PyCK Project

Expense Tracker

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**In the project reviews file, this roll number is incorrectly mentioned. Please change this accordingly.

Abstract

The project is to build an expense tracker, which allows the user to enter their regular expenses and displays that data in visual forms to help the user manage and regulate their spending.

This comes in the domain of data science and data analytics. We intend to create a database for our expenses, a GUI for entering and deleting the expenses, and some visual representation of the relevant data.

The main features we plan to incorporate:

- A simple medium for the user to enter their daily expenses,
- A database to store them for future reference
- Graphical displays for the user to have a visual aid for easier tracking.

The libraries that will be used are as follows:

- Sqlite
- Pandas
- Matplotlib
- Tkinter for GUI

The database we will use is sqlite, with the GUI in tkinter and data manipulation using pandas. Matplotlib will be used along with GUI tools for the visual representation. Week 1 will be used for learning the various libraries to be used for the project, and to set up the database functions, while week 2 is allotted for the GUI and data representation.
For this project, we will need to additionally learn how to handle databases in sqlite, how to make GUI using tkinter, and how to actually integrate the two.

This project was motivated by a need for an app to regulate our expenses as we enter college and need to track and manage our money on our own.

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Project Report

Introduction

Our aim of this project is to create an Expense Tracker, which would help the user to keep an accurate record of their daily expenditure. The details of the money outflow are stored for future reference and the visual displays help the user to easily manage their budget.

The project was motivated by the need of an app to keep an accurate track of our money as we enter college. One needs some easy means to gauge their expenses, the amount spent vs their budget and the timeline as in when most money is spent, hence we thought of the need of graphs and progress bars for visual representation.

Implementation Details

1. Backend – We used sqlite as our backend framework. We chose this as it felt the easiest to work with. We also used the entered and stored data as a dataset so that we could easily use it in our graphical representation. We estimate the dataset to be of moderate size, thus exceeding the scope of csv files, but not so big that it required integration with other frameworks such as MySQL, etc. One of the biggest issues we faced was actually integrating this with the various components of the GUI.

2. GUI – The GUI was an important part in the sense that it is what made the code into a user friendly app. Thus, a user doesn't need to have a prerequisite knowledge of python to use the app. We set up this using the tkinter library, which was a taxing endeavour since none of us knew it beforehand, but was achieved with the help of the python documentation and some very helpful youtube videos.
   The main issues we faced here were regarding the beautification and alignment of the major components.
   The main components of the GUI are:

   a. Input Form: This is the crux of the GUI setup. It holds the basic functionality of entering data into our app, which is then manipulated and displayed in various ways. Learning and implementing this took a large chunk of the allotted time.

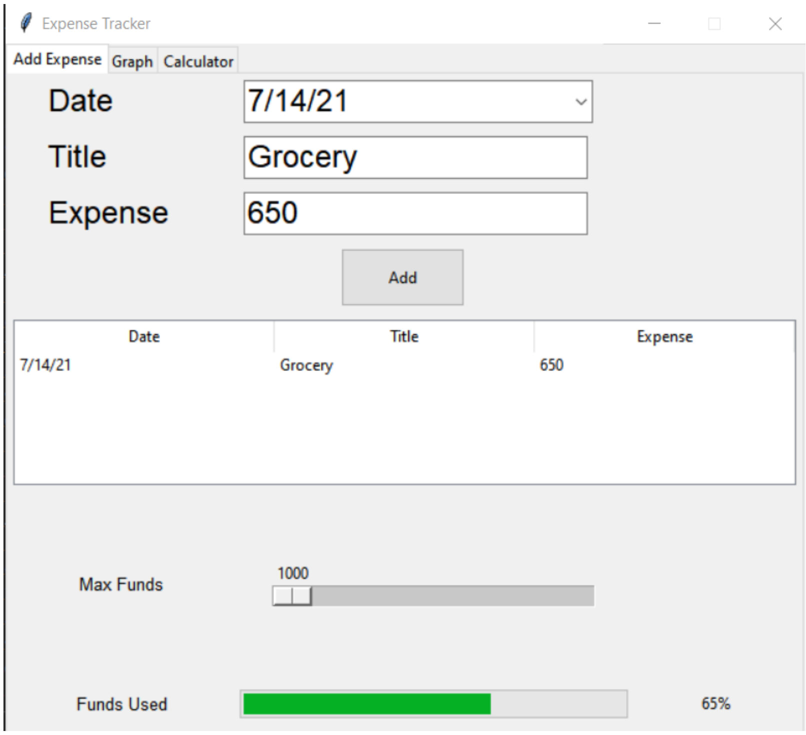
   b. Calculator : We have added a calculator for quick calculations of our expenses and money saved. This makes our expense tracker easier to use and a complete app in itself.

   c. Progress Bar: This is an indicator of funds and acts as another visual depiction to help the user set a limit on their spending and gauge how much of their limit is left.

