Project Title: Personal Expense Tracker & Spending Intelligence System

Real-Life Context

Most individuals track expenses inconsistently and fail to analyze spending behavior. This project transforms raw, messy expense data into actionable financial insights, similar to real-world fintech and budgeting applications.

Objective

The goal is to build a Pandas- and NumPy-based data analysis system that cleans unstructured expense data, analyzes spending patterns, detects anomalies, and generates decision-ready CSV reports.

Dataset Description

- The dataset represents multi-year personal expense data of a single individual.
- It contains real-world issues such as missing values, mixed date formats, and duplicate transactions.
- The data also includes invalid amounts and inconsistent categories.

Core Features & Outputs

System Features:

- Data cleaning and preprocessing.
- Monthly and yearly spending analysis.
- Category-wise and merchant-wise insights.
- Payment behavior analysis.
- Anomaly and overspending detection.

Generated Reports (CSV):

- Monthly summaries and category-wise expenses.
- Merchant spending analysis and anomaly reports.
- Overall financial health reports.

Technical Stack & Impact

- **Tools Used:** Python, Pandas, and NumPy.
- **Professional Impact:** This project demonstrates strong data cleaning, analytical thinking, and real-world problem-solving skills.