



CORE PYTHON

1 : Python Basics

- What is Python
- Why Python?
- History of python
- Applications of Python
- Features of Python
- Advantages of Python
- Versions of Python
- Installation of Python
- Flavors of Python
- Comparision b/w various programming languages C, Java and Python

2 : Python Operations

- Python Modes of Execution
- Interactive mode of Execution
- Batch mode of Execution
- Python Editors and IDEs
- Python Data Types
- Python Constants
- Python Variables
- Comments in python
- Output Print(),function

- Input() Function :Accepting input
- Type Conversion
- Type(),Id() Functions
- Comments in Python
- Escape Sequences in Python
- Strings in Python
- String indices and slicing

3: Operators in python

- Arithmetic Operators
- Comparision Operators
- Logical Operators
- Assignment Operators
- Short Hand Assignment Operators
- Bitwise Operators
- Membership Operators
- Identity Operators

4: Python IDE's

- Pycharm IDE Installation
- Working with Pycharm
- Pycharm components
- Installing Anaconda
- What is Conda?
- Anaconda Prompt
- Anaconda Navigator
- Jupyter Notebook
- Jupyter Features
- Spyder IDE
- Spyder Features
- Conda and PIP

5. Flow Control Statements

- Block/clause
- Indentation in Python
- Conditional Statements
 - if stmt
 - if...else statement
 - if...elif...statement

6. Looping Statements

- - while loop,
- - while ... else,
- - for loop
- - Range() in for loop
- - Nested for loop
- - Break statememt
- - Continue statement
- - Pass statement

7. Strings in Python

- Creating Strings
- String indexing
- String slicing
- String Concatenation
- String Comparision
- String splitting and joining
- Finding Sub Strings
- String Case Change
- Split strings
- String methods

8. Collections in Python

- Introduction
- Lists
- Tuples
- Sets
- Dictionaries
- Operations on collections
- Functions for collections
- Methods of collection
- Nested collections
- Differences b/w list tuple and set and Dictionary

9. Python Lists

- List properties
- List Creation
- List indexing and slicing
- List Operations
- Nested Lists
- List modification
- List insertion and deletion
- List Methods

10. Python Tuples

- Tuple properties
- Tuple Creation
- Tuple indexing and slicing
- Tuple Operations
- Nested Tuples
- Tuple Methods
- Differences b/w List and Tuple

11. Python Sets

- Set properties
- Set Creation
- Set Operations
- Set Mathematical Operations
- Set Methods
- Insertion and Deletion operation

12. Python Dictionary

- Dictionary properties
- Dictionary Creation
- Dictionary Operations
- Dictionary Methods
- Insertion and Deletion of elements
- Differences b/w list tuple and set and Dictionary

13. Functions in Python

- Defining a function
- Calling a function
- Properties of Function
- Examples of Functions
- Categories of Functions
- Argument types
 - default arguments
 - non-default arguments
 - keyword arguments
 - non keyword arguments
- Variable Length Arguments
- Variables scope
- Call by value and Call by Reference
- Passing collections to function
- Local and Global variables
- Recursive Function
- Boolean Function
- Passing functions to function
- Anonymous or Lamda function
- Filter() and map() functions

14. Modules in Python

- What is a module?
- Different types of module
- Creating user defined module
- Setting path
- The import statement
- Normal Import
- From ... Import
- Module Aliases
- Dir function
- Working with Standard modules -Math, Random, Date time and os modules,

15. Packages

- Introduction to packages
- Defining packages
- Importing from packages
 - init--.py file
- Defining sub packages
- Importing from sub packages

16. Errors & Exception Handling

- Types of errors
- Compile-Time Errors
- Run-Time Errors
- What is Exception?
- Need of Exception handling
- Predefined Exceptions
- Try,Except, finally blocks
- Nested blocks
- Handling Multiple Exceptions
- User defined Exceptions
- Raise statement

17. File Handling

- Introduction
- Types of Files
- Opening a file in Python
- Closing a file
- Writing data to files
- Tell() and seek() methods
- Reading a data from files
- Appending data to files
- With open stmt
- Various functions

18. OOPs Concepts

- OOPS Features
- Encapsulation
- Abstraction
- Class
- Object
- Static and non static variables
- Defining methods
- Diff b/w functions & methods
- Constructors
- Parameterized Constructors
- Built –in attributes
- Object Reference count
- Destructor
- Garbage Collection
- Inheritance
- Types of Inheritances
- Polymorphism
- Over riding
- Super() statement

19. Regular Expressions

- What is regular expression? Special characters
- Forming regular expression
- Compiling regular expressions
- Grouping
- Match() function
- Search() function
- Matching vs searching
- Splitting a string
- Replacing text
- Validations

20. Database Access

- Introduction
- Installing Oracle database
- Creating database users,
- Installing Oracle Python modules
- Establishing connection with oracle
- Closing database connections
- Cursor object
- Executing SQL queries
- Retrieving data from Database.
- Using bind variables executing
- SQL queries
- Transaction Management
- Handling errors

21. Python Date and Time

- How to Use Date & DateTime Class
- Time and date Objects
- Calendar in Python
- The Time Module
- Python Calendar Module

22. Operating System Module

- Introduction
- getcwd
- listdir
- chdir
- mkdir
- rename file/dir
- remove file/dir
- Os help
- Os operations

