Full Stack Development with Django

Duration:-9Months   **Course Fee:-25500**

Module 1: Web Development Fundamentals

HTML5

- Structure of HTML document
- Elements, tags, attributes
- Headings, paragraphs, lists, tables, forms
- Links, images, multimedia embedding
- Semantic HTML tags (header, section, article, footer)

CSS3

- Inline, internal, external CSS
- Selectors, combinators, pseudo-classes, pseudo-elements
- Box model (margin, padding, border)
- Flexbox and Grid layout
- Transitions, animations
- Media queries & Responsive design

JavaScript (ES6+)

- Variables (let, const), data types
- Functions, arrow functions
- Events, DOM manipulation
- Loops, conditionals
- Template literals, destructuring, spread/rest
- Modules (import/export)
- Async JS: callbacks, promises, async/await
- Fetch API for AJAX

Bootstrap

Goal: Use prebuilt responsive CSS/JS components quickly.

Introduction

- What is Bootstrap

- Installing Bootstrap (CDN, npm)

Layout System

- Containers, Rows, Columns

- Grid system (12-column)

- Breakpoints & responsive design

Bootstrap Components

- Navbar, Buttons, Forms, Tables

- Cards, Badges, Alerts, Modals, Dropdowns

- List groups, Pagination, Breadcrumbs

Utilities

- Colors, Spacing, Borders, Shadows

- Flex utilities, Alignment classes

- Display and visibility utilities

Bootstrap JS Plugins

- Carousel

- Collapse / Accordion

- Tooltips, Popovers

MySQL

Goal: Learn SQL for relational databases.

Introduction

- What is MySQL

- Installing MySQL, using MySQL Workbench

Database Basics

- CREATE DATABASE, USE

- CREATE TABLE, data types

- INSERT, UPDATE, DELETE

SELECT Queries

- SELECT columns
- WHERE, ORDER BY, LIMIT
- LIKE, IN, BETWEEN, IS NULL

Joins

- INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN
- UNION

Keys and Constraints

- PRIMARY KEY, FOREIGN KEY
- UNIQUE, NOT NULL, DEFAULT

Functions and Advanced

- Aggregate functions (COUNT, SUM, AVG, MIN, MAX)
- GROUP BY, HAVING
- Subqueries

Views, Indexes, Transactions

Module 2: Python & Django Fundamentals

Python Basics (for Django)

- Data types, operators
- Conditional statements, loops
- Functions and modules
- File handling
- OOP in Python (Classes, Objects, Inheritance)

Django Framework

- Introduction to Django
- Django project vs Django app structure
- MVC/MVT architecture
- URL routing system
- Views (function-based and class-based)
- Templates and template inheritance

- Django Template Language (DTL)

- Static files and media files

- Forms in Django (basic forms and ModelForms)

- Handling POST and GET requests

- Django admin customization

Databases & ORM

- Introduction to Databases

- Relational vs Non-relational databases

- Using SQLite (default) and switching to MySQL/PostgreSQL

- Django Models and Migrations

- Django ORM queries (CRUD)

- Model relationships (OneToOne, ForeignKey, ManyToMany)

- Validations and constraints

- Database indexing and optimization

User Authentication & Authorization

- Django authentication system

- User registration, login, logout

- Password hashing and password reset

- Django sessions and cookies

- Role-based access control (staff/admin/users)

- Social authentication (Google/GitHub OAuth using django-allauth)

Django REST Framework (DRF) - Backend API Development

- Introduction to REST APIs

- Installing and setting up DRF

- Serializers (ModelSerializer)

- API views (function-based & class-based)

- ViewSets and Routers

- Authentication & permissions in DRF

- JWT Authentication

- Testing APIs with Postman

- Consuming APIs using JavaScript or React

Frontend Integration (React)

- Intro to SPA concept

- Creating a React project

- Components, Props, State

- useEffect, useState hooks

- React Router for navigation

- Axios/Fetch to call Django REST APIs

- Handling forms and validations in React

- Building a front-end dashboard

Advanced Django Features

- Django Signals

- Middleware

- Class-based views in depth

- Custom template tags and filters

- Django Channels (for WebSockets & real-time apps)

- Caching (Redis, Memcached)

- Celery for background tasks