Project Title	Analyzing Personal Expenses
Skills take away From This Project	Python, SQL, and Streamlit
Domain	Personal Finance and Expense Tracking

Problem Statement:

This project aims to simulate an expense tracker for an individual using the **Faker** library. The project generates realistic monthly expense data, processes and stores it in a SQL database, and creates SQL queries to derive insights into spending behavior. A Streamlit app is developed to visualize these insights and showcase the results of SQL queries. The tracker will highlight expenses across categories like bills, groceries, subscriptions, and personal spending, providing a comprehensive overview of financial habits over a year.

Business Use Cases:

- Automating the tracking of personal or business expenses from e-commerce platforms.
- Analyzing and categorizing spending habits to create actionable savings plans.
- Building financial dashboards for tracking income and expenditure trends.Providing businesses insights into procurement and inventory purchasing patterns.

Approach:

- **Data Simulation**: Use the **Faker** library to generate a realistic dataset that depicts a person's expense throughout the month.create 12 different tables for each month.

- **Database Creation**: Create a SQL database schema and load the generated dataset for querying.

- **EDA**: Analyze the dataset using Python libraries to extract insights about spending patterns and trends.

- **Streamlit App**: Develop a user-friendly web application showcasing visualizations and SQL query outputs.

- **Insights & Recommendations**: Provide actionable takeaways based on simulated data analysis.

Results:

- A functional Streamlit app showcasing visualizations of spending patterns and outputs of 15-20 SQL queries.
- Identification of spending trends, such as top categories and monthly expenditure breakdown.
- Data-driven insights into optimizing expenses and managing finances effectively.

Project Evaluation metrics:

- Completeness of data migration and SQL integration.
- Accuracy of the SQL queries and EDA results.
- Functionality and usability of the Streamlit app.
- Visual appeal and informativeness of the charts and tables in the app.
- Adherence to coding and project submission standards.

Technical Tags:

Python, SQL, Streamlit, EDA, Financial Analysis, Data Visualization, Expense Tracking

Data Set:

1. **Date**: The transaction date.
2. **Category**: Type of expense (Food, Transportation, Bills, etc.).
3. **Payment Mode**: Specifies whether it was a **Cash** or **Online** transaction.
4. **Description**: Details about the expense.
5. **Amount Paid**: Total amount paid for the transaction.
6. **Cashback**: Cashback received (if any) during the transaction.

Example table is given below.

	Date	Category	Payment Mode	Description	Amount	Cashback
1	2024-12-01	Investments	Cash	Investment in Term Insurance	309.74	0.0
2	2024-12-01	Investments	Wallet	Investment in Mutual Funds	261.77	7.57
3	2024-12-01	Stationery	Cash	Purchase of stationery	55.53	0.0
4	2024-12-01	Subscriptions	Debit Card	Spotify subscription	74.34	0.0
5	2024-12-02	Investments	Credit Card	Investment in Stocks	495.44	0.0
6	2024-12-02	School FEES	Net Banking	Quarterly school fees payment	243.1	0.0
7	2024-12-02	Subscriptions	Debit Card	YouTube Premium subscription	437.7	0.0
8	2024-12-02	Stationery	Credit Card	Purchase of stationery	379.32	0.0
9	2024-12-03	Home Essentials	Net Banking	Purchase of home essentials	15.63	9.26
10	2024-12-03	Investments	UPI	Investment in Term Insurance	421.44	0.0
11	2024-12-03	Fruits & Vegetables	Cash	Fresh fruits and vegetables	267.52	0.0
12	2024-12-03	Home Essentials	Cash	Purchase of home essentials	194.34	0.0
13	2024-12-03	Sports & Fitness	Cash	Purchase of sports & fitness	323.38	0.0
14	2024-12-04	Stationery	Credit Card	Purchase of stationery	142.46	0.0
15	2024-12-04	Groceries	UPI	Weekly grocery shopping	25.31	0.0
16	2024-12-04	Investments	Wallet	Investment in Insurance Policy	210.23	5.81

Data Set Explanation:

The dataset is a simulated representation of a person's expenses generated with the Faker library. It is designed for hands-on analysis and visualization.
Key preprocessing steps include:

- Ensuring realistic date ranges and amounts.
- Categorizing products accurately.
- Structuring data for easy querying and visualization.

Project Deliverables:

- Source code for data cleaning, SQL integration, EDA, and Streamlit app.
- SQL scripts for all 20 queries.
- Documentation explaining the methodology, analysis, and insights.
- Screenshots of the Streamlit app with key visualizations and outputs.

Project Guidelines:

- Follow Python best practices, including proper naming conventions and commenting.
- Use version control (e.g., GitHub) to track progress and manage the project repository.
- Ensure the Streamlit app is user-friendly and interactive.
- Validate SQL queries to ensure accurate outputs.

Timeline:

Day 1: Simulate data using the Faker library and design the database schema.

Day 2: Load the simulated data into the SQL database and create queries.

Day 4: Develop the Streamlit app and integrate SQL queries.

Day 6: Finalize documentation, insights, and submit the project.

Check your mail for the submission deadline of the project.

REFERENCES:

1)PROJECT APPROACH GUIDE/RECORDING:

🎬 **expense tracker project orientation.mp4**

2)STREAMLIT RECORDING:

📄 **Special session for STREAMLIT(11/08/2024)   (ENGLISH)**

https://us06web.zoom.us/rec/share/JTr7DywhE1-SarjyIHBSCn4qnl7_uvJH6lGk06 qAlkE0Ny1o_rqcq5FRFKuo93dm.iyM2o6l0h9aTUkNE   (TAMIL)

3)STREAMLIT DOCUMENTATION: Install Streamlit

4) HOW TO ESTABLISH SQL CONNECTION:

PYTHONSQLCODE_TAMIL.ipynb

4)FAKER LIBRARY DOCUMENTATION:

Faker's documentation!

Faker · PyPI

PROJECT DOUBT CLARIFICATION SESSION (PROJECT AND CLASS DOUBTS)

About Session: The Project Doubt Clarification Session is a helpful resource for resolving questions and concerns about projects and class topics. It provides support in understanding project requirements, addressing code issues, and clarifying class concepts. The session aims to enhance comprehension and provide guidance to overcome challenges effectively.
Note: Book the slot at least before 12:00 Pm on the same day

Timing: Tuesday, Thursday, Saturday (5:00PM to 7:00PM)

Booking link :https://forms.gle/XC553oSbMJ2Gcfug9

LIVE EVALUATION SESSION (CAPSTONE AND FINAL PROJECT)

About Session: The Live Evaluation Session for Capstone and Final Projects allows participants to showcase their projects and receive real-time feedback for improvement. It assesses project quality and provides an opportunity for discussion and evaluation.
Note: This form will Open on Saturday and Sunday Only on Every Week

Timing: Monday-Saturday (11:30PM to 12:30PM)

Booking link : https://forms.gle/1m2Gsro41fLtZurRA

Evaluation Metrics : ▤ Project Live Evaluation