

Python Full Stack Syllabus

Python

1. Python Introduction

- What is Python?
- Features of Python
- Python vs Other Languages
- Python Installation
- Python IDEs

2. Python Syntax

- Basic Syntax
- Indentation
- Comments
- Code Blocks
- Statements and Expressions

3. Python Comments

- Single-Line Comments
- Multi-Line Comments

4. Python Variables

- Variable Declaration
- Variable Types
- Variable Naming Conventions
- Global vs Local Variables

5. Python Data Types

- Strings
 - String Operations
 - String Methods
- Numbers
 - Integer
 - Float
 - Complex Numbers
- Booleans

- Lists
 - List Operations
 - List Methods
- Tuples
 - Tuple Operations
 - Tuple Methods
- Sets
 - Set Operations
 - Set Methods
- Dictionaries
 - Dictionary Operations
 - Dictionary Methods

6. Python Operators

- Arithmetic Operators
- Comparison Operators
- Logical Operators
- Assignment Operators
- Bitwise Operators

7. Python Control Flow

- If...Else Conditions
 - Conditional Statements
 - Elif and Else
 - Nested Conditions
- Loops
 - While Loops
 - Break and Continue Statements
 - Nested While Loops
 - For Loops
 - Looping Through Lists, Tuples, Sets, Dictionaries
 - Iterating Over Strings
 - Using the Range Function

8. Python Functions

- Defining Functions
- Function Arguments
- Return Values
- Scope of Variables
- Default Arguments
- Keyword Arguments
- Variable-Length Arguments
- Lambda Functions (Map, Filter, Reduce)

9. Python Data Structures

- Lists
 - Creating and Accessing Elements
 - List Methods
 - List Comprehensions
 - Nested Lists
- Tuples
 - Creating and Accessing Elements
 - Tuple Methods
 - Packing and Unpacking
- Sets
 - Creating Sets
 - Set Operations and Methods
- Dictionaries
 - Creating Dictionaries
 - Accessing Values
 - Dictionary Methods
 - Nested Dictionaries

10. Python Object-Oriented Programming (OOP)

- Classes and Objects
 - Class Definition
 - Object Instantiation

- Attributes and Methods
 - Constructor and Destructor
- Inheritance
 - Single Inheritance
 - Multiple Inheritance
 - Method Overriding
 - Super Function
- Polymorphism
 - Method Overloading
 - Method Overriding

11. Python Modules and Packages

- Importing Modules
- Creating Modules
- Module Search Path
- Standard Modules

12. Python Advanced Concepts

- Iterators and Generators
- Regular Expressions (RegEx)
- JSON Handling
- Date and Time Handling
- Math Operations and Random Module
- Exception Handling (Try...Except)
- User Input and Validation

13. Python File Handling

- Opening, Reading, and Writing Files
- File Modes and Operations
- Appending and Deleting Files
- Handling File Exceptions

Django

1. Introduction to Django

- What is Django?
- Django Features
- Django vs Other Frameworks
- Setting Up Django

2. Django Installation

- Installing Django via pip
- Virtual Environments
- Verifying Installation

3. Django Project Setup

- Creating a Django Project
- Understanding Project Structure
- Running the Development Server

4. Django Apps

- Creating a Django App
- App Structure
- Registering an App

5. Django Models

- Defining Models
- Model Fields and Methods
- Model Inheritance
- Using the Django ORM

6. Django Admin Interface

- Configuring Admin Interface
- Customizing Admin Models
- Creating Superuser

7. Django Views

- Function-Based Views
- Class-Based Views
- Generic Views
- View Decorators

8. Django Templates

- Template Basics
- Template Tags and Filters
- Template Inheritance

9. Django URLs

- URL Patterns and Routing
- Named URLs
- URL Converters

10. Django Forms

- Creating Forms
 - Form Fields and Validation
 - Model Forms
-