WALLET

Overview:

The program has designed to store incomes and expenses in a database. You can add incomes and expenses to the database. For each entry the program stores the following data: date (year, month and day), type (income or expense), category (like household, food, party, travel, scholarship, salary, etc.), the amount (given in HUF).

The program has following functionalities:

- ➢ load existing database into memory (create a new if there is no database yet),
- ➢ add new income/expense entry into the database,
- ➢ save the database (from the memory) into a file,
- ➢ create new categories on user's request,
- ➢ display total expenses and incomes, the name of the most expensive category and the money user spent for that category, and your overall balance (the money you have) – this means evaluating all entries of the database,
- ➢ for a user selected time period (the user may enter the start and end date of the period) display statistics for each category (total spent, total income, largest expense).

Explanation of the Solution:

The program relies heavily on File Handling, Dynamic Memory Allocations, Linked List, Data Structures and String Manipulations. For the ease of readability and

accessibility, the code has been divided into several modules, and each extensive task has its own function.

For the input of the information, we rely upon this Data Structure:

```
typedef struct Data{
                Date date;
                char type[20+1];
                char category[20+1];
                int amount;
                struct Data *next;
    }Data;
typedef struct Date{
            int year, month, day;
}Date;
```

Explanation of the Modules & Functions:

The code has been divided into 2 main modules:

- main.c file for calling the functions
- header.h file for function implementations and definitions

Here is a list of all the functions being used in *"header.h"* file:

- main_menu_1
- main_menu_2
- write
- add_new_entry

- view_data
- total
- most_exp_cat
- addNEW_cat
- usr_selected_duration

main_menu_1:

In this function there are three choices given below:

1.Load the database

2.Create a new database

3.Exit

These choices has been accessed by switch statement.

If the user enters the 1 choice, this prints out another menu which is explained below.

main_menu_2:

In this function, again there are different choices given as

1.View the database

2.Add a new entry to the database

3.Create new category

4.Display total income, expense and balance you have

5.Display most expensive category and money for that category

6.Display statics for each category for user selected time period

7.Exit

Here also the switch statement has used. User can perform any task by entering the respective number. For each choice the different function has called for specific task.

view_data:

This function is in 1 choice of main_menu_2. In this a file is defined using parameter "r", read only. First it checks whether the file exists or not. After that the data from the file has stored into a link list and then all of the data has printed using a while loop. At the end fclose() function has used to close the file.

add_new_entery:

This is in choice 2. Adding new entry to the file. A file is opened using parameter "a+", which helps to append data at the end of the file. User asks to enter the information related to the entry. Function exits after closing the file pointer.

addNEW_cat:

This function is in choice 3. In this function also a file is opened with parameter "a+". User has to enter the information regarding this. Function checks first whether this category already exist in the database or not. If exist, then user has to enter new category. At the end the same file close function is used.

total:

This function is used in choice 4. A file is opened using "r", which allow to read from file. Data from the file is stored into a link list. Total amount for income and expenses is calculated separately using two variables. Amount of income minus amount of expenses is our balance. Then these three amounts are printed.

most_exp_cat:

This function is accessed by choice 5 of main_menu_2. Same a file is opened using read only function of file handling. Data has stored into a link list. Program checks which category is most expensive. At the end the name of that category along with the amount spent for that is printed. And also file is closed at the end.

usr_selected_duration:

This is accessed by choice 6. A file is opened for read only, and the data is stored into a linked list. After that user will enter the start and end that for which he wants the required data. Program will print the information for each entry using link list which are in between these two dates.

At the end file is saved using fclose().

write:

This function has called in choice 2 in main_menu_1. In this function a file is opened with the parameter "w" which allow to write data into the file. User has to enter the required information for the entry. Here a do while loop is used which allow the user to enter another entry if he wants. If user has successfully entered the data, it will be stored int the file. And the file will be saved.