CS-A1121 Y2 PROJECT PLAN

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Major:	**Digital System and Design**
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Section 2 General description and difficulty level

Topic: Money management

An application for personal use, where user can input files of transaction.

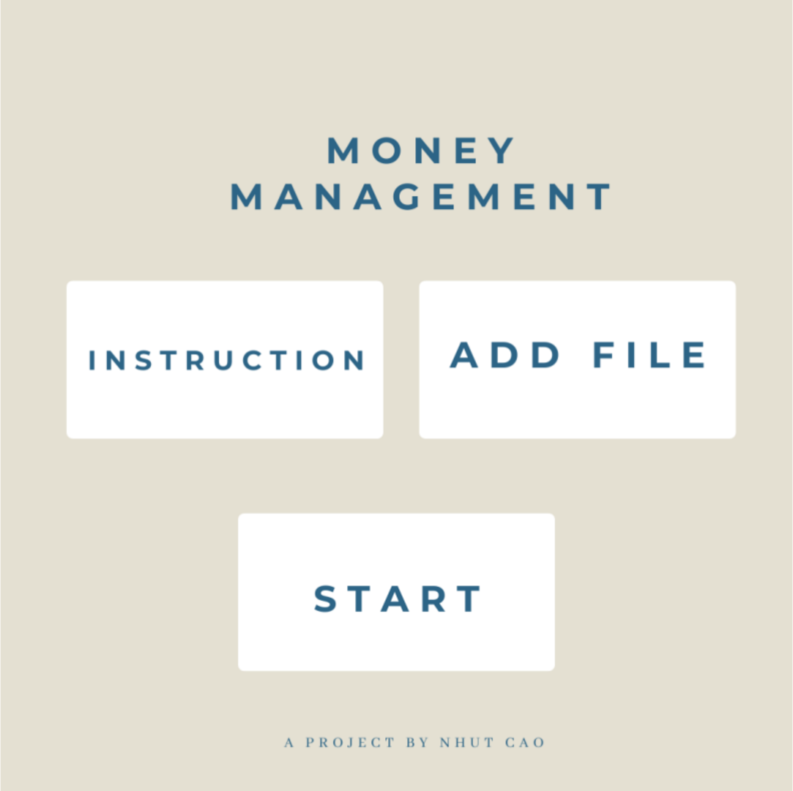
This application will read transactions from CSV files and automatically calculate, and separate spending spent at each different place. The application provides an easy-to-use user interface where user can group spending stores in specified groups and delete the grouping. User can also add other stores manually one by one. A pie chart is offered to visualize the spending with different groups.

The creator aims to satisfy the medium level of difficulty. I'm planning to implement chart to compare the spending between two consecutive months. Hard requirements are also highly considered to be implemented.

Section 3 Use case description and draft of the user interface

When open the application, user will get to a window where displays options for further actions. The user is asked to input a CSV file of transaction to the program, then the pie chart is displayed. Then the user is presented options for grouping the expense, e.g, importance, not importance. User can ungroup too. There will be a quit button for users if they want to exit the application, an instruction button to help user with commands.

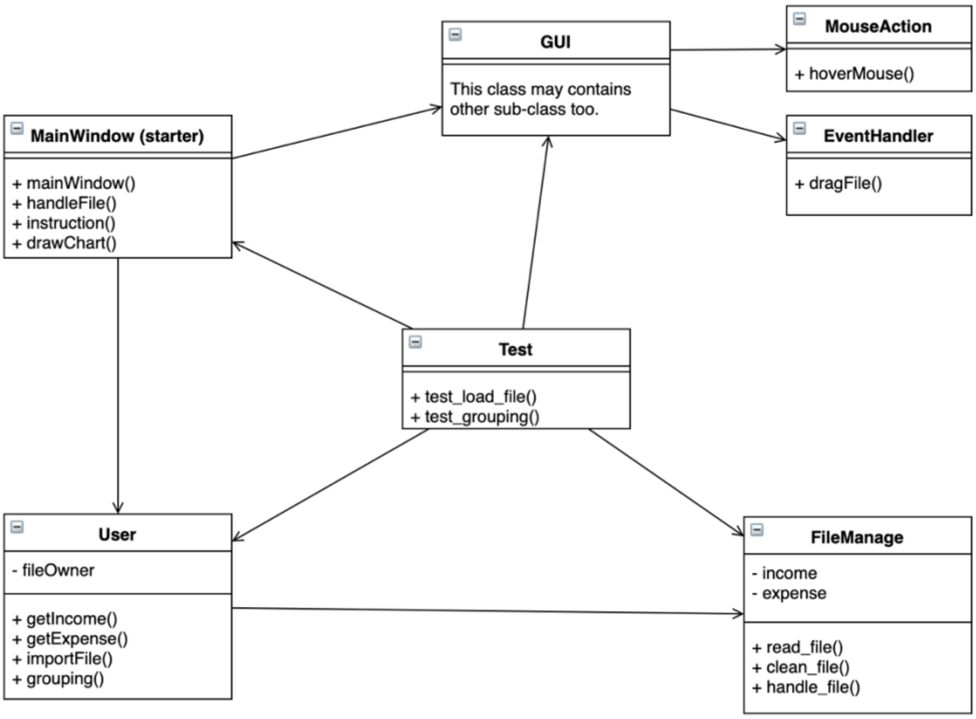
Illustration below



Section 4 Program's structure plan

Tentative classes: **GUI** – this may consist of 2-3 classes, e.g, **Main window** class - handle command class; **Files** class – used to handle CSV files and actions affect the file; **User** class – set user for the application, display text for personal commands

For GUI groups, each class will serve a different purpose to provide a user interface. Most functions will be handled in Main window class, where it makes use of PyQt and directly working with it. Below is the UML diagram



Section 5 Data structures

List and dictionary will be highly used as they are dynamic. Predefined structures may also be used in the future after having a skeleton.

Section 6 File and file formats

This application is mainly for CSV file, user should not input PDF, or any other types of file, which will lead to poor performance. The application will not return any file at the moment.

Section 7 Algorithms

If hard requirements are implemented, I will search for advanced algorithm to do the A.I saving part. Otherwise, with medium level, the application is implemented with simple algorithm by making use of PyQt and other classes.

Section 8 Testing plan

I want to test if the files are loaded correctly, test the grouping functionality, test if un-group is working fine. For testing files, files with empty lines, fault line should be handled. A big test that tests end-to-end the application with multiple commands simultaneously.

Section 9 Libraries and other tools

Unittest, **PyQt6**, and **sys** will be used. Followed the course, Unittest is for testing, PyQt6 is for user interface and sys is for working with it as introduced.

Section 10 Schedule

Easy level:

1) Skeleton of classes: 12/03/2023. Estimate of work hours: 12 hours
2) Finish easy requirements: 24/03/2023. Estimate of work hours: 25 hours
3) Test for easy requirements: 24/03/2023. Estimate of work hours: 3 hours
4) Documenting: during the implementation

Medium level:

1) GUI skeleton: 28/03/2023. Estimate of work hours: 8 hours
2) GUI 80% complete and functionalities: 15/4/2023. Estimate of work hours: 26 hours
3) Testing part of the program: 14/04/2023 (Check point 2). Estimate of work hours: 3.5hours
4) Medium requirements complete: 02/05/2023. Estimate of work hours: 15 hours
5) Documenting: During the implementation

- From 03/05 to 11/05: Hard requirements will be implemented as best as possible
- 12/05/2023: Final commit
- 19/05/2023: Project demo

Section 11 Literature references and links

Google, Stackoverflow, Course material, Python documentations will be main source of references.

Section 12 Attachments

None.