IIIT RAICHUR

ಭಾರತೀಯ ಮಾಹಿತಿ ತಂತ್ರಜ್ಞಾನ ಸಂಸ್ಥೆ ರಾಯಚೂರು
भारतीय सूचना प्रौद्योगिकी संस्थान रायचूर
Indian Institute of Information Technology Raichur

EXPENSE TRACKER

CSV-Based Bank Statement Visualization Using Python

2024

CSE

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INTRODUCTION

We have created a tool for the visualization of financial transactions. It reads CSV files, analyzes transactions, and shows easy-to-understand graphs. Users can track expenses, and trends, making it easier to make smart financial decisions.1

Aim

To develop a Python-based tool for analyzing and visualizing financial transactions from CSV files, helping users understand their financial data and make better decisions.

Objective

- Create a graphical user interface (GUI) using Tkinter for CSV file selection.
- Parse and clean financial transaction data using Pandas for effective visualization.
- Develop interactive visualizations using Plotly to interpret financial data.
- Provide insights into transaction history, including cumulative balance, credits, debits, and transaction types.

Our contribution

- Person 1: Focused on creating dynamic visualizations using Plotly to achieve the desired interactivity in the graphs.
- Person 2: Worked on designing the Tkinter window, handling CSV file processing, and displaying the graphs. Both Person 1 and Person 2 collaborated on integrating webview for maintaining graph interactivity. The challenge of viewing all graphs in one window was addressed using separate webview displays.

Tools

- Programming Language: Python
- Libraries:
  - Pandas for data manipulation.
  - Plotly for creating interactive graphs.
  - Tkinter for the user interface.
  - Webview for displaying visualizations.
  - Numpy for handling missing data.
- Development Environment: VSCode.

Data Used

The data used in this project is sourced from CSV files containing financial transaction information with columns such as:

- Date: The date of the transaction.
- Credit: Amount credited to the account.
- Debit: Amount debited from the account.

Results

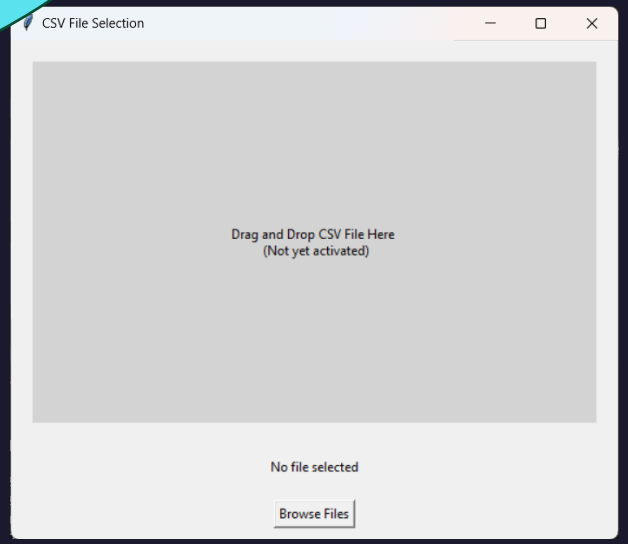
The application successfully processes CSV files, cleans the data, and generates several dynamic visualizations:

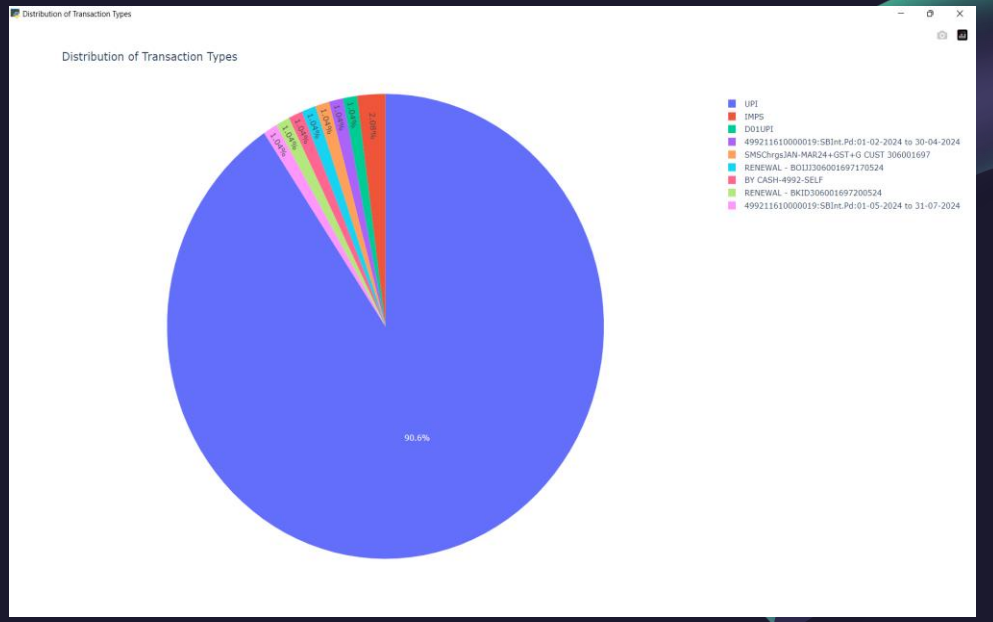
- ✓ **Balance Over Time:** Tracks cumulative balances across a given time period.
- ✓ **Credits and Debits Over Time:** Displays how spending (debits) compares with income (credits) over time.
- ✓ **Transaction Type Distribution:** Visualizes the distribution of different transaction types.
- ✓ **Cumulative Financial Trends:** Helps users track the overall growth of their finances by analyzing cumulative credit and debit trends.

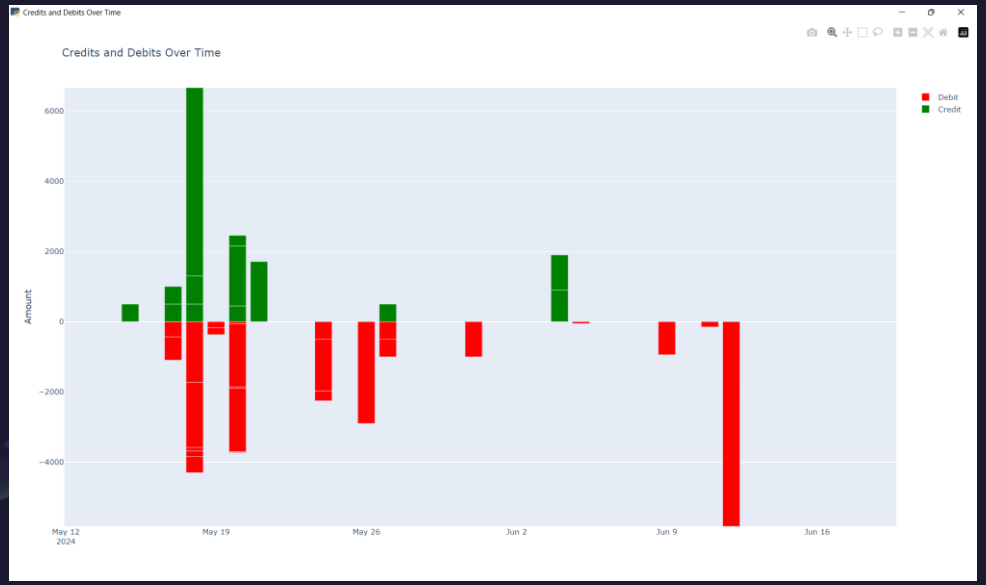
These visualizations give users a clear picture of their financial data, enabling them to make informed decisions based on their income and spending patterns.

Graphs and Pie Chart

File-dialog







Conclusion

The project successfully developed a tool to process and visualize CSV transaction data. By using Tkinter for the interface, Pandas for data management, and Plotly for interactive graphs, it offers a user-friendly experience. Future improvements aim to integrate all graphs into one window and enhance the interface for better usability.

Thank you