Faysal Aziz

Python Essentials:

A Comprehensive 3-Day Journey

FA-0380 · 3-Day

Software Development

Introduction

This Python Essentials course is a transformative three-day journey crafted to immerse you in the world of Python programming. Unlike most courses in Malaysia, which often focus on older versions of Python in a strictly academic context, our course is dynamically designed to address the latest changes and practical implementations in Python. We pride ourselves on offering a curriculum not just taught, but brought to life by industry experts with over 30 years of development experience. This course is your gateway to mastering Python with a blend of theory and hands-on practice, ensuring you are well-equipped to navigate and utilize the language in real-world scenarios.

Learning outcomes

By the end of this course, participants will be able to:

1. Understand and apply Python logic and algorithms.
2. Adopt and implement efficient development processes.
3. Code proficiently in Python.
4. Utilize various Integrated Development Environments (IDEs).
5. Implement loops, functions, and recursion.
6. Work with filing systems and data acquisition.
7. Navigate operating system necessities.
8. Learn and apply new Python techniques.
9. Integrate external libraries, including C libraries.
10. Engage in image processing for Optical Character Recognition (OCR).

Prerequisites

Participants are expected to have:

1. Access to two screens (For online virtual training only).
2. A steady webcam setup (For online virtual training only).
3. Internet connection with at least 1 MBPS speed.
4. A Google email address OR administrative rights to install Anaconda and python libraries on the go (either one would do).
5. Basic understanding of uploading, downloading, and managing files.
6. Familiarity with local file system operations.
7. Willingness to learn and have fun learning.

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 Processing Techniques

1. Optical Character Recognition (OCR)

2. Integrating External C Libraries
3. Advanced String Formatting with f-strings
4. Web Scraping Essentials
5. Error Handling and Management

10. 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

11. 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

This comprehensive outline ensures a rich learning experience, blending the latest Python features with practical skills and real-world applications. Join us to elevate your Python proficiency in an engaging, expert-led environment!

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