## **PYTHON**

## 

Introduction to Python and what is a Python

Features and versions of Python

Interpreter vs Compiler

Scripting vs Programming Languages

1. Python Basics

* Comments and Quotations
* Python Identifiers and Keywords
* Variables
* Reading data from user with input function
* Assigning values to variables in different ways  
  Printing values to console

1. Python data types

* Int, float, string, complex
* Type conversions

1. Operators

* Arithmetic operators
* Logical operators
* Assignment operators
* Comparison operators
* Bitwise operators
* Identity operators
* Membership operators

1. String data Structure

* Different ways to create a string
* String indexing and string slicing
* string concatenation and string multiplication
* splitting the data in different parts as per user
* capitalize() and tittle() and split()
* del, count(), find(), swapcase()
* reverse(),replace() and sort()
* string immutable

1. Python Functions and Arguments

* Defining functions and working with functions
* Called functions and function definition and calling functions
* Formal arguments and actual arguments
* Working with named arguments and keyword arguments
* Default arguments and positional arguments
* Working with default arguments and normal arguments

1. Control Statements

* Simple If statement
* If else statement
* Elif statement
* Nested if statement

1. Loopings

* For loop
* while loop
* Pass, continue and break statements
* Iterating over list, tuple, set and dictionary

1. List Data Structure:

* create a list
* list indexing and list slicing
* list concatenation and list multiplication
* list unpacking and list mutable
* creating nested lists and indexing nested lists
* python range()
* Python insert, append and extend
* remove, pop and clear ,Iteration

1. Tuple Data Structure

* creating a tuple in different ways
* creating and working with homogeneous tuple
* creating and working with heterogeneous tuple
* tuple indexing and tuple slicing
* tuple concatenation and tuple multiplication
* Iteration

1. Set Data Structure

a.Creating and working with set data structure in different ways  
b. Normal sets and frozen sets  
c. Set mutable and unpacking set data structure  
d. Creating and working with sets with homogeneous elements  
e. Creating and working with sets with heterogeneous elements  
f. Creating empty sets and modifying the empty sets  
g. Why sets not support indexing and slicing   
h. Add, remove and discard the elements to set data structure  
i. Issubset, issuperset and isdisjoint  
j. Union, intersection and defference  
k. Intersection\_update and defference\_update  
l. Symmetric\_difference and symmetric\_difference\_update

1. Dictionary Data Structure

a. Creating and working with dictionary data structure in different ways  
b. Creating empty dictionary and working with empty dictionary  
c. Working with key and value pairs  
d. Dictionary mutable and unpacking dictionary  
e. Adding and deleting key and value pairs to the existing data structure   
f. Difference between pop and popitem operations  
g. Extracting only keys from the existing data structure  
h. Extracting only values from the existing data structure  
i. Clear and pop methods  
j. Del keyword and pop method  
k. Creating a dictionary from existing another data structure like tuple

1. OOPS Concepts

a. Class and object  
b. Class variables and instance variables   
c. Constructor   
d. Data hiding  
e. Method overloading and overriding  
f. Abstraction   
g. Inheritance   
h. Polymorphism  
i. Encapsulation

1. Exception Handling in Python

a. What is an exception  
b. Handling exceptions  
c. Try and except block  
d. Handling multiple exceptions using multiple excepts  
e. Handling multiple exceptions using single except  
f. Working with default except  
g. Handling exceptions with else and finally blocks  
h. Using assert for handling exceptions

1. File Handling

a. Creating a file in a directory  
b. Open the file in the python  
c. Different ways to open the file in Python  
d. Writing to the file  
e. Appending the data to the existing file  
f. Modes of operations  
g. Seek and tell methods  
h. Readline and readlines

1. Logging in python

a. What is logging and purpose of logging  
b. Creating a log file  
c. Storing runtime events in log file  
d. Different modes to store the data in log file  
e. DEBUG, INFO, WARNING, ERROR, CRITICAL

1. Modules

a. What is module and purpose of modules  
b. Different types of modules  
c. Different ways to import modules  
d. Standard modules and user modules  
e. From … import \*   
f. Creating own modules  
g. Using modules in other modules  
h. Working with some standard modules  
i. MATH, DATETIME, CALENDAR, SYS, OS Modules

17. Lambda Functions

a. Creating functions by using lambda keyword  
b. Difference between def and lambda functions  
c. Working with filter functions  
d. Working with map functions  
e. Working with reduce functions

18.Excel Operations.

19. DB Operations