

Core Python



Trainer & Career Counsellor

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1. Introduction to Python

- How does Python compare to other languages
- Applications of Python in Software development and Data Science
- Installing Jupyter Notebook (Anaconda) on the local machine
- (Optional) Install visual studio code

2. Python Basics

- Variables
- Order of Operation
- Data Types

- Arithmetic Operators
- Comparison Operators
- Identity Operators
- Logical Operators

3. Python Program Flow

- For Loop
- Break
- Continue
- Range
- If-Else
- Nested if-else
- While Loop

4. Functions and Modules

- Conceptual understanding of Functions
- Positional Parameters
- Void and fruitful functions
- Function Documentation (docstrings)

5. Data Structures

5.1. Lists

- Nomenclature
- Append
- Extend
- Insert
- Pop
- Remove
- Difference between Sort and Sorted, deep and shallow copy

- List Indexing
- Manipulating Data in a List
- Slicing data in a List
- Practise questions

5.2. Dictionary

- Nomenclature
- Operations on Dictionaries
- Iteration on the elements of a dictionary
- Set default method
- Usage of dictionary. items()
- Find the frequency of occurrence of a certain value

5.3. Sets

- Nomenclature
- Union
- Intersection
- Difference
- Discard
- Remove
- Add and Clear

5.4. Tuples

- Nomenclature
- Tuple assignment
- Operation on Tuples
- Concatenating Tuples
- Sorting Tuples
- Practise Problems

6. Strings

- Nomenclature
- Subset and Index values in a String
- Dir and Help
- Understanding to leverage string built in functions
- Parsing Strings
- Format Operators

7. Advanced Data Structures

- Understanding how collections module further improves existing data structures
- namedtuple()
- deque
- ChainMap
- Counter
- OrderedDict
- Defaultdict
- UserDict, UserList, UserString

8. File Handling

- Understanding File systems
- File handle
- Open
- Read
- Write
- Append
- Close
- Looping through the contents of a file

9. Regular Expressions

- Understanding Regular Expressions
- Quantifiers and their usage
- Character sequences and substitutes in Regular expressions
- Functions in the regex module and their usage

10. Lambda Functions

- Idea behind Lambda expressions
- Map
- reduce
- filter

11. Object-Oriented Programming

- Class
- Object
- Method
- Attribute/Property
- Constructor
- Message Passing
- Association/Composition/Aggregation
- Encapsulation
- Abstraction
- Inheritance
- Polymorphism

12. Exception Handling

- What is an Exception?
- Basic Exception Handling Constructs
- Try; Catch/Except; Else Block (Optional)

- Types of exception
- Manually triggering an exception
- Handling multiple exception

13. Projects to showcase in your resume

- 10 projects to showcase in your resume and GitHub

14. Personalized career counselling sessions

- Solve practice problems provided by the Python institute and ace the certifications.
- Assistance with clearing certifications from the Python.org institute
- Highlight the certifications in your resume to catch the interviewer's attention.
- Get expert assistance in crafting a resume to ace your dream job.