

## **1) Project Folder Structure**

The folder contains: - data/personal\_expenses\_sample.csv → sample dataset - outputs/ → auto-generated analysis - expense\_analyzer.py → main analyzer script - requirements.txt → dependencies (pandas, matplotlib) - README.md → instructions

## **2) The Analyzer Script (Pipeline)**

The script follows this pipeline: 1. Load CSV and validate 2. Clean and enrich (parse dates, amounts, categories) 3. Summarize key metrics (totals, categories, budget comparison) 4. Save outputs (CSVs, charts, text summary) 5. Exit with success message

## **3) Key Functions Explained**

- load\_and\_clean(csv\_path): prepares the dataset for analysis - summarize(df, monthly\_budget): computes totals and budget comparison - save\_tables(): writes monthly/category/budget tables - make\_charts(): generates trend, bar, and pie charts - save\_summary\_text(): creates human-readable summary file - main(): orchestrates the workflow

## **4) Outputs**

- summary.txt → total spend, daily avg, top categories - monthly\_summary.csv → month-wise totals - category\_summary.csv → category totals - monthly\_vs\_budget.csv → actual vs budget - Charts (PNG) → monthly trend, top categories, category share

## **5) Extensions**

Possible improvements: - Weekly analysis - Merchant/description insights - Alerts for overspending - Interactive dashboard with Streamlit - Forecasting future spend