

# PYTHON

## Master Course

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### COURSE CONTENT

#### Lan Edu Center

Address: 506, 5th floor, Manjeera Majestic  
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About me,

**SIVA REDDY,**

Dear Candidate,

Thank you for connecting!

With over 8+ years of IT experience, we're excited to guide you through our comprehensive Python Master Course.

Throughout the program, you'll have access to communication channels such as Slack and Microsoft Teams, allowing you to work collaboratively within a team and gain real-world, hands-on experience.

Python is transforming the IT industry, powering a wide range of applications from web development and data science to machine learning and automation. This surge in demand for Python skills has led to competitive salaries and numerous career opportunities in various industries.

Our Python Master Course is designed to be flexible for all time zones, offering both live online sessions and self-paced options. Both formats cover the same comprehensive curriculum, and all candidates will participate in assignments and team-based project demos to enhance collaboration skills.

We look forward to supporting you on your journey toward mastery in Python and related technologies.

# PYTHON CONTENT

- 1) Introduction of Python Language
  - 2) Interactive and Scripts Modes
  - 3) Keywords and Identifiers
  - 4) Quotes and Comments and Statements
  - 5) Input and Output Operations
  - 6) Indentation and Case Types
  - 7) Dynamically Typed and Statically Typed Languages
  - 8) Strongly Typed and Weakly Typed Languages
  - 9) Data types and Purpose
  - 10) Reading Data from User/Keyboard
  - 11) Different IDEs for running Python Scripts
  - 12) Variables and Assignment Values
  - 13) Type Conversions
  - 14) Using eval() for type conversions.
  - 15) Operators and Expressions
  
  - 16) Data Structures / Introduction to Python
  - 17) History and Versions of Python Language.
  - 18) Advantages and Features of Python Language.
  - 19) Need of Python Programming
  - 20) Scripting and Programming languages
  - 21) Installation and path settings of Python
  - 22) Python Program Development Cycle
  - 23) Applications Sequences
  
  - 24) String Data Structure
    - a) Different ways to create string, indexing and slicing,
    - b) Concatenation and multiplication of two or more strings
    - c) Slicing with single colon and double colons.
    - d) String functions and immutable,
    - e) String packing and unpacking,
    - f) String Order Operations,
    - g) String Interview Questions.
  
  - 25) List Data Structure
    - a) Different ways to create list object, Indexing and Slicing.
    - b) Slicing with single colon and double colons.
    - c) Range() in python2x and python3x.
    - d) List Concatenation and Multiplications
    - e) List functions.
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- f) Dynamic and Mutable object.
- g) List Packing and Unpacking.
- h) Working with nested lists
- i) List assignment and deletion operations.
- j) List comparisons and comprehensions
- k) List Interview Questions.

#### 26) Tuple Data Structure

- a) Different ways to create tuple object, Indexing and Slicing Operations.
- b) Creating tuple with one element and without parenthesis.
- c) Similarities between List and Tuple.
- d) Differences between List and Tuple.
- e) Tuple functions and Immutable.
- f) Tuple packing and unpacking
- g) Using list in tuple and tuple in list.
- h) Working with nested tuples
- i) Tuple Interview Questions.

#### 27) Set Data Structure

- a) Different ways to create set object.
- b) Types of sets.
- c) Set packing and unpacking.
- d) Deleting duplicate elements of other objects with set().
- e) Set functions
- f) Set Operations
  - i) Union, intersection, difference, symmetric\_difference,
  - ii) intersection\_update, difference\_update, symmetric\_difference\_update.
- g) Mutable and dynamic object.
- h) Similarities among List, tuple and sets
- i) Differences among List, tuple and sets
- j) Set Interview Questions

#### 28) Dict Data Structure

- a) Different ways to create dict object.
  - b) Performing CRUD operations on dict object.
    - i) Adding pairs, Changing values, Getting Values, Deleting pairs.
  - c) Working with nested dicts.
  - d) Creating dictionary by using another objects like tuple, list, string.
  - e) Dictionary Interview Questions.
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## 29) Flow Controls