3. Graphs and plotting – We used the Matplotlib library for plotting of the expenses dataset. The graphs were made with the goal of

‘tracking’ expenses, thus we used line graphs. We faced the most difficulty in getting this right.
The main issues we faced was integrating this with the backend and the GUI. Also, this part had the most number of minor issues in need of fine-tuning, like labeling the axes and setting it in the proper GUI grid.

Screenshots



Date 7/14/21

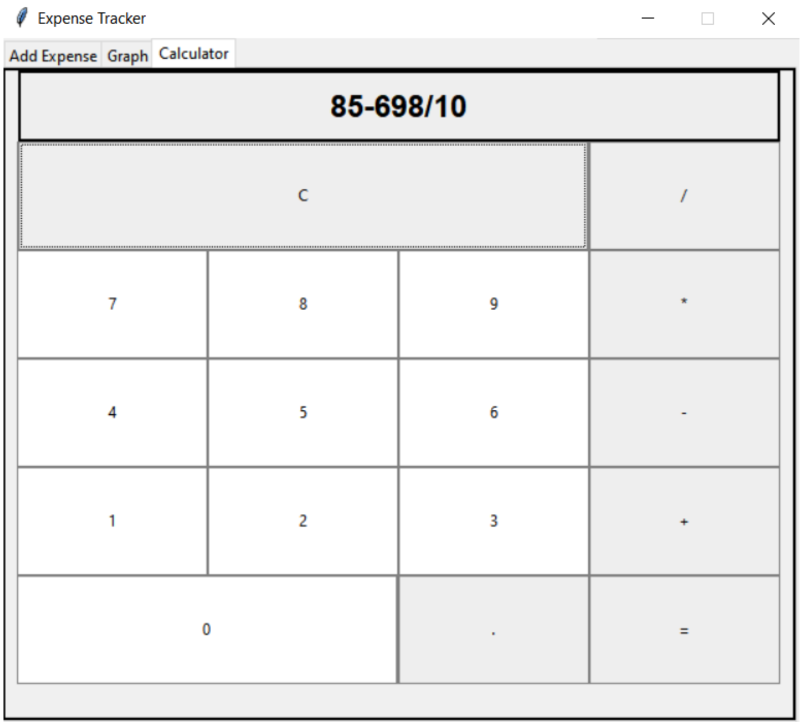
Title Grocery

Expense 650

Date	Title	Expense
7/14/21	Grocery	650

Max Funds 1000

Funds Used 65%



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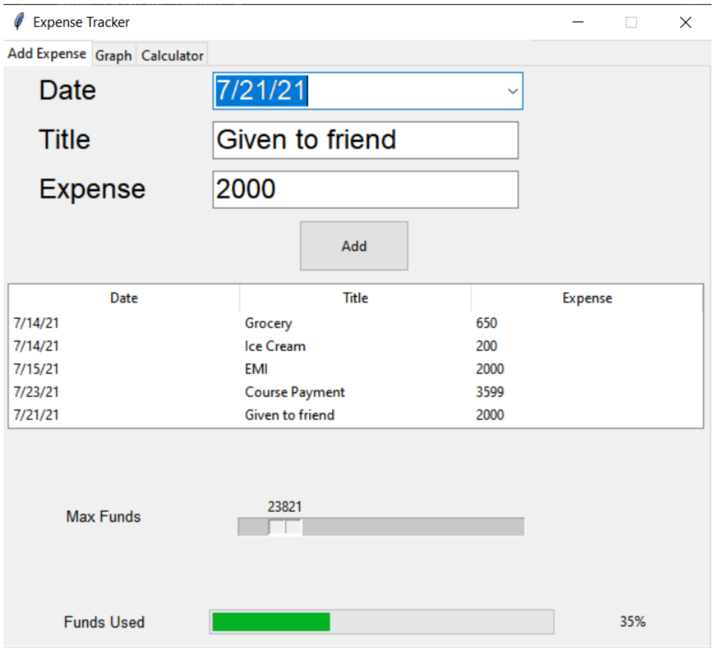


