Faysal Aziz

Python Mastery

A 5-Day Comprehensive Course

FA-0392 · 5-Day

Software Development · Data & Analytics

Introduction

Embark on an enlightening 5-day journey with our Python Mastery course. Designed for those seeking a deep dive into Python's capabilities, this course stands out in Malaysia's educational landscape. Most local courses still focus on older versions of Python in a theoretical context. In contrast, our course, led by industry veterans with over three decades of experience, covers the most current Python features and their practical applications. This program goes beyond the basics, delving into web development, data manipulation, and visualization, offering hands-on experience with real-world projects.

Learning outcomes

By completing this course, participants will be able to:

1. Master fundamental and advanced Python programming concepts.
2. Develop and deploy Python applications for web and data analysis.
3. Understand and implement Object-Oriented Programming (OOP) in Python.
4. Perform data manipulation and visualization using Pandas and Matplotlib.
5. Build interactive web applications using Python frameworks.
6. Gain insights into practical uses of Python in various domains.
7. Enhance skills in error handling and debugging.
8. Learn efficient coding practices and project management in Python.
9. Learn and apply new Python techniques.
10. Integrate external libraries, including C libraries.
11. Engage in image processing for Optical Character Recognition (OCR).

Prerequisites

Participants should have:

1. Basic computer literacy and familiarity with programming concepts.
2. A laptop or computer with a stable internet connection.
3. Ability to install software (Python, IDEs, etc.).
4. Eagerness to engage in hands-on learning and projects.

Training outline

1. Introduction to Python

1. Logic and Algorithm Basics
2. Overview of the Programming World
3. Installing Python and Setting Up the Environment
4. Integrated Development Environments (IDEs): IDLE, Notebooks, Google’s Colab

2. Core Concepts: Variables and Data Types

1. Understanding Variables in Python
2. Basic Data Types and Their Operations
3. Variables and Script Updates
4. Quizzes and Practical Exercises

3. Numerics in Python

1. Understanding Numbers and Basic Arithmetic
2. Floats, Modulo Operations, and Order of Operations
3. Introduction to Python's Math Module
4. Hands-On Project and Quizzes

4. String Manipulation

1. Basics of Handling Text in Python

2. String Methods and Operations
3. Coding Exercises: Text Manipulation and Correction
4. Practical Project on String Handling

5. Conditional Logic and Flow Control

1. Understanding Booleans and Comparison Operators
2. Implementing 'if' Statements
3. Logical Operators and Their Applications
4. Coding Challenges and Quizzes

6. Data Structures in Python

1. Lists, Dictionaries, and Their Operations
2. Advanced Methods for List Manipulation
3. Practical Projects Involving Data Structures

7. Loops and Functions

1. Introduction to Loops: 'While' and 'For' Loops
2. Deep Dive into Python Functions
3. Exploring Variable Scope, Keyword Arguments, and Default Parameters
4. List Comprehensions and Practical Exercises

8. Practical Application and External Libraries

1. Implementing Recursion
2. Data Stream Conversion Techniques
3. Data Acquisition Methods
4. Utilizing External Libraries for Practical Applications
5. Projects: Graphic Overview and Data Extraction for Historical Stocks

9. Advanced Data Structures and Algorithms

1. Lists, Tuples, Sets, and Dictionaries
2. Algorithms: Searching and Sorting Techniques
3. Regular Expressions and Text Manipulation

10. Object-Oriented Programming (OOP) in Python

1. Understanding Classes and Objects
2. Inheritance, Polymorphism, and Encapsulation
3. Real-world Applications of OOP in Python

11. Python for Web Development

1. Introduction to Web Frameworks: Flask and Django
2. Building a Basic Web Application
3. Client-Server Architecture and REST APIs in Python

12. Data Manipulation with Pandas

1. Introduction to Pandas for Data Analysis
2. DataFrames and Data Manipulation Techniques
3. Case Studies: Analyzing Real-World Data Sets

13. Data Visualization with Matplotlib and Seaborn

1. Basics of Data Visualization
2. Creating Plots and Graphs with Matplotlib
3. Advanced Data Visualization Techniques

14. Operating System Utilities and File Handling

1. Utilizing OS Utilities in Python
2. File Reading and Writing Techniques
3. Structured File Reading Methods
4. Practical Exercises on File Handling

15. New Features in Python 3.10 and 3.11

1. Exploring F Strings and Customizations
2. Understanding and Implementing the 'Switch' Statement
3. Optimizations
4. I/O Read/Write Parallelization Techniques

16. Project Management and Deployment

1. Version Control with Git and GitHub
2. Best Practices in Coding and Documentation
3. Deploying Python Applications

17. Capstone Project

1. Integrating Learned Skills in a Comprehensive Project
2. Project Presentation and Review
3. Feedback and Future Learning Pathways

This curriculum is designed to provide a holistic and practical understanding of Python, enabling learners to apply their skills in various domains. Join us for this transformative experience and elevate your Python expertise!

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