INFORMATICS INSTITUTE OF TECHNOLOGY

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    10.1 Continously display the main menu and prompt the user to choose an Option

    10.2 Based on the user's choice,Execute the corresponding Functionality

Data Structure Design

transactions={ }

//Every transaction saved in a dictionary into the main transactions Dictionary

Ex:- {"Groceries": [{"amount": 150, "date": "2024-02-03"},

{"amount": 75, "date": "2024-02-15"}]

,"Salary": [{"amount": 1000, "date": "2024-02-01"}]}

Pesudocode Design

Start

    Import json

   Transactions={ }

    Function load_transactions()

          Set file_path=data.json

          Open file_path in readmode as json_file

          Set transaction=Json.parse(json_file)

   End Function

    Function save_transactions()

          Prompt user Do you want to save(Yes/No)?

        If user enters "Yes" then

             Set file_path=data.json

             Open file path in write mode as json_file

                 JSON,parse(transactions,json_file)

        Else If user enters "No" then

           Display Transaction details are not saved

      Else

          Disaplay Invalid Option Enter a valid Option

       End If

End Function

Function add_transactions()

    Prompt User to input the purpose of transaction

   If user entered purpose Already exsist

      Display asking from user save current transaction under existing Programme

      If user entered "Yes"

        Prompt by asking user the amount

           If user entered less than or equals to 0

Display Amount Cannot be Negative

                    End If

              Prompt user to enter the Transaction Type

                       If transaction type not in "Income" or "Expenses"

                       Display Invalid Input Enter only Income or expense

                    Else

                       Prompt user to enter the date

                    End If

              Append all the user entered inputs to the trnasactions[purpose] list

              Elif user enters "No"

                    Return

              Else

                    Display Please Enter only Yes or No

              End If

        Else

           Prompt User to enter Amount

           If amount<=0

              Display Amount cannot be negative

           Else

              Prompt user to Input Transaction Type

           End If

           If user inputed transaction type not in "income" or "expense"

              Display Enter Only "Inocme" Or "Expense"

           Else

              Prompt user to enter the data in Format DD/MM/YYYY

           End If

           Append all data entered data into transactions[Purpose] list

        End If

End Function

```
Function view_transactions
    If not transactions

        Display there is No transactions

    Else

        For purpose,details In transactions

            Display The transaction Purpose

            For transaction in details

                Display amount,type,date one by one

        End If

End Function

Function Update_transaction
    Calling load_transactions

    Calling view transaction

    Prompt User to enter the purpose

    If user Entered Purpose Not in transactions

        Display Enter an Existing Purpose

    Else

        Prompt user to select the transaction under the user entered Purpose

        Prompt user to sleect the transaction

        If transaction user entered is <=0 or it is greater than the length of transaction under a purpose

            Display a valid transaction number to edit

        Else

            Subtract one from user inputed transaction Number

            Prompt user to edit one from Amount,Type,Date

            If user entered Amount

                Prompt user to enter the amount

                Update in the transactione

            Elif user entered Type

                Prompt user to enter the type
```

Update in the transaction

Eif user entered date

Prompt user to enter the Date

Update in the transaction

Else

Display Invalid Input Please enter Type ,Amount or date

End If

End If

End Function

Function Delete_transactions

Call Load Transactions Function

Display Existing Transactions

Prompt use asking whether he wants to delete all transactions under a purpose

If user enter "Yes"

Prompt user to enter the purpose to dlete

Delete all transactions under the purpose

Print successful Message

Else

Print Error Message

If User Answers "No"

End If

Prompt to user to enter the purpose

If user entered purpose exsisit in transactions

Disaplay Transactions under that Purpose

Print Success Message

Else

Print Error Message

End If

End If

Else

   Print error Message

End If

Function display_summary
   Load transactions

   Initialize dictionary

  For each transaction in transactions

       If transaction's Purpose not in the summary dictionary

          Add Purpose to the summary sictionary

        Else

          Increment the count for that purpose in the summary dictionary

       End If

Print "Transactions Summary

For each purpose and its count in the summary dictionary

     Print the purpose and its Count

End Function

Function Main()
      Call load_transactions to load transactions from the file

       While True Do

             Display Personal Finance Tracker

             Display 1. Add Transaction

             Display 2. View Transactions

             Display 3. Update Transactions

             Display 4. Delete Transactions

             Display 5. Display Summary

             Display 6.Exit

             Prompt user to choose one out of Following

       End While

If users Choice is' 1'