Date 7/21/21

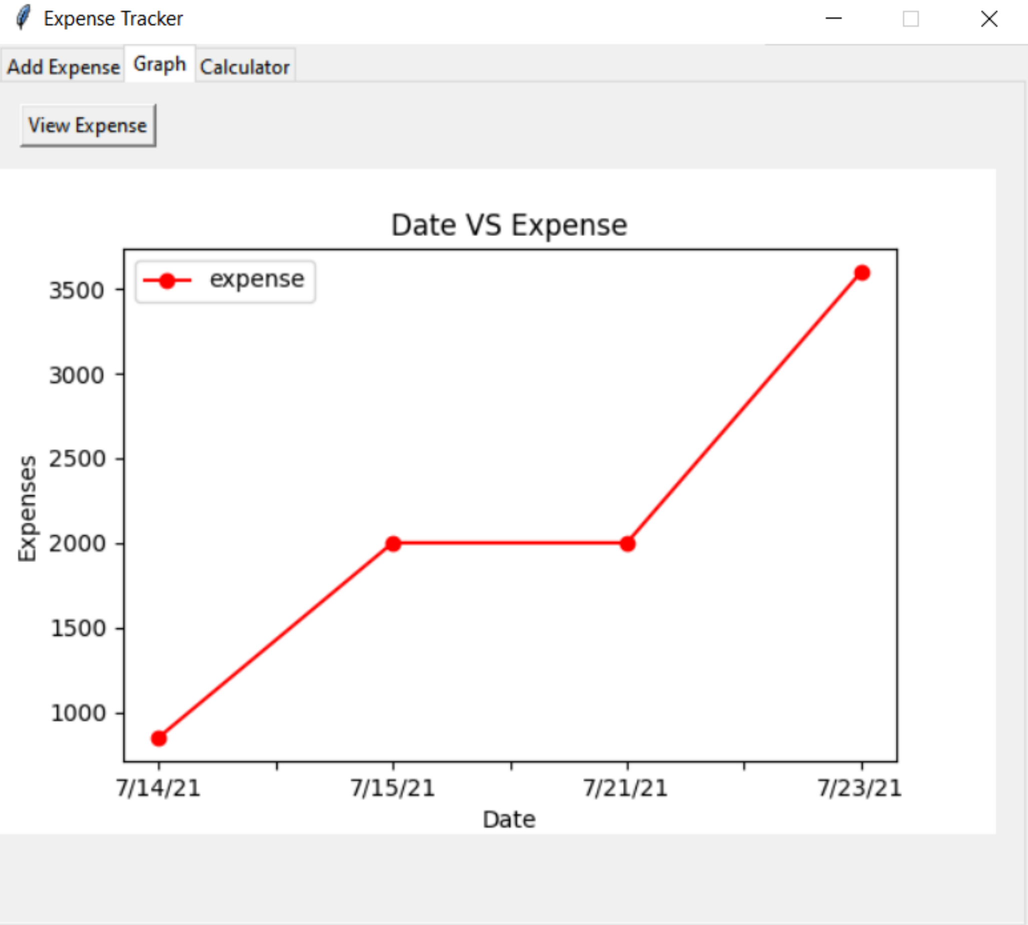
Title Given to friend

Expense 2000

Date	Title	Expense
7/14/21	Grocery	650
7/14/21	Ice Cream	200
7/15/21	EMI	2000
7/23/21	Course Payment	3599
7/21/21	Given to friend	2000

Max Funds 23821

Funds Used 35%



Conclusions

PyCK was, in our opinion, a complete course which gave us an insight into some of the Python preliminaries and also helped a lot with our project of ‘Expense Tracker’. We are all confident that the 4 crucial libraries: Tkinter, Sqlite, MatPlotlib and Pandas are going to be of immense help in future projects and courses.
This project also helped us understand and deal with real life issues not taught in regular courses, like collaborating and integrating code when working in a team.

References

1. Official Python Documentation:
    a. Sqlite - https://www.sqlite.org/docs.html
    b. Tkinter - https://docs.python.org/3/library/tkinter.html
    c. Matplotlib - https://matplotlib.org/stable/contents.htmla
    d. Pandas - https://pandas.pydata.org/docs/

2. Tkinter tutorials on Youtube: Python GUI's With TKinter - YouTube