Personal Expense Tracker

Abstract: Personal Expense Tracker Abstract: In today’s society it is so easy to loose track of where your money is going. A subscription charge, gas, food, and a random bill here and there. By creating an app that allows you to budget you can keep track of those random charges and take control of your expenses. Budgeting will allow you to have more freedom and a sense of peace. This app will be able to keep track of your expenses, the amount of money you have, and allow the user to view detailed spending reports with ease. Members: Alexander Crespo, Laith Saleh, Nixon Okiomeri

We are pleased to submit our project, Personal Expense Tracker, designed to empower individuals to manage their finances with precision and ease. In response to the common challenge of tracking personal expenditures amidst the myriad of daily transactions, our team has developed a solution that not only monitors spending but also promotes financial awareness and control.

Alexander Crespo spearheaded the backend development of our application, ensuring robust data management and seamless integration of core functionalities. His expertise enabled the secure handling of user data and the implementation of features that provide real-time insights into financial habits.

Laith Saleh was responsible for the general graphical user interface, crafting an intuitive and user-friendly experience. His contributions were vital in making the application accessible to users of all technical backgrounds, allowing them to navigate and utilize the app with minimal instruction.

Nixon Okiomeri focused on the integration of CSV file handling within the GUI, enhancing the app’s capability to import and export detailed financial records. This feature is particularly beneficial for users seeking to maintain meticulous records and perform further analysis on their financial data.

Our application stands out by offering detailed spending reports, a comprehensive view of one’s financial status, and tools for better budgeting. These features collectively foster a sense of financial freedom and peace for our users.

We believe that the Personal Expense Tracker will be a valuable tool for anyone looking to take control of their financial life. We are eager for the opportunity to discuss this project further and explore potential avenues for its deployment.

Thank you for considering our project. We look forward to your feedback and the possibility of contributing to the broader goals of financial management and user empowerment.

The Expense Tracker application is a sophisticated tool designed to provide users with a comprehensive view of their financial transactions through visualizations and interactive interfaces. Developed using Python, the application leverages the power of tkinter for the GUI and matplotlib for data visualization, showcasing a harmonious integration of front-end and back-end technologies.

At the core of the application's backend is the **ExpenseTracker.py** script, crafted by Alexander Crespo. This script serves as the backbone for data handling, employing Python's built-in **csv** module to manage financial records stored in a CSV file named **sample\_bills.csv**. The script facilitates the reading and writing of data, ensuring transactions are captured with details such as date, amount, transaction type, and balance. These transactions are then categorized and manipulated to provide a structured dataset for analysis. The file operations are wrapped with custom error handling, defined by Crespo's **CustomError** class, to manage exceptions specifically associated with file interactions and data integrity issues.

In addition to managing the backend, Crespo was instrumental in debugging and refining the **app.py** file, which was collaboratively developed by Nixon and Laith. This file forms the user interface of the application, utilizing tkinter to create a responsive and intuitive windowed environment. Users can interact with the application through various GUI components like buttons, menus, and dialogs, designed to be user-friendly and efficient. The integration of matplotlib via the **FigureCanvasTkAgg** from the matplotlib backends facilitates the embedding of pie charts directly into the tkinter interface. These charts are dynamically generated based on the categorized data provided by the backend, offering users real-time insights into their spending patterns.

The data importation process is crucial for the functionality of the Expense Tracker. CSV files are imported using Python's **csv** reader, which parses the file line by line, transforming each line into a list of values that correspond to transaction attributes. This method allows for efficient handling of possibly large datasets, enabling the application to scale with user needs. Once imported, the data undergoes processing where it is categorized according to predefined or user-specified categories managed by the **Category.py** script, also developed by Crespo. This script not only handles the categorization but also offers functionalities to add, modify, and manage different expense categories, enhancing the application’s analytical capabilities.

The collaborative effort in developing **app.py** included significant contributions from Laith and Nixon, who worked together to ensure seamless integration of the user interface with the data processing backend. This integration is critical for the automated generation of pie charts, which utilize the categorized expense data to provide a visual breakdown of spending. The CSV file, serving as the data source, is continuously interfaced through the application, enabling updates and retrieval of transaction data in a user-friendly manner.

The Expense Tracker application exemplifies a well-rounded approach to software development, with a clear separation of concerns between data management and user interface design, underscored by robust debugging and enhancement contributions from Crespo. The application not only meets the functional requirements of financial tracking but also enhances user experience through effective data visualization and interactive elements.