Python

Learnt the core concepts of python

1. Scalar types, operators and control flow statements
2. Strings and collections
3. Functions and Methods
4. Object oriented programming
5. Modules and packages
6. Errors and Exceptions Handling
7. Decorators and Generators
8. Working with files like CSV, Text, JSON etc.
9. Working with Images
10. Advanced python modules

Tasks

1. **Working with file**

   The task is to open a text file and arrange all the words in the file in descending order of their frequency of appearance.

2. **Flight ticket booking**

   We need to write a program to book flight tickets for a person. We need to take the person's details as input and book a ticket for a flight of the person's choice of route and airlines.

3. **Quiz**

   Wrote a python program to implement a quiz contest that involves two teams and a judge. The questions are displayed in the console for each team and the judge adds the score to the team accordingly in the console.

Git and GitHub

1. Created a Github account.
2. Learnt how to initialize a repository in our local device with the 'git init' command.
3. Learnt how to create a new repository in the github.
4. Learnt how to push a local repository to the remote repository.
5. Learnt how to clone a remote repository into our local machine.
6. Also learnt the simple git commands like 'commit', 'push', 'pull' etc.
7. Also learnt how to create git branches.

Virtual Environment

1. Learnt about the python virtual environment and its purpose
2. Learnt how to create a virtual environment and activate it using both pip and conda
3. Also learnt how to install the dependencies in a virtual environment

Postman

1. Got to learn the purpose of the postman application.
2. Tested the urls in the postman by sending the get and post requests to the url.

AWS

1. Created a AWS account
2. Learnt what a root user and IAM user is
3. Added the Multi-Factor Authentication(MFA) to the AWS account
4. Created an EC2 instance(Ubuntu) according to the requirements and worked on it with the help of terminal.
5. Created a RDS instance of MySql and connected it to the EC2 instance.
6. Created a zero-budget budget in the billing section

Remote - SSH

1. Learnt how to work on a remote server in our local machine(Terminal) with help of SSH
2. Also opened the remote server in VsCode with the help of the Remote Explorer and the Remote-SSH extensions

Django

1. Started learning the Django framework by following a tutorial in the Pluralsight website and created a django project, Meeting Planner.
2. Also followed the django documentation and created a django project i.e Polls project.
3. Things learnt in Django
    a. Creating django apps in the Django project
    b. Changing the settings configurations according to the project in the settings.py file
    c. Writing view functions in views.py

    d. Routing the urls of the views in urls.py
    e. Writing model classes according to the requirements in models.py
    f. Registering the models in admin.py
    g. Creating the super user for the admin interface
    h. Making migrations to the database for creating the required tables
    i. Writing the unit tests for the views and models in tests.py
    j. Implemented Authentication for the Django project.
    k. Fetching the data from the database with the help of the django ORM queries.

Django Rest Framework

1. Followed the DRF documentation and got an overview of what Django REST Framework is all about.
2. Learnt how to create a serializer class in serializers.py
3. Writing the regular django views using serializer
4. Implemented the JWT Authentication using the Django Rest Framework
5. Also learnt how to use class based views

Streamlit

1. Followed the streamlit documentation and learnt how to add components to the streamlit page like buttons, text fields, checkboxes etc.
2. Learnt how to call the django view functions from the streamlit with the get and post requests using the urls
3. Learnt how to handle the data received from the backend using the Pandas library
4. Learnt how to plot bar graphs, pie charts using MatplotLib

Toucan Analytics Project

1. Developed a sample data analytics project that uses the customer data and created four analytics
    a. table for frequent mode of transaction by individual customer
    b. bar graph for the amount spent on each mode of transaction for all the customers
    c. bar graph for the number of customers who paid EMI on time and the customers who haven't paid
    d. pie chart by grouping based on the various expenses by all the customers.

2. Used the Django Framework for the backend and the in-built sqlite3 for the database.
3. Used streamlit for Frontend/UI
4. Created two datasets i.e CSV files according to the requirements of the analytics using python code
5. Dumped the datasets into the database with the help of the Bulk-Create method
6. Implemented the JWT Authentication using DRF

Also learnt many other useful things that are essential like

1. **OSI Model**
    a. Got to know the different layers of the OSI Model
    b. Also learnt about L1, L2 and L3 devices such as Hub, Switch and Router respectively
2. **Key Encryption**
    a. Learnt what is Symmetric and Asymmetric key Encryption
    b. Got to know what is a public key and a private key
3. **SSH key generation**
    a. Learnt how to generate a SSH key pair in the local system
    b. Added the SSH public key to the Github account
4. **JSON File**
    a. Got to know about the JSON format and also about the JSON file type
    b. Written and edited JSON files from python code
    c. Fetched and posted the JSON data to urls using the get and post requests
5. **SHA 256**
6. **MD5**
7. **Checksum**