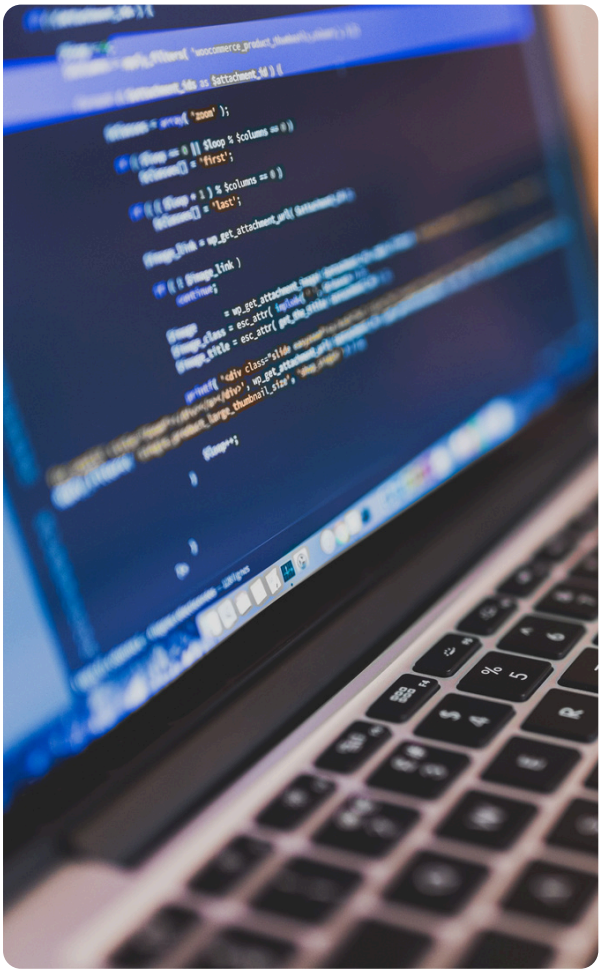
1 Python Programming

Module 1: Introduction To Python Programming and Basic



- Introduction to programming, R or Python?, Why Python?, Different job roles with Python, Different Python IDEs, Downloading and setting up Python environment.
- Python input and output operations, Comments, Variables, Rules for naming variables, Basic Data Types in Python, Typecasting in Python.
- Arithmetic operators, Assignment operators, Comparison operators, Logical operators, Identity operators, Membership operators, Bitwise operators.

Module 2 : Data Structure and Control Flow

- Creating strings, String formatting, Indexing, Slicing, String methods, Creating lists, Properties of lists, List indexing, List slicing, List of lists, List Methods, Adding, Updating & removing elements from lists.
- Syntax to create tuples, Tuple properties, Indexing on tuples, Slicing on tuples, Tuple methods, Syntax for creating sets, Updating sets, Set operations and methods, Difference between sets, lists and tuples.
- Syntax for creating Dictionaries, Storing data in dictionaries, Dictionaries keys and values, Accessing the elements of dictionaries, Dictionary methods.
- Setting logic with conditional statements, If statements, If-else statements, If-elif-else statements, Iterating with python loops, while loop, for loop, range, break, continue, pass, enumerate, zip, Assert, Why List comprehension, Syntax for list comprehension, Syntax for dict comprehension.

Module 3: Functions and Advanced Python

- What are Functions, Modularity and code reusability, Creating functions, Calling functions, Passing Arguments, Positional Arguments, Keyword Arguments, Variable length arguments (*args), Variable Keyword length arguments (**kargs), Return keyword in Python.
- Passing function as argument, Passing function in return, Global and local variables, Recursion, Lambda, Lambda with filter, Lambda with map, Lambda with reduce, Creating and using generators, Creating modules, Importing functions from different modules, Importing Variables from different modules.
- Python builtin modules, Creating packages, Importing modules from packages, Different ways of importing modules and packages, Working on Numpy, Pandas and Matplotlib, Math module, Random Module, Sys module, Os module.
- Datetime, Regex - re module, Opening files, Opening different file types, Read, write, close files, Opening files in different modes, Installing BeautifulSoup, Understanding web structures, Chrome devtools, request, Scraping data from web using BeautifulSoup, Scraping static websites, Selenium, Scraping dynamic websites using Selenium.

Module 4: Object Oriented Programming

- Creating classes & Objects, Attributes and methods, Understanding init constructor method, Class and instance attributes, Different types of methods, Instance methods, Class methods, Static methods, Inheritance, Creating child and parent class, Overriding parent methods, The super() function.
- Understanding Types of inheritance, Single inheritance, Multiple inheritance, Multilevel inheritance, Polymorphism, Operator overloading, Accessing Database using sqlite3 and MySql, Creating tables, Insert Values, Commit changes, Query.
- Update and Delete, Understanding APIs, Flask for building APIs, Making requests using APIs, Building a Registration App using API, Ngrok Server for hosting the API.

- **Mini Project - Building A Virtual Assistant.**