23. Advanced Concepts

- Python Iterator
- Python Generator
- Python closure
- Python Decorators
- Web Scraping
- PIP
- Working with CSV files
- Working with XML files
- Working with JSON files
- Debugging

24. GUI Programming

- Introduction
- Components and events
- Root window
- Fonts and colors
- Buttons ,checkbox
- Label widget
- Message widget
- Text widget
- image

25. Data analytics

- Introduction
- pandas module
- Numpy module
- Matplotlib module
- Working Examples

26. Excel workbook

- Installing and working with Xlsx writer
- Creating Excel Work book
- Inserting into excel sheet
- Inserting data into multiple excel sheets
- Creating headers
- Installing and working with xlrd module
- Reading a specific cell or row or column
- Reading specific rows and columns

WEB DEVELOPMENT

HTML

- Introduction to WEB
- HTML Basic Tags
- HTML Formatting Tags
- HTML Lists
- HTML Tables
- HTML Images
- HTML Anchors
- HTML Forms
- HTML Input Elements
- HTML Form Attributes
- HTML Frames
- HTML GET/POST
- HTML5 Drag/Drop
- HTML Canvas
- HTML Multimedia

CSS

- CSS Basics
- CSS Introduction
- CSS Syntaxes
- CSS Styling,
- Styling Backgrounds
- Styling Fonts,
- Styling Links,
- Styling Lists
- Styling Tables
- CSS Borders
- CSS Selectors
- CSS Fonts
- CSS Text Effects
- CSS Backgrounds
- CSS keyframes Rule
- CSS Multiple Columns
- CSS 2D Transforms
- CSS 3D Transforms
- CSS Transitions
- CSS Animations
- CSS User Interface

Bootstrap

- Bootstrap Introduction
- Bootstrap Images
- Bootstrap Tables
- Bootstrap Forms
- Bootstrap Dropdowns
- Bootstrap Buttons
- Bootstrap Button Groups
- Bootstrap Helper Classes
- Bootstrap Panels
- Bootstrap Alerts
- Bootstrap Panels
- Bootstrap Plugins Overview

SQL:

- SQL Introduction
- Installing a Database
- Creating database
- Creating Tables
- insertions
- deletions
- updations
- Groupings and Aggregations
- Eliminating Duplicates
- Filtering
- Ordering
- Merging tables
- Horizontal Merging
- Vertical Merging
- Types of Joins
- Various Built-in Functions
- working with queries
- Sub-queries

JAVASCRIPT

- What is Script? Types of Scripts?
- Introduction to JavaScript
- Comments and Types of Comments
- Popup Boxes
- Variables & Operators
- JavaScript Functions and Events
- Conditional Statements
- Looping Control Statements
- Types of Errors
- Exception Handling
- Java Script Objects
- Browser Objects
- Validations in JS

I) INTRODUCTION

- What is Django?
- Why Django? Key Advantages
- History of Django
- Features of Django
- Characteristics of Django
- Companies Using Django
- Difference b/w MVC and MVT
- Models Views and Templates

II) WEB FRAMEWORKS

- What is a Web Framework?
- What is a server?
- HTTP Requests and HTTP Responses
- What is a web framework ?
- What is a web application?
- Steps in Developing web application.

III) DJANGO INSTALLATION

- Django Architecture
- Django Installation
- Virtual Environment
- Working with Pycharm
- Working with ATOM
- Developing First Django Application

IV) DJANGO PROJECT ARCHITECTURE

- Exploring manage.py,
- Exploring urls.py
- Exploring settings.py,
- Exploring admin.py,
- Exploring models.py,
- Exploring views.py,
- Application creations and Examples

V) DJANGO APPLICATION CREATION

- Steps in Application creation
- Working with views
- Working with HTML and CSS
- Working with Bootstrap
- Django Application creation in Atom
- Django Application creation in Pycharm
- project with multiple Applications
- Reusing a Application in different projects
- Working with Staticfiles

VI) DJANGO VIEWS

- Requesting a web page via URL
- Rendering web page via view function
- Render HttpResponseRedirect to templates
- Application with multiple views
- Understanding context object and dictionary type
- GET and POST methods

VII) DJANGO TEMPLATES

- Template tags
- Template Filters
- Template API
- Passing Dynamic content to template file
- Passing multiple dict values to template
- Loading static files
- Adding image file to template
- Advanced Templates
- Template library
- custom template filter
- custom templates tags
- Registering the tags

VIII) DJANGO ADMIN

- Activating the Admin interface
- Creating super user for Admin site
- Using the Admin site
- How to use the Admin site

IX) DJANGO MODELS

- Working with models and databases
- Defining Models
- Model Fields
- Defining forms
- ModelForms
- Makemigrations and migrate
- Registering models in settings.py
- Registering models with Admin site
- Connecting with sqlite3
- Connecting with MySQL
- Connecting with Oracle

X) ADVANCED CONCEPTS

- Django ORM
- Faker Module
- Class based views
- Form validation
- Rendering forms
- crispy forms
- MultiselectField
- Embeded Video
- Uploading and downloading Files
- Working with Audio and video
- Integrating with legacy databases and applications
- Sessions users Registrations
- Security
- Django Deployment
- Other Contributed Frameworks

“The Full-Stack”

