Python Full Stack Using React

Course Highlights

Modules(Total 5)
>Python
>SQL (on MySQL Server)
>NOSQL (on MongoDB Server)
>Front End (HTML/CSS/JS/REACT)
>Back End Framework (Django)

Duration
>course duration: 6 months
>course validity: 1 year

Projects(Total 3)
>1 project in Python
>1 project in React
>1 project in Django

All old contents need to be pasted as it is

PYTHON

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 Interactive 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
- If 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
- List to tuple

Python Set

- How to create a set
- Iteration Over Sets
- Python Set Methods
- Union ,intersection ,difference of sets
- 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 Return Statement
- 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
- Why Packages
- 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

Object Oriented Programming

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

Exception Handling

- Difference Between Syntax Errors and Exceptions
- Keywords used in Exception Handling
    - try , except , finally , raise , assert
- Types of Except Blocks

GUI Programming

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

MultiThreading Programming

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

Regular Expressions(Regex)

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

SQL

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:
  - 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
    - 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

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

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

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

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

UI Components
- Angular Material
- PrimeNG

Introduction To Redux
- Why Redux
- Install and setup
- Store ,Reducer , actions
- Dispatcher
- High order Components
- mapStateToProps and mapDispatchToProps usage

Advance Redux
- Async Actions
- Middleware
- Redux Thunk and Redux Saga

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

Third Party Modules
- Social Login
- Pagination
- Search
- Filter
- JWT Token
- File Upload
- Many More

Django

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

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

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
- Understanding makemigrations 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
- Integration 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?
- Understanding built-in middleware
- 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
  - 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
- 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

DUCAT
The IT Training School

E-mail: info@ducatindia.com
Visit us: www.ducatindia.com
www.facebook.com/ducateducation

NOIDA
A-43 & A-52, Sector-16,
Noida - 201301, (U.P.) INDIA
📞 70-70-90-50-90
📱/© +91 99-9999-3213

SOUTH EXTENSION
(DELHI)
D-27,South Extension-1
New Delhi-110049
📞 70-70-90-50-90
📱 +91 98-1161-2707

2.0 NOIDA SEC-63
H-43 Sector-63
Noida-201301
📞 70-70-90-50-90
📱/© +91 7042175774

GURGAON
1808/2, 2nd floor old DLF,
Near Honda Showroom,
Sec.-14, Gurgaon (Haryana)
📞 70-70-90-50-90

GHAZIABAD
1, Anand Industrial Estate,
Near ITS College, Mohan Nagar,
Ghaziabad (U.P.)
📞 70-70-90-50-90
+91 9810851363

PITAMPURA (DELHI)
Plot No. 366, 2nd Floor,
Kohat Enclave, Pitampura,
(Near- Kohat Metro Station)
Above Allahabad Bank,
New Delhi- 110034.
📞 70-70-90-50-90