|  |  |
| --- | --- |
| **Input**  - Add Expense  - Name  - Category  - Amount  - Date    - Category  - List  - Add  - Remove  - Modify  - Add Income  - Name  - Amount    - Search  - Key  - Name  - Category  - Date  - Time Period  - Month  - All  - Search string    - Plan  - Add  - Amount per category  - Modify  - Remove    - Savings Goal  - Add  - Name  - Category  - Amount  - Priority (1-10)  - Modify  - Complete (Creates an expense)  - Delete    - View  - Current month  - Past month  - Select month  - Totals  - Planning / Goals | **Output**  - Current Month:  - Running balance  - Total expenses  - Expense breakdown by category  - List of transactions    - Past month breakdown:  - Savings that month  - Total expenses  - Expenses breakdown by category  - List of transactions    - Total breakdown:  - Current balance  - Total expenses  - Total savings (excluding current month)  - Past several months breakdown in a table  Month:Savings:Expenses    - Planning / Goals:  - Left and right side, split down middle  - Left:Planning  - Current breakdown by category  - Planned breakdown by category  - Right:Goals  - List of goals, sorted by priority:  - Goal name  - Goal cost  - Completion amount (savings split across priorities)  - Category:List  - Show the list of categories  - Search  - Return the found items |

**Processing**

***Database Related***

**On Start:** Load all files into their respective arrays.

**Add** **Expense**: Create transaction and auto-save (transactions.txt). Add transaction to transaction array. Sort this array by date.

**Category**: Create, modify, remove category and save (categories.txt). If no categories exist, modify and remove aren’t possible. Modify category array.

**Add** **Income**: Create transaction and auto-save (transactions.txt).

**Search**: Search by name or category uses sequential sort, date uses binary sort. Display the found items.

**Plan**: Add, modify, or remove a plan and save (plans.txt). If no plans exist, Modify and Remove aren’t possible. Modify plan array.

**Savings** **Goal**: Create, modify, remove, or complete (delete + extra) plan and save (goals.txt). Completing a goal adds a transaction with the name of the goal, its amount, and category, saving the file (transactions.txt). If there is enough money in savings to complete the goal, it is completed, otherwise the user is informed and a confirmation is given to proceed anyways. If no goals exist, modify, remove, and complete are not possible. Modify savings goal array and transaction array. Sort the transaction array and goals array, sorted by priority.

***Output Related***

**Current Month**: Get current month by getting the latest transaction’s month. Calculate current balance by going through all transactions. Calculate expenses per category during the same loop if the transaction occurred in the current month. List transactions from array.

**Past Month**: Calculate savings for that month by going through that month’s transactions and adding all amounts. While looping, calculate breakdowns per category and list the transactions.

**Total Breakdown**: Calculate current balance, savings, and expenses by going through all transactions. Get breakdowns in the same loop. Get a quick breakdown of the past months by doing the same as “**Past Month**” for several months.

**Planning:** Get planned breakdowns from planned array. Get current breakdowns the same way as for current month.

**Goals:** Display list of goals. Calculate completion amount by splitting savings across priority. Assuming a higher number means higher priority, the following happens. The goal’s priority (p) is added to all other priorities. The total savings is divided by total priority. This number is what multiple of savings goes to each priority. Now, this number is multiplied by p and the total savings to get the amount completed for each goal.

**Category**: Get list of categories and show.