جامعة نيويورك أبوظبي

NYU | ABU DHABI

CS-UH 2012: Software Engineering

Project Report - Implementation and Testing

Course Project: Deliverable 4 - Group 8

Name: Fatima Nadeem, Chinonyerem Ukaegbu

Net ID: fn2039, cou210

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Implementation

The implementation of our Financial Tracker was intended to be as a web application. However, considering the scope of this project, a couple of core use cases are implemented to give a demo. The code is written 100% in python. The choice of the programming language was based on the developers' experience and fluency with the language. Additionally, the availability of numerous libraries and easier understanding made python the perfect choice for this project.

Initially, Google Colaboratory was used to implement the basic structure of the program based on the previously modeled diagrams. Google Colaboratory allowed the shared use and made it easier to work together on the code. Writing code snippets in Colab also allowed us to test the different parts of the code as they were being developed.

Originally, the plan was to store all the data files on Google Drive and make a Colab code file for the proposed Finance Tracker. However, owing to the time constraints and technical implementation difficulties, we switched to developing a python script and running it on the Terminal. Sublime Text was used to generate the final code after combining different parts from the Colab version of our code and making more modifications to the design of the software.

Code Documentation

Throughout the implementation of the project, the code script is fully documented to assist with the understanding of the designed software and its functionality. Alongside, this document is created to provide further explanation of how the code has been developed. Please find the code script in the Github repository → Deliverable_4 → code.py.

The python script is organized to first import all the necessary libraries. Then, all the classes are defined. The updated design now includes System, Journal, User, UserInfo, ProspectiveUser, Transaction, Notification, and Admin. Then a set of global functions are defined that allows for the basic functioning of some of the requirements. The next part of the code involves the main function where all the inputs are retrieved from the user and error testing is done on the input received. According to the input, a user is redirected to certain functionality as we could see in the provided interface.

All of the information for the program to function is as of now stored in lists in the program and these lists are stored in CSV files. Each time the program is executed, the previous information from the existing files is loaded into the system and can later be manipulated accordingly. After every change, upon exiting the program, the new data/ changes are appended to the existing file system.

Testing Results

The program that is being developed for the Finance Tracker application has been tested continuously and consistently throughout the implementation phase. Based on some of the key problems encountered, some of the functionalities were amended to accommodate the limitations of the system.

The view report function was initially implemented by displaying a pie chart with the categories of the transactions. However, as a result of the non-compatibility of the packages used on one of the user environments, the function was modified to list out the transactions and total amounts of each transaction monthly. Furthermore, based on feedback from the initial phases of the implementation, the menus have been modified to be more user-friendly with additional line spaces in between segments of the interface. Additionally, a bug was uncovered through the test case TC-CT-01. The transaction IDs being saved in the text files on the system were duplicated. This was as a result of the function to increment the IDs not being called at the appropriate time. The bug was fixed by calling the function before a new transaction was created in order to prevent duplication.

There have also been some additions to the system as a result of the test results. The journals and transactions are being displayed in a tabular form for easier reading and a better user experience. Furthermore, the table of journals and the table of transactions for a journal are displayed before the system prompts the user to enter the name of the journal to edit/delete, etc, in order to facilitate user experience.