



Python Programming (basic to advanced) - syllabus

Introduction to Python Programming

- What is Python Programming?
- History of Python Programming
- Features of Python Programming
- Why to learn Python Programming
- Application of Python Programming

Setup of Python Programming

- Getting Python
- Installation of Python
- Getting started with the first Python program
- Running the first Python Program

Variables and Data types

- What is a variable?
- Declaration of variable
- Variable assignment
- Data types in Python
- Checking Data type
- Data types Conversion
- Python programs for Variables and Data types

Python Identifiers, Keywords, Reading Input, Output Formatting

- What is an Identifier?
- Keywords
- Reading Input
- Taking multiple inputs from user
- Output Formatting
- Python end parameter

Operators in Python

- Operators and types of operators
 - a) Arithmetic Operators
 - b) Relational Operators
 - c) Assignment Operators
 - d) Logical Operators
 - e) Membership Operators
 - f) Identity Operators
 - g) Bitwise Operators
- Python programs for all types of operators

DECISION MAKING

- Introduction to Decision making
- Types of decision-making statements
- Introduction, syntax, flowchart and programs for
 - a) if statement
 - b) if...else statement
 - c) elif statement

Loops

- Introduction to loops
- Types of loops
 - a) for loop
 - b) while loop
 - c) infinite loop
 - d) nested loop
- Break, continue and pass statement
- Python programs for all types of loops

NUMBERS

- Number Type Conversion
- Random Number Functions
- Trigonometric Functions
- Mathematical Constants

STRINGS

- Accessing Values in Strings
- Updating Strings
- String Special Operators
- Built-in String Methods

LISTS

- Python Lists
- Accessing Values in Lists
- Updating Lists
- Deleting List Elements
- Basic List Operations
- Built-in List Functions and Methods

TUPLES

- Accessing Values in Tuples
- Updating Tuples
- Deleting Tuple Elements
- Basic Tuples Operations
- Built-in Tuple Functions
- Difference between list and tuple

DICTIONARY

- Accessing Values in Dictionary
- Updating Dictionary
- Delete Dictionary Elements
- Properties of Dictionary Keys
- Built-in Dictionary Functions and Methods

DATE AND TIME

- What is Tick?
- What is TimeTuple?
- Getting Current Time
- Getting Formatted Time
- Getting Calendar for a Month

FUNCTIONS

- Defining a Function
- Calling a Function
- Passing by Reference versus Passing by Value
- Ways to write function
- Types of functions
- Anonymous function
- Recursive Function

MODULES

- What is a module?
- Creating a module
- The import Statement
- The **'from'** import Statement
- Renaming a module
- Using the dir() function
- The **'from'** import * Statement
- Locating Modules

FILES I/O

- Printing to the Screen
- Opening and Closing Files
- The open Function
- The file Object Attributes
- The close() Method
- Reading and Writing Files
- The write() Method
- The read() Method
- More Operations on Files

EXCEPTIONS

- What is Exception?
- Handling an Exception
- The except Clause with No Exceptions
- The except Clause with Multiple Exceptions
- The try-finally Clause
- List of Standard Exception
- Raising an Exception
- Argument of an Exception

CLASSES AND OBJECTS

- What is an Object?
- What is a Class?
- Creating a Class
- Creating an object
- Self in Python
- `__init__` method
- Examples

REGULAR EXPRESSION

- What is a REGULAR EXPRESSION?
- Metacharacters
- `match()` function
- `search()` function
- `re.match()` vs `re.search()`
- `findall()` function
- `split()` function
- `sub()` function

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GUI Programming

- What is a GUI PROGRAMMING?
- Tkinter Programming
- Tkinter Widgets
- Building Your First Python GUI program with Tkinter

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