- a) Conditional Statements
- b) Iterative Statements
- c) Transfer Statements

## 30) Functions

- a) Defining functions and calling functions and passing arguments.
- b) Default and Non-default arguments.
- c) Keyword and Non-Keyword arguments.
- d) Fixed length and Variable length arguments
- e) Scope of variables in functions
  - i) Local and Global and Nonlocal Variables.
- f) Working with \*args and \*\*kwargs
- g) Lambda functions and fruitful functions(Function returning value)
- h) Working with filter(), map() and reduce() functions.
- i) Differences between def and lambda functions
- j) Working with comprehensions
- k) Solving same problem with def, lambda and comprehensions
- l) Different Interview Questions on def, lambda and comprehensions.

## 31) File Operations

- a) Creating new file through program.
- b) Writing data to file.
- c) Appending new data to the existing data in the file
- d) Reading data from file
- e) Working with write() and writelines() functions
- f) Working read(), readline() and readlines() functions
- g) Working different modes like write, append, read, exclusively creation..
- h) Using with keyword
- i) Working with seek() and tell() functions.
- j) Manipulating file pointer using seek
- k) Different interview questions using file operations.

## 32) Exception Handling

- a) Errors and Exceptions
  - b) Syntax errors and runtime errors
  - c) Working with try and except blocks
  - d) Using else and finally blocks along with try and except blocks
  - e) Working with different systems defined exceptions
  - f) System-defined and User-defined exceptions
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- g) Raising exceptions by using raise keyword
- h) Working with assert keyword.
- i) Different interview question using exception handling operations.

### 33) Modules

- a) Types of modules
- b) Standard modules and User-defined modules
- c) Working 3<sup>rd</sup> party modules
- d) Using PIP
- e) Installing 3<sup>rd</sup> part modules
- f) Different ways of importing modules
- g) Working with import, from and as keywords
- h) Working with math, datetime and calendar modules
- i) Working with logging module
- j) Working with different logging levels
  - i) Debug, Info, Warning, Error and Critical
- k) Working unittest module
- l) Working with re module
- m) Different Interview Questions

### 34) OOPS

- a) Object Oriented Programming(OOP)?
  - b) Procedure Oriented Programming(POP)?
  - c) Disadvantages of POP
  - d) Understanding OOPS main aspects Object and Class.
  - e) Creating a class with different attributes
  - f) Creating an object for existing class.
  - g) Accessing class attributes from an object.
  - h) Creating docString in class and method.
  - i) Accessing docString.
  - j) Working constructors and destructors
  - k) Working self and \_\_init\_\_ method.
  - l) Creating an empty class using pass statement
  - m) Variables and methods or Properties and Actions
  - n) Types of variables
  - o) Working instance variables, class variables.
  - p) Types of methods
  - q) Working instance methods class methods and static methods
  - r) Data Abstraction
  - s) Data Inheritance
  - t) Polymorphism
  - u) Encapsulation
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- v) Making class attributes private
- w) Method overriding and overloading.
- x) Duck typing philosophy.
- y) Different Interview Questions

35) Multithreading

- a) Process based multithreading
- b) Thread based multithreading
- c) Working with threading module.
- d) Daemon threads
- e) Different ways to create thread
- f) Synchronizing threads
- g) Thread control block

36) Working with Iterator, Generator and Decorator.

37) Working with Regular Expressions

- a) Purpose of Regular expressions
- b) Working with different RE functions
- c) Working with matching and full matching and searching patterns
- d) Working with Sub and subn patterns
- e) Writing patters to check mobile number, email id and registration numbers.

38) Working with PDBC

- a) Installing the module to work with database
- b) Proving connection between database and python project.
- c) Using cursor() to execute connection
- d) Working with fetch(), fetchmany() and fetchall() functions.
- e) Performing different operations on the database with python program

39) Introduction about Pandas Module

40) Introduction about Numpy Module

41) Introduction about Matplotlib Module

42) Core Database concepts

43) Assignment-1 on Python basic concepts

44) Assignment-2 on Data Structures

45) Assignment-3 on Advanced Python

46) Assignment-4 on Advanced Python

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