   Call add_transactions

Else If Users Choice is'2'

   Call view_transactions

Else If Users Choice is'3'

   Call Update_transactions

Else If users Choice is'4'

   Call delete_Transactions

Else If users choice is '5'

   Call display_summary

Else If users choice is '6'

   Call read_bulk_transactions_from_a _file

Else If users Choice is'7'

   Display Exiting the programme...

   Break

Else

   Display Invalid Choice Try Again

End If

End Function

Test cases

1. Main Function

Test case	Input	Expected Output	Actual Output	Remarks
01	Enter choice option 1	Run the add_transaction function	Run the add_transaction function	Pass
02	Enter choice option 2	Runt the view_transactions function	Runt the view_transactions function	Pass
03	Enter choice option 3	Run the update transaction Function	Run the update transaction Function	Pass
04	Enter choice option 4	Run the delete transaction function	Run the delete transaction function	Pass
05	Enter choice option 5	Run the display summary Function	Run the display summary Function	pass
06	Enter choice option 6	Asking user to enter the file name to read transactions	Read transaction from file	Pass
07	Enter Choice Option 7	Exit from the programme	Exit from the programme	Pass
08	Enter a choice without 1 to 7	Printing Error message invalid choice	Printing Error message invalid choice	Pass

1.2 Screenshot For Test Cases

```
----------------------Personal Finance Tracker--------------------------
(1) Add Transaction
(2) View Transactions
(3) Update Transaction
(4) Delete Transaction
(5) Display Summary
(6) Read Bulk Transactions from File
(7) Exit

Enter your choice:
```

2. Add Transaction Function

Test case	Input	Expected Output	Actual Output	Remarks
01	Entering Negative amount or 0 for the Amount	Error message	Error Message Amount canot be negative	Pass
02.	Entering Strings for the amount	Handling The Value Error	Enter amount only in integers	Pass
03.	Spelling mistakes when typing Income or Expense	Handling the error	Crashing The Programme	Fail
04.	When Purpose Write in capital or simple Letters	Transactions are saved Under same purpose	Transactions are saved in 2 different purposes	Fail

2.2 Screenshots For Test Cases

```
Enter your choice: 1
-------------------Add Transactions----------------------
Enter the transaction purpose: Salary
Enter the Amount: Rs.0
Amount cannot be negative.


----------------------Personal Finance Tracker--------------------------
(1) Add Transaction
(2) View Transactions
(3) Update Transaction
(4) Delete Transaction
```

```
(6) Read Bulk Transactions from File
(7) Exit

Enter your choice: 1
--------------------Add Transactions-----------------------
Enter the transaction purpose: stationary
Enter the Amount: Rs.testing
Enter Only Integers for the Amount


-----------------------Personal Finance Tracker--------------------------
(1) Add Transaction
(2) View Transactions
(3) Update Transaction
```

3. View Transactions Function

Test case	Input	Expected Output	Actual Output	Remarks
01	Calling View Transaction function without Having any data in the data File	Error Message which prints there is not any transactions to view	Error Message which prints there is not any transactions to view	Pass

3.1 Screen Shots For Test cases

```
(5) Display Summary
(6) Read Bulk Transactions from File
(7) Exit

Enter your choice: 2
----------------------------View Transactions--------------------------------

Sorry, there aren't any transactions.

----------------------Personal Finance Tracker-------------------------
(1) Add Transaction
(2) View Transactions
(3) Update Transaction
(4) Delete Transaction
```

4. Update Transactions Function

Test case	Input	Expected Output	Actual Output	Remarks
01	Enter Not Existing Purpose to Update	Error Message	Transaction Not Existing Please Enter a existing transaction	Pass
02	Entering a existing Purpose	Display the Number of Transactions	Displaying the Number of Transactions	Pass
03	Entering a transaction Number not Exsisting	Displaying a error message Without Crashing Programme	Displaying a Error Message	Pass
04	Entering String Value For Trnsactions Number	Displaying error message while Handling the Value Error	Displaying Error Message	Pass
05	Entering a word other than amount,type or Date	Displaying a error message	Diplaying Please Enter word out of amount,type,Date	Pass

