# Software development I (IIT Sri Lanka)

**Module**: (2023) 4COSC006C.2 Software Development I (IIT Sri Lanka)

**Assignment type**: Coursework03 (Individual)

**Assignment Specification**: Personal Finance Tracker (Dictionary-Based with JSON Serialization, modified to provide a GUI using **Tkinter** python module.))

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## Content in this document:

**This document includes details such as setup instructions and feature descriptions of the Personal finance tracker program.**

# Personal Finance Tracker

## Overview

The **personal finance tracker** is a software application developed using python programming language and JSON (JavaScript Object Notation) for data storage and manipulation. The application is designed to assist users track their daily income and expenses, manage their budget, and analyze their spending patterns. Its key features include:

- Recording transactions.
- Updating transactions.
- deleting transactions.
- viewing transactions in a CLI interface.
- View transactions in a GUI interface.
- Sort transactions in ascending and descending orders.
- Search for a specific transaction out of a pool of stored transactions.
- Generating summaries of transactions.
- Recording transactions in bulks from a text file.
- Saving transactions to a file for convenience.

## Setup Instructions

### Prerequisites

- **Python 3.x install on your computer:**

  **Personal finance tracker application highly depends on python libraries such as "random", "datetime", "os", "tkinter" and "json" for its function.**

- **Command-line interface or terminal access:**

**Personal finance tracker application currently support both a Command-line and a GUI interface. However, the GUI is only available to view, sort, and search transactions on a table, which is a sub feature. The other crucial functionalities still remains the same. Therefore, the users must use the command-line or terminal to run the application to utilize the main functions along with the function of launching the GUI functionality.**

## Installation:

- Download or copy the entire "**Python_and_JSON"** folder onto your local machine.
- Make sure the files are in the correct directory / folders, it is crucial for the files to be in the right folder locations. Therefore, it is strongly recommended that users directly copy or download the entire folder containing both the main program file and the subfolder containing the features program files.

## Usage:

- The personal finance tracker application is to be run using Command-line or terminal

1. Open the command-line or terminal.
2. Navigate to the directory where the program files are located **("Python_and_JSON")** using the command-line(cmd)/terminal commands **"cd [folder name]"** until you get to (inside )"**Python_and_JSON**" folder.

3. Run the "**main_prog.py**" using either of these commands:

**Command-line – "python main_prog.py" or "main_prog.py" or "main_prog"**

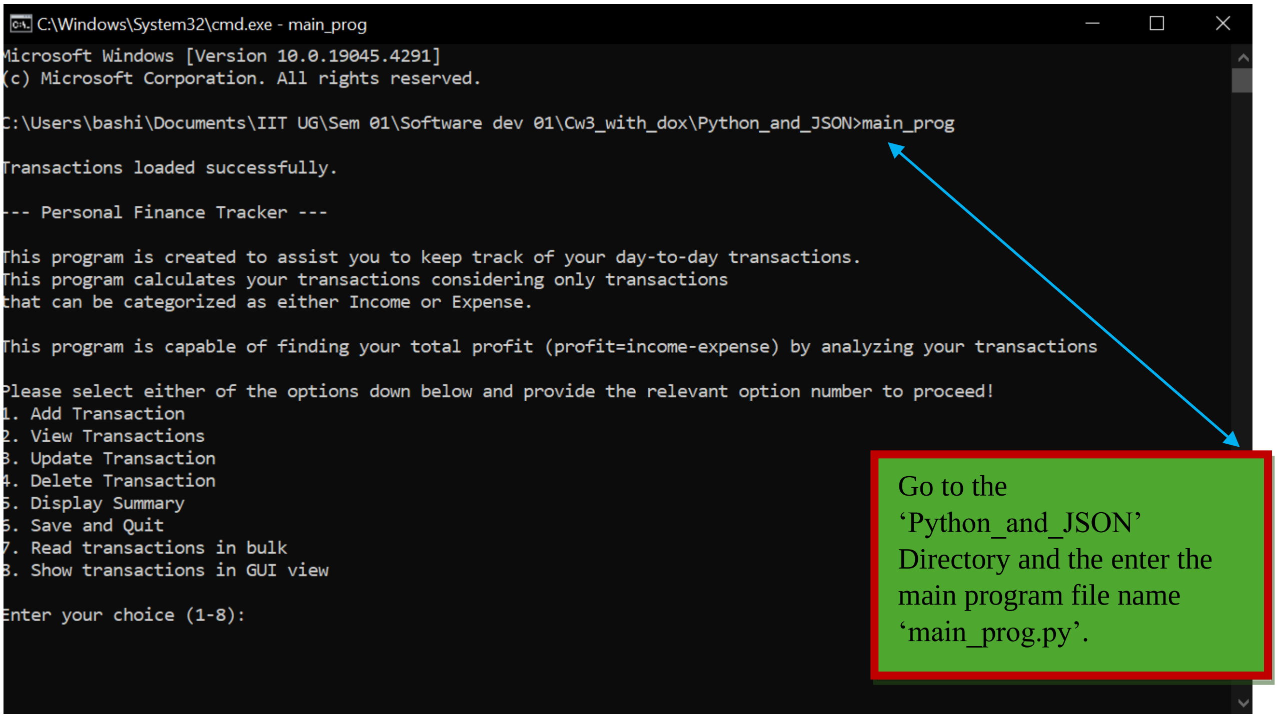
**Terminal – " python main_prog.py" or "python3 main_prog.py"**

```
C:\Users\bashi\Documents\IIT UG\Sem 01\Software dev 01\Cw2>cd Python_and_JSON

C:\Users\bashi\Documents\IIT UG\Sem 01\Software dev 01\Cw2\Python_and_JSON>DIR/b
features
main_prog.py
read_bulk.txt
transactions.json
```

