



Fundamentals of Python technology

Class-1. Getting Started (Duration- 2hrs)

1. Introduction
2. Getting started with Python
3. Installation of python
4. Python installation and differences in windows and Linux platform

Class-2.Data types and basic layout of the program (Duration- 2hrs)

1. Variables and data types
2. Operations with data types
3. Numeric data types of python
4. Operators in python
5. String operators

Class-3. Program flow control with if else structure (Duration – 2 hrs)

1. Introduction to blocks and statements
2. if else statement.
3. if elif statement.
4. Use of conditional operators in the program flow.
5. Use of logical operators in the program flow.
6. Nested if else structure.
7. Program based on the structure.

Class-4. Program flow control with the loop structure (Duration – 2 hrs)

1. For loop concept.
2. While loop concept.
3. Else clause both in the for and while loop.
4. Break and continue statements inside the loop.
5. Concept of nested looping
6. Example programs based on the structure of looping.

Class-5. Concept of List(Duration – 2 hrs)

1. Introduction to sequence types
2. LIST definition.
3. Operations on list.
4. Iteration through the list using different loop structures.
5. Nested LIST structure.
6. Common functions used with the list structure.
7. Example programs like sorting, searching in the list structure.

Class-6. Concept of Tuple(Duration – 2 hrs)

1. TUPLE definition.
2. Operations on Tuple.
3. Iteration through the Tuple using different loop structures.
4. Nested TUPLE structures.
5. Common functions used with the Tuple structure.
6. Example programs like sorting, searching in the Tuple structure.

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Class-7. Dictionary (Duration: 2 hrs)

1. Definition of Dictionary.
2. Iterations over dictionary.
3. Different operations on dictionary.
4. Shallow and deep copies in dictionary.
5. Dictionary updation.

Class-8. Dictionary in more broader sense (Duration: 2 hrs)

1. Different dictionary functions.
2. Nested dictionary.
3. Dictionary with the numeric and nonnumeric key values.
4. Examples of dictionary implementation.

Class-9.concept of set sequence (Duration: 2 hrs)

1. Introduction to set and python set.
2. Set membership.
3. Different operations on the set.
4. Concept of subsets and supersets in python.
5. Implementation of set concept and its different operations in python.
6. More example programs using python.

Class -10. String handling (Duration- 2 hrs)

1. Concept of string.
2. Concept of index used in the string.
3. Different operations on the string.
4. Use of different loop structure involving string.

Class -11. String handling (Duration- 2 hrs)

1. Different string functions
2. Syntax and usages of different string functions.
3. Working of the string with other data a structures like list, tuple etc.
4. Sample examples of string handling showing applications of all the functions

Class -12. Functions (Duration- 2 hrs)

1. Introduction to functions.
2. Function definition and calling.
3. Function returning value.
4. Sample programs based on the functions.

Class -13. Functions extended (Duration- 2 hrs)

1. Functions with different parameters.
2. Functions with variable number of arguments.
3. Function with the default values.
4. Passing arguments like the lists, tuples etc into the functions.

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5. Some examples of functions.

Class -14. File handling in python (Duration- 2 hrs)

1. Introduction to the Input and output of python.
2. Concept of file.
3. Reading and writing the text files.
4. Appending in the file.
5. Binary file concept.
6. Examples of files handling

Class -15. File handling in python Extended (Duration- 2 hrs)

1. Concept of shelves
2. Updating with shelves
3. Python programs for insertion, deletion and updation of records into the file.
4. Creation of any file and performing all sorts of operations on the file.

Class -16. Modules in python (Duration- 2 hrs)

1. Introduction to the module
2. Importing the module.
3. Standard python libraries.
4. Web browser modules
5. Example programs based on the modules.

Class -17. Modules in python extended (Duration – 2 hrs)

1. Introduction to Tkinter
2. Tkinter- Pack geometry manager
3. Tkinter- Grid geometry manager
4. Namespace concept.
5. GUI examples
6. Sample examples based on the concepts of modules.

Class -18. Object oriented programming(Duration – 2 hrs)

1. Introduction to class and object concept.
2. Concept of constructor and instances.
3. Class attributes.
4. Concept of methods.
5. Sample programs based on the object oriented paradigm.

Class - 19. Object oriented programming extended (Duration – 2 hrs)

1. Concept of polymorphism.
2. Function overloading and overriding concepts in python.
3. Getters and setters methods.
4. Concepts of inheritance.
5. Sample programs based on the object oriented paradigms.

Class - 20. Object oriented programming extended (Duration – 2 hrs)

1. Different types of inheritance structures.
2. Examples based on the different types of inheritances.
3. Concept of the super method.

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4. Polymorphism.
5. Sample programs based on the object oriented paradigms.

Class - 21. Concept of database(Duration – 2 hrs)

1. Introduction to database.
2. Database terminologies.
3. SQLite installations.
4. Introduction to SQLite
5. Order by and joins clauses.
6. Complex joining.
5. Wild card characters and views.

Class - 22. Concept of database extended(Duration – 2 hrs)

1. Order by and joins.
2. Complex joins.
3. SQL in python.
4. Connections, Cursors and Transactions.
5. SQL Injection attacks.
6. Basic SQL queries.

Class -23. SQL statements used in the python (Duration – 2 hrs)

1. SQL in python
2. Different SQL statements and connection strings
3. Python programs on fetching of data, updation in the table and deletion from the table.
4. Examples of more such programs related to the database transaction

Class -24. Exception handling (Duration – 2 hrs)

1. Introduction to the Exception.
2. Different exception blocks
3. Raising exceptions.
4. Custom exceptions.

Class -25. Python in data management(Duration – 2 hrs)

1. Introduction to the data science.
2. Concept of the CSV file.
3. Python with the CSV, JSON and Excel files.

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