### Python Course Outline

#### Module 1: Introduction to Python

1. \*\*Introduction to Programming and Python\*\*

- What is Python?

- Setting up the Python environment

- Writing your first Python program

2. \*\*Python Basics\*\*

- Variables and data types

- Basic input and output

- Comments and documentation

#### Module 2: Control Structures

1. \*\*Conditional Statements\*\*

- if, elif, else statements

- Nested conditions

2. \*\*Loops\*\*

- for loops

- while loops

- Break and continue statements

#### Module 3: Data Structures

1. \*\*Lists\*\*

- Creating and accessing lists

- List methods and operations

2. \*\*Tuples\*\*

- Creating and accessing tuples

- Tuple operations

3. \*\*Dictionaries\*\*

- Creating and accessing dictionaries

- Dictionary methods and operations

4. \*\*Sets\*\*

- Creating and accessing sets

- Set methods and operations

#### Module 4: Functions

1. \*\*Defining Functions\*\*

- Function syntax

- Parameters and arguments

2. \*\*Scope and Lifetime of Variables\*\*

- Local and global variables

3. \*\*Lambda Functions\*\*

- Anonymous functions

- Use cases and examples

#### Module 5: Object-Oriented Programming (OOP)

1. \*\*Classes and Objects\*\*

- Defining classes

- Creating objects

2. \*\*Class Attributes and Methods\*\*

- Instance variables and methods

- Class variables and methods

3. \*\*Inheritance\*\*

- Inheriting classes

- Method overriding

#### Module 6: Modules and Packages

1. \*\*Importing Modules\*\*

- Standard library modules

- Third-party modules

2. \*\*Creating Modules\*\*

- Writing your own modules

3. \*\*Packages\*\*

- Organizing code into packages

#### Module 7: File Handling

1. \*\*Reading and Writing Files\*\*

- File operations: open, read, write, close

- Working with text and binary files

2. \*\*Exception Handling\*\*

- Try, except, finally blocks

- Handling multiple exceptions

#### Module 8: Advanced Topics

1. \*\*Regular Expressions\*\*

- Pattern matching and searching

2. \*\*Working with Databases\*\*

- Connecting to databases using Python

3. \*\*Web Scraping\*\*

- Extracting data from websites

#### Module 9: Projects and Practice

1. \*\*Mini Projects\*\*

- Building small applications

2. \*\*Practice Problems\*\*

- Solving coding challenges