5.2 Screen shots for Test Cases

```
----------------------Personal Finance Tracker---------------------------
(1) Add Transaction
(2) View Transactions
(3) Update Transaction
(4) Delete Transaction
(5) Display Summary
(6) Read Bulk Transactions from File
(7) Exit

Enter your choice: 3

---------------------------View Transactions--------------------------------

Sorry, there aren't any transactions.
Enter the Transaction Purpose Which you want to Update: []
```

```
Transaction Purpose: transportation
Amount: Rs. 20.00, Type: expense, Date: 23/04/24
Amount: Rs. 25.00, Type: expense, Date: 23/05/24
Amount: Rs. 30.00, Type: expense, Date: 23/06/24

Enter the Transaction Purpose Which you want to Update: transportation
There are 3 transactions under transportation.
Enter the transaction number to update (1 to 3): █
```

```
Enter the Transaction Purpose Which you want to Update: transportation
There are 3 transactions under transportation.
Enter the transaction number to update (1 to 3): 4
Please enter a number between 1 and 3.

----------------------Personal Finance Tracker--------------------------
(1) Add Transaction
(2) View Transactions
(3) Update Transaction
(4) Delete Transaction
(5) Display Summary
```

```
Amount: Rs. 30.00, Type: expense, Date: 23/06/24

Enter the Transaction Purpose Which you want to Update: transportation
There are 3 transactions under transportation.
Enter the transaction number to update (1 to 3): testing
Enter the Transaction Number Only In Integers

----------------------Personal Finance Tracker------------------------
(1) Add Transaction
(2) View Transactions
(3) Update Transaction
(4) Delete Transaction
(5) Display Summary
(6) Read Bulk Transactions from File
```

```
There are 3 transactions under transportation.
Enter the transaction number to update (1 to 3): 3
----------------------------------------------------------------
Current Transaction Details:
Amount: Rs. 30.00, Type: expense, Date: 23/06/24
----------------------------------------------------------------
Enter the field to update (amount, type, or date): testing
Invalid field. Please enter 'amount', 'type', or 'date'.

----------------------Personal Finance Tracker-------------------------
(1) Add Transaction
(2) View Transactions
```

6. Delete Transactions Function

Test case	Input	Expected Output	Actual Output	Remarks
01	Choice 04	Returning to the main main Menu	When opening the delete transaction Without any Json file It Runs The code Without returning To main menu	Fail
02	Entering Purpose with Mix Cases	Choosing the correct Transactions Purpose	Choosing the correct Transactions Purpose	Pass
03	Deleting Specified Transaction	Deleting the purpose name when we delete all transactions	Not Deleting Transaction Purpose After deleting all transactions one by one	Fail
04	Entering Integers	Displaying Error	Displaying Error	Pass

6.2   Screen shots for Test Cases

```
Amount: Rs. 30.00, Type: expense, Date: 23/06/24

----------------------------- Delete Transactions-----------------------------
If you want to Delete All transactions under one purpose?
Enter yes If you want to delete All Transactions In a Purpose
Enter No to delete one transaction under a purpose
Enter Yes Or No: yes
Enter the transaction Purpose You want to delete: TranSpOrtaTIon
Transactions under transportation deleted Successfully...
Do You Want To Save Changes(yes/no): yes
Changes Saved Successfully...
```

```
Transaction Purpose: gym membership
Amount: Rs. 30.00, Type: expense, Date: 16/04/24
Amount: Rs. 35.00, Type: expense, Date: 16/05/24
Amount: Rs. 40.00, Type: expense, Date: 16/06/24

----------------------------- Delete Transactions-----------------------------
If you want to Delete All transactions under one purpose?
Enter yes If you want to delete All Transactions In a Purpose
Enter No to delete one transaction under a purpose
Enter Yes Or No: no
Enter the transaction Purpose You want to delete: 2323
There is Not Such Purpose In Transactions List
```

