# Personal Finance Tracker using SQL

## 1. Introduction

Managing personal finances effectively is essential for maintaining financial stability and planning for the future. This project, *Personal Finance Tracker*, focuses on building a structured SQL database that enables users to track their income, expenses, and overall budget in a clear and organized manner. The system helps individuals monitor their monthly spending habits and make informed financial decisions.

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## 2. Abstract

The Personal Finance Tracker is a database-driven system designed to record and analyze personal financial activities. It allows users to log income, categorize expenses, and generate monthly summaries. The project demonstrates practical use of SQL concepts such as schema creation, joins, aggregate functions, views, and data export.
Through this tracker, users can gain insights into their financial patterns, identify major spending categories, and evaluate their monthly savings or deficits efficiently.

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## 3. Tools Used

- **Database System:** MySQL / SQLite
- **SQL Features:** `CREATE TABLE`, `INSERT`, `JOIN`, `GROUP BY`, `VIEW`, `INTO OUTFILE`
- **Data Handling Tools:** MySQL Workbench / Command Line Interface
- **Report Export:** CSV and PDF generation for monthly summaries

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## 4. Steps Involved in Building the Project

1. **Schema Design:**
   Four tables were created — `Users`, `Income`, `Expenses`, and `Categories` — to store structured financial data.

2. **Data Insertion:**
   Dummy data representing users, income sources, and categorized expenses was inserted into the tables.

3. **Data Analysis using SQL Queries:**
    - Monthly summaries were generated using `GROUP BY` on `MONTH()` and `YEAR()`.
    - Category-wise spending analysis was performed using joins between `Expenses`, `Users`, and `Categories`.
4. **View Creation:**
   A `BalanceView` was created to dynamically calculate the total income, total expenses, and net balance for each user.
5. **Report Generation:**
   The final results were exported into CSV format using `INTO OUTFILE`, which can be visualized or converted into a monthly financial report.

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## 5. Conclusion

The *Personal Finance Tracker* successfully demonstrates how SQL can be applied to manage and analyze personal financial data efficiently.
By integrating simple database concepts with analytical queries, the project provides a clear overview of a user's financial health. This project can be further extended with a user interface built using Python or Streamlit to visualize reports and trends interactively.