Use "**cd [folder name]**" command in **cmd/terminal** to navigate till you find '**Python_and_JSON**' folder.

Use "**DIR/b**" in **cmd** or "**ls**" in **terminal** to view the contents of the current directory.




4. Follow the on-screen instructions to interact with the personal finance tracker application and to manage your transactions.

5. When recording transactions in the text file for later extraction of the transactions to the personal finance tracker application. Make sure that the transactions are recorded in the text file in the format (**Category of the transaction,<space>Amount of the transaction, <space>type of transaction(Income/Expense), <space>Date of the transaction(YYYY-MM-DD)**).
   Example: **Income received, 6700, income, 2042-09-30**
   **# Make sure to keep a single space after “,” in each transaction.**

# Features

1. **Add transactions feature:**

   - **Allows the user to add transactions to the financial records of the application.**
   - **Users can specify the amount, category, transaction type (income or expense), and date of a transaction entered.**
   - **Transactions are validated before updating to maintain data accuracy.**

2. **View transactions feature:**

    - **Allows the user to view his/her transactions in either a command-line interface or a graphical user interface depending on the user's requirement.**
    - **Displays a formatted Dictionary of all recorded transactions.**
    - **Provides insights into each transaction details such as serial no. , amount. category, transaction type, and date.**
    - **Graphical user interface displays the transactions in a table which is highly user-friendly.**

3. **Sort transactions feature:**
    - **Allows the user to sort transactions in either ascending or descending orders.**
    - **Users can sort transactions by clicking either of headers(column names) of the table that displays the transactions.**
    - **To sort in ascending order, click the desired column header once.**
    - **To sort in descending order, click the desired column header twice.**

4. **Search for specific transaction/s feature:**
    - **Allows the user to search for a specific transaction/s using a value.**
    - **The user can select which column to search for the specific value/data.**
    - **Matching transactions will be made visible, while the rest of the transactions are hidden after searching for values.**
    - **Users can revert the changes made to the table after the search using the reset option.**

5. **Update transaction feature:**
    - **Allows the user to update existing transactions.**
    - **The user can modify data such as amount, category, transaction type, and date of transaction.**
    - **Transactions are validated before updating to maintain data accuracy.**

6. **Delete transaction feature:**

    - **Allows the user to delete specific transactions from their records**
    - **The user is prompted to enter the serial number of the transaction to be deleted or delete a group of transactions at once by deleting using the category name.**

7. **Display summary feature:**

    - **Present a summary of all recorded transactions.**
    - **Provide the total number transactions, total income, total expenses, and overall balance (income – expenses).**
    - **Offers valuable insights into the user's financial status briefly.**

8. **Record transactions in bulks from a text file:**
    - **Allows the user to read a text file containing transactions and record/extract all the transactions in it to the main program.**

- **After extraction of the transactions to the main program, the user can update, view, obtain summaries, delete, and save the transactions to the JSON file used to save transactions.**

9. **Save transactions feature:**

- **Preserves the recorded transactions by storing them to a JSON file.**
- **Ensures that users can access their financial records at any time.**
- **Simplifies data management and retrieval for future reference.**

# Conclusion

The Personal finance Tracker offers a user-friendly and efficient solution for managing personal finances. With unique interface and robust features, users can easily track their income, expenses, and overall financial status. Whether you are budgeting, analyzing spending patterns, or planning for the future, the Personal Finance Tracker is ready to assist your need to stay organized and in control of your finances.