7. Read Bulk Transactions Function

Test case	Input	Expected Output	Actual Output	Remarks
01	Inputing wrong file	Error message displaying File Not Found	Error message displaying File Not Found	Pass

7.2 Screen shots for Test Cases

Resolved Error Report For Failed Testcases

1. Spelling Mistakes When Typing Income or Expense
   I. **Description**

   When User do an spelling mistake when entering the words Income or Expense It save in the dictionary without error message

   II. **Steps To Reproduce**

   Using If condition wheather user entered Income or expense

   III. **Screenshot Of the Error**

```
Amount: Rs. 30.00, Type: expense, Date: 23/06/24

Transaction Purpose: shipping
Amount: Rs. 4560, Type: expensse, Date: 2024-10-20



----------------------Personal Finance Tracker--------------------------
(1) Add Transaction
(2) View Transactions
(3) Update Transaction
(4) Delete Transaction
(5) Display Summary
(6) Read Bulk Transactions from File
```

   IV. **Code Snippet To Resolve Error**

```python
trs_type = str(input("Enter the Transaction Type (Income/Expense): ")).strip().lower()
    #Check whether the user input Income, expense word correctly
if trs_type not in ("income", "expense"):
    print("Invalid type. Please enter 'Income' or 'Expense'.")
    #if user input wrong it return s to enter it again
    return
```

2. Writing Purpose In Mix Cases

I. Description

When user enters same purpose in 2 times to add transactions
In different cases

II. Steps To Reproduce

User .lower() Method to convert user entering purpose into lowercase in every instance

III. Screenshot of the error

```
{..} data.json > [ ] salary
    1    {"SALARY": [{"amount": 345000, "type": "income", "date": "23/10/2024"}],
    2    "salary": [{"amount": 5000, "type": "income", "date": "23/10/2024"}]}
```

IV. Code Snippet to Resolve Error

```python
#Asking user to input the purpose
purpose = input("Enter the transaction purpose: ").lower()
#Check whether the user inputed purpose exsist in the transactions
if purpose in transactions:
    print("This transaction already exists. Do you want to add details to it?")
```

3. Selecting Choice Number 04

     I. **Description**
       When user choose choice Number 4 Without there any JSON File The
       Function Delete transactions Runs without Error Message

     II. **Steps To Reproduce**
       Use If Condition

     III. **ScreenShot Of the Error**

```
Enter your choice: 4
----------------------------View Transactions--------------------------------
File not found. Creating a new file...
Sorry, there aren't any transactions.
---------------------------- Delete Transactions------------------------------
If you want to Delete All transactions under one purpose?
Enter yes If you want to delete All Transactions In a Purpose
Enter No to delete one transaction under a purpose
Enter Yes Or No: []
```

     IV. **Code Snippet To Resolve the Error**

```
print("----------------------------- Delete Transactions--------------------")
if not transactions:
    return
print("If you want to Delete All transactions under one purpose?")
print("Enter yes If you want to delete All Transactions In a Purpose")
print("Enter No to delete one transaction under a purpose")
```

4. Deleting Transactions One by One in One Purpose

    I.   **Description**
        When deleting transactions Under a Purpose One by one,after deleting the
        Final transaction it remains the purpose without deleting it

    II.   **Steps To Reproduce**
        Using If Condition to check is there is a purpose remaining purpose after
        that

    III.   **ScreenShot of the Error**

```
-------------------------------View Transactions-------------------------------
Transaction Purpose: salary
Amount: Rs. 2500.00, Type: income, Date: 01/05/24

----------------------------- Delete Transactions------------------------------
If you want to Delete All transactions under one purpose?
Enter yes If you want to delete All Transactions In a Purpose
Enter No to delete one transaction under a purpose
Enter Yes Or No: no
Enter the transaction Purpose You want to delete: salary
Enter the Transaction Number to Delete between 1 to 1: 1
Transaction In purpose salary deleted Successfully
Do You Want To Save Changes(yes/no): yes
Changes Saved Successfully...
```

```
..} data.json > ...
  1      {"salary": []}
```

    IV.   **Code Snippet To Resolve Error**

```python
if transactions[delete_purpose]==[]:
    del transactions[delete_purpose]
    save_transactions()
else:
    save_transactions()
```

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