



Python Full Stack





About Course

Python is a versatile all-purpose high-level language which is used for scientific data and other structured as well as unstructured data. A full-stack Python developer has expertise in using the Python suite of languages for all the applications.

Full Stack Python is an open source book that explains technical concepts in plain language. Read everything online for free or purchase the Supporter's Edition for nicely-formatted ebook (PDF, EPUB, MOBI) versions. This guide branches out on topic because your learning requirements depend on what you're working on.

PYTHON FULL STACK

CURRICULUM

1 Introduction To Python

Why Python
Application Areas of Python
Features and Limitations of Python
Python Versions
Installing Python
Python Interpreter Architecture
Python Byte Code Compiler
Python Virtual Machine(PVM)

Writing & Executing First Python Program

Using Script Mode
Using Script Mode
General Text Editor and Command Window
IDLE Editor and IDLE Shell
Understanding print() function
How to compile python program explicitly



Python Language Fundamentals

Character Set Keywords Identifiers Comments Variables Literals Operators Reading input from console Parsing String to int, float Python Conditional Statements If Statement If else Statement If elif Statement lf elifelse Statement Nested If Statement Looping Statements While Loop While else For Loop For else Nested Loops Pass ,Break and Continue keywords Standard Data Types



int, float, complex bool, NoneType str, list, tuple bytes, bytearray, range dict, set, frozenset String Handling What is string String representations Unicode String String Functions, Methods String Repetition and concatenation String Indexing and Slicing String Formatting Python List Creating and Accessing Lists Indexing and Slicing Lists List Methods Nested Lists Shallow v/s Deep Copy List Comprehension

Python Tuple

Creating Tuple
Accessing Tuple
Immutability of tuple
Tuple to list



Python Set

How to create a set
Iteration Over Sets
Python Set Methods
Union, intersection, difference ofsets
Python Frozenset

Python Dictionary

Creating a Dictionary
Dictionary Methods
Accessing values from Dictionary
Updating dictionary
Iterating dictionary
Nested Dictionaries
Dictionary Comprehension

Python Functions

Defining a Function
Calling a Function
Types of Functions
Function v/s Method
Function Arguments
Function ReturnStatement
Nested Function
Function as argument



Function as return statement
Decorator function
Closure function
map(),filter(),reduce(),any() functions
Anonymous or lambda Function

Modules & Packages

Why Modules
Script v/s Module
Importing Module
Understanding PYTHONPATH Variable
Commonly Used Library Modules
WhyPackages
Understanding init .py file
Understanding pip utility

File I/O

Why File Handling
File Pointer/Cursor
File modes
Functions and methods related to File Handling
Understanding with block



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Object Oriented Programming

Procedural v/s Object Oriented Programming OOP Principles Defining a Class & Object Creation Object class and it's methods Inheritance

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Exception Handling

Difference BetweenSyntax Errors andExceptions Keywords used in Exception Handling try, except, finally, raise, assert Types of Except Blocks

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GUI Programming

Introduction to Tkinter Programming
Tkinter Widgets
Tk, Label , Entry , TextBox , Buttons
Frame , messagebox , filedialogetc
Layout Managers
Event handling
Displaying image





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Multi - Threading Programming

Multi-processingv/sMulti- threading Need of threads Creating child threads Functions / methods related to threads

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Regular Expressions(Regex)

Need of regular Expressions re module Functions / Methods related to regex Meta Characters & Special Sequences

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Introduction to Database

Database Concepts
What is Database Package?
Understanding Data Storage
Relational Database (RDBMS) Concept



SQL (Structured Query Language)

SQL Basics
DML, DDL & DQL
DDL: Create, Alter, Drop
SQL Constraints:



SQL Constraints: NOT NULL, UNIQUE, PRIMARY & FOREIGN KEY, COMPOSITE KEY CHECK, DEFAULT DML: Insert, Update, Delete and Merge DQL : Select SELECT DISTINCT SQL WHERE SQL Operators SQL LIKE SQL ORDER BY SQL Aliases SQL Views SQL JOINS INNER JOIN LEFT (OUTER) JOIN RIGHT (OUTER) JOIN FULL (OUTER) JOIN MySQL Functions String Functions CHAR LENGTH CONCAT LOWER REVERSE

UPPER

Numeric Functions

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MAX, MIN, SUM AVG, COUNT, ABS Date Functions CURDATE CURTIME NOW

Python Database Connectivity

Introduction to Databases
Installing MySQL Server
Understanding basic SQL Statements
Database Drivers and connectors
Creating connection object
Understanding cursor object
Executing SQL statements using cursor
Fetching records from cursor
Storing and retrieving Date and Time
Front End

Introduction to WEB

What are web applications?
Static v/s dynamic web applications
Web application Architecture



Front End Back End

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HTML

Introduction to HTML 5
Parts in HTML Document
Head Section
Meta Information
Body Section
Heading &Paragraph
HTML FORMS
Anchors, Images
HTML Comments
HTML Table
DIV Section

