

IT WORKSHOP

ON

PYTHON

PYTHON WORKSHOP COURSE CONTENTS

DAY: 1

Introduction

1. Introduction to Python

Basic Python Concepts

2. Installing Python and PyCharm

3. Hello World Program in Python

4. Mathematical operations in Python

5. Strings in Python

6. Accepting input from the user in Python

7. Performing operations on a string in Python

8. Variables in Python

9. Operators in Python.

10. Writing our very first program in PyCharm

Control Structures in Python

11. If statement in Python
12. Elif statement in Python
13. Introduction to lists in Python
14. List operations in Python
15. List functions in Python
16. Range function in Python
17. Code reuse and functions in Python
18. For Loop in Python
19. Boolean logic in Python
20. While loop in Python

DAY-2

21. Introduction to Data Structures

22. String data Structure

- a. Different ways to create a string
- b. String indexing and string slicing
- c. string concatenation and string multiplication
- d. string unpacking

- e. splitting the data in different parts as per user
- f. capitalize() and title() and split()
- g. del, count(), find(), swapcase()
- h. reverse(),replace() and sort()
- i. string immutable

23. List Data Structure:

- a. different ways to create a list
- b. creating and working with homogeneous lists
- c. creating an working with heterogeneous lists
- d. list indexing and list slicing
- e. list concatenation and list multiplication
- f. generating list by using range function
- g. list unpacking and list mutable
- h. creating nested lists and indexing nested lists
- i. python range() and xrange() functions
- j. python insert, append and extend
- k. remove, pop and clear
- l. python list ascending and descending
- m. converting given string data structure into list
- n. converting given list data structure into string
- o. creating list from user values

24. Tuple Data Structure

- a. creating a tuple in different ways
- b. creating and working with homogeneous tuple
- c. creating and working with heterogeneous tuple
- d. tuple indexing and tuple slicing
- e. tuple concatenation and tuple multiplication
- f. tuple unpacking and tuple immutable
- g. all, any, len and sort
- h. del keyword
- i. python tuple ascending and descending
- j. creating and working with nested tuples
- k. Conversions:
 - i. converting given string data structure into tuple
 - ii. converting given list data structure into tuple
 - iii. converting given tuple data structure into string
 - iv. converting given tuple data structure into list
- l. advantages of tuple over list data structure

25. 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, interDAY and defference
- k. InterDAY_update and defference_update
- l. Symmetric_difference and symmetric_difference_update
- m. Conversions:
 - i. Converting given string data structure into set
 - ii. Converting given list data structure into set
 - iii. Converting given tuple data structure into set
 - iv. Converting given set data structure into string
 - v. Converting given set data structure into list
 - vi. Converting given set data structure into tuple

26. 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

DAY: 3

Object Oriented Programming in Python

27. Object Oriented Programming in Python

28. Inheritance in Python

29. Exception Handling in Python

30. File Handling in Python

31. Open a File on the Server

32. Read only parts of the file

33. Read lines

34. Close files

35. Python file write

36. Create a new file

37. Python delete file

38. Check if file exists:

39. Delete folder

Create GUI Apps in Python Using Tkinter

40. Tkinter: Hello world program

41. Tkinter: Using frames

42. Tkinter: Grid layout

43. Tkinter: Handling button clicks

45. Tkinter: Using classes