of Matplotlib

- Project: Inventory Management & Billing System

- Project: Pizza Ordering Kiosk Application

Day 10: Deployment and Advanced Topics

- Testing and Debugging Techniques

- Deploying Python Applications on Cloud (AWS EC2, Lambda)

- Dockerizing Python Applications

- CI/CD Pipeline with Github Actions

- Introduction to Python Frameworks: Django, Flask, FastAPI

This agenda is designed to provide you with a thorough understanding of Python, from basic concepts to advanced applications, ensuring you are well-equipped to tackle any Python-related challenge in your professional career.