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CSS

Introduction CSS3
Inline CSS
Internal CSS
External CSS
Styling Text
Styling Fonts



CSS Borders
Selectors
Backgrounds and Borders
Text Effects
Margin & Padding

JavaScript

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

Typescript

Why Typescript Basic Types



Class and Interfaces Modules

Bootstrap

Introduction to Bootstrap4
Bootstrap CDN & Local
Bootstrap Classes
Bootstrap Forms
Bootstrap Buttons
Bootstrap Colors
Bootstrap Grid System

Introduction To React Js

What is React JS?
What is SPA?
DOM vs Virtual DOM
Advantages and Disadvantages
Key Features

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What is React JS?
What is SPA?
DOM vs Virtual DOM



Advantages and Disadvantages Key Features

Environmental Setup

Node | NPM Installation of CLI Setup Project Directory Structure Code Editors How React JS Application Boot

Basic Features Of React Js

React Concepts
JSX and TSX
Render Elements
Function and Class Components
Props and State
Handling Events
Dynamic Data Rendering
Property Binding

Key Features Of React Js

Conditional Rendering





List and Keys
Forms Handling
Forms Validations

Component Lifecycle Hook

Understanding component lifecycle All Lifecycle Hooks

Event Handling React

Understanding React Event System Passing arguments to event Handlers

Network Call

Fetch Axios

Custom Services

Introduction to Services Building a Service

Local data storage

Local Storage Session Storage



Cookies

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Routing With React Router

Setting up React Router
Configuring route with Route Component
Making routes dynamic with Route Params
Working with nested routes
Link and NavLink
Redirect Routes

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Ul Components

Angular Material PrimeNG

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Introduction To Redux

Why Redux
Install and setup
Store ,Reducer , actions
Dispatcher
High order Components
map State To Props and map Dispatch To Props usage





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Advance Redux

Async Actions
Middleware
Redux Thunk and Redux Saga

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React Hooks

Why We Need Hooks.
Different Types Of Hooks
Using State And Effect Hooks
Usereducer, Useref Etc.
Custom Hooks
Rules Of Hooks



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Third Party Modules

Social Login



Pagination
Search
Filter
JWT Token
File Upload
Many More

Getting Started With Django

Language v/s Framework
What is Django Framework?
Django Versions
Installing Django

Understanding Django Project

Creating Django Project
Creating Django App
Understanding Directory Structure of Project
UrlMappings, Views,manage.py
HttpRequest and HttpResponse Objects
Registering App in settings.py
Django Development Server
Control flow of request processing
MVT Design Pattern



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Django Templates (Presentation Logic)

Built-in Templates Tags & Filters
Template Variables
Template Inheritance
Building custom template tag
Integration of Static Contents
How to display static images
How to use CSS and bootstrap
Loading static data to template

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Understanding Django Views (Business Logic)

Why this Component?
Types of Views
Function Based
Class Based
How Views interact with other components
How to get request data in views
How to generate response in other formats



Understanding Django Forms

Why this Component?
Form class & Field Types



GET and POST methods
Form Validations
How to render django form to template
as table
as paragraph
as li
How to use Form in views

Django Models (ORM)

Why this component?
SQL v/s ORM approach
Model class and Field Types
Understandingmakemigrations and migrate
Performing CRUD operations
create (insert)
read (select)
update
delete
Fetching Records from database
Understanding QuerySet
Fetching all records
Fetching records based on conditions
Fetching Data in an order
Data Slicing



Understanding Association Mappings one to one one to many many to one many to many lntegration with MySQL database

Django Admin Interface

How to create super user
How to access admin site
Registering models with admin
Managing users in the admin

Django State and Session Handling

Why maintain state?
Understanding stateless behavior of http protocol
State management techniques
Cookies
URL-Rewriting (query strings)
Hidden form fields
Session
Understanding Sessions in Details
Enable / Disable Session





Get and set data with session Using session in template Session Expiry

Django Middleware

Why middleware?
Understandingbuilt-inmiddleware
Creating custom middleware
Function based
Class based
How to enable custom middleware

Django User Authentication

Working with User objects
Permissions and authorization
Authentication in web requests
Managing users in the admin
Extending the existing User Model

Developing Web Services(APIs)

What is a Web API?
Difference between SOAP and RESTful APIs



Django REST Framework for developing RESTful APIs

Django Middleware

Why middleware?
Understanding built-in middleware
Creating custom middleware
Function based
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Difference between SOAP and RESTful APIs
Django REST Framework for developing RESTful APIs
Understanding JSON response













How to consume RESTful API requests package get and post how to parse JSON

Miscellaneous

Sending email using django library

Pagination Function based Class based

Project Deployment (Making Project LIVE)

Understanding domain and hosting Hosting Providers Deploy the project



















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