12-Months Professional Level Python Programming Training

Certification Course Outline

Module 1: Introduction to Python

- First, understand what Python is and why it is popular.
- Next, install Python and set up the environment.
- Then, write your first simple program: `print("Hello World")`.
- Finally, explore Python basics like syntax and comments.

Module 2: Variables and Data Types

- First, learn how to create variables to store data.
- Next, explore data types: integers, floats, strings, booleans.
- Then, perform simple operations with variables.
- Finally, practice type conversion and naming rules.

Module 3: Operators and Expressions

- First, learn arithmetic operators like +, -, *, /.
- Next, explore comparison and logical operators.
- Then, combine operators in expressions for calculations.
- Finally, practice using operators in small programs.

Module 4: Control Flow – If Statements

- First, understand how `if`, `elif`, `else` statements work.
- Next, write programs that make decisions automatically.
- Then, use nested conditions for complex scenarios.
- Finally, test different inputs to see outputs change.

Module 5: Loops – For & While

- First, learn `for` loops to repeat code for items in lists.
- Next, use `while` loops to repeat code until conditions meet.
- Then, practice `break` and `continue` for better control.
- Finally, create small programs that use loops effectively.

Module 6: Functions and Modules

- First, learn how to create reusable functions with `def`.
- Next, explore function arguments, return values, and scope.
- Then, import Python modules to extend functionality.
- Finally, practice building programs using custom and built-in functions.

Module 7: Lists, Tuples, and Sets

- First, understand lists for ordered data storage.
- Next, explore tuples for fixed data and sets for unique items.
- Then, use loops and functions with these structures.
- Finally, practice common operations like add, remove, and slice.

Module 8: Dictionaries and Data Handling

- First, learn dictionaries to store key-value pairs.
- Next, access, update, and delete data in dictionaries.
- Then, combine lists and dictionaries for advanced storage.
- Finally, practice programs using data collection and retrieval.

Module 9: File Handling

- First, open and read files using Python commands.
- Next, write or append data to files safely.
- Then, explore CSV and text file processing.
- Finally, create small programs to save and read data.

Module 10: Error Handling and Exceptions

- First, learn why errors occur in Python programs.
- Next, use `try`, `except` blocks to handle exceptions.
- Then, explore `finally` and `raise` for better control.
- Finally, write programs that handle input and runtime errors.

Module 11: Object-Oriented Programming (OOP)

- First, understand classes and objects in Python.
- Next, create attributes and methods for classes.
- Then, use inheritance and encapsulation for reusability.
- Finally, practice building programs using multiple objects.

Module 12: Certification & Final Project

- First, review all Python concepts learned in previous modules.
- Next, complete a final project combining loops, functions, and OOP.
- Then, submit your project for evaluation and feedback.
- Finally, earn your **Professional Python Programming Certificate**.

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