Introduction to Python Programming

Training Course Outline

December 29, 2024

Course Overview

This comprehensive Python training program is designed to take you from a beginner to a proficient Python programmer. Through seven carefully structured modules, you'll learn fundamental programming concepts, advanced features, and practical applications of Python.

1 Module 1: Introduction to Python - Basics and Syntax

Description: Foundation module introducing Python programming language fundamentals.
Learning Outcomes:

- Understanding Python's syntax and basic rules
- Working with Python's interactive shell
- Writing and executing basic Python scripts
- Following Python coding conventions

2 Module 2: Variables, Data Types, and Operators

Description: Core concepts of data handling and manipulation in Python.
Learning Outcomes:

- Understanding different data types (integers, floats, strings, booleans)
- Working with variables and memory management
- Using arithmetic, comparison, and logical operators
- Type conversion and data manipulation

3 Module 3: Control Structures

Description: Essential programming constructs for controlling program flow.
Learning Outcomes:

- Implementing conditional statements (if, elif, else)
- Working with loops (for, while)
- Using loop control statements (break, continue)
- Implementing nested control structures

4 Module 4: Functions and Modules

Description: Writing reusable code and organizing programs efficiently.
Learning Outcomes:

- Creating and using functions
- Understanding function parameters and return values
- Working with built-in modules
- Creating custom modules
- Managing module imports

5 Module 5: File Handling

Description: Working with external files and data persistence.
Learning Outcomes:

- Reading from and writing to files
- Understanding file modes and operations
- Working with different file formats (text, CSV)
- Implementing error handling for file operations

6 Module 6: Object-Oriented Programming

Description: Understanding and implementing object-oriented programming concepts.
Learning Outcomes:

- Creating and using classes and objects
- Implementing inheritance and polymorphism
- Understanding encapsulation and abstraction
- Working with class methods and attributes

7 Module 7: Web Scraping with Python

Description: Introduction to automated web data extraction techniques.
Learning Outcomes:

- Understanding web scraping concepts and ethics
- Working with requests and BeautifulSoup libraries
- Implementing data extraction from websites
- Handling different HTML elements and structures

Course Requirements

- Basic computer literacy
- Computer with Python 3.x installed
- Text editor or IDE (Visual Studio Code recommended)
- Internet connection for web scraping module

Learning Approach

The course combines:

- Interactive lectures
- Hands-on coding exercises
- Real-world projects
- Practical assignments