Complete Roadmap in Python Programming

(Zero to Hero)

Course Duration: 06 Months **Total Class: 72**

Primary Level

Goals of this Course Achievement

Module-01 **Basic Concept**

- Introduction of Python
- Why Should we learn Python?
- Install Python & Development Environment(**Pycharm, VS Code**, Sublime Text, Atom, Pip, **Jupyter Notebook**)
- Basic Syntax
- Comments

Module-02

- Variables
- Data Type
- Numbers
- Strings
- Booleans

Module-03 **Data Structures**

- Input/Output, Operators & Operands
- List, Tuples, Set & Dictionaries
- List Vs Tuples Vs Set
- Arrays
- list Methods
- Type Casting

Module-04 **Control Flow**

- Conditional Statements-if, elif, Else
- Loops(For, While)
- Loops Control Statements(break, continue, pass)
- Patterns in Python Using Loop

Module-05

- Class Test & Problem Solving
- Mini Project Submit

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Module-06 **Functions**

- Defining and calling functions
- Build in & user define function
- Function arguments & Parameters
- Return types and recursion
- Zip Function

Module-07

- Swapping
- Match
- Decorators
- Range
- Lambda
- Exception

Module-08

- Scope
- Modules
- JSON
- RegEx
- PIP
- Math
- Matrix
- Dates
- Scope
- None

Module-09 **File Handling & Error Handling**

- File Handling
- Try Except, Error & Exception Handling
- File reading and writing(.txt, .csv, .json)
- File Open
- Delete Files
- Debugging
- Number Guessing

Module-10

- Class Test & Problem Solving
- Mini Project

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Mid Level
Object Oriented Programming (OOP)

Module-11

- What's OOP & Why we use OOP?
- Class & Object
  - Class define, object create, attributes, methods

Module-12

- Constructor(__init__) & Destructor(__del__)
- Different Type of Inheritance
- Composition Vs Inheritance
- Iterators

Module-13

- Method Overloading & Method Overriding
- Abstraction

Module-14

- Polymorphism
- Encapsulation (Private & Protect attributes)
- @property decorator

Module-15

- Static Method & Class Method
- Magic Methods
- Super Method

Module-16

- Class Test & Problem Solving
- Final Project

Python Libraries

Module-17

- Introduction of Python Libraries
- Numpy, Pandas, Matplotlib, Seaborn
- Sciket-Learn(ML)
- TensorFlow(DL)

Module-18

- Real life Project (ML Based)

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Advance Level

Data Structure & Algorithms

Module-19

- Complexity Analysis
  - Time Complexity
  - Space Complexity
- Searching Algorithm
  - Linear Search
  - Binary Search

Module-20

- Sorting Algorithm
  - Selection Sort
  - Bubble Sort
  - Insertion Sort
  - Merge Sort
  - Quick Sort

Module-21

- Stack
- Queue

Module-22

- Linked List
  - Single
  - Double
  - Circular

Module-23

- HashMap
- Tree
  - Binary Tree, BST, Traversal- Inorder, Preorder, Postorder

Module-24

- Graph Algorithm
  - Adjacency List
  - Adjacency Maxtrix

❖ Final Exam + Final Project Submit

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