PYTHON PROJECT - 3

For **"Expense Tracker"** project, here's a potential structure to get you started:

1. User Input :

Allow users to input their daily expenses with the amount spent and a brief description. This can be implemented with a simple input function.

2. Data Storage :

Use a data structure like a list of dictionaries to store the expense data, or store it in a file (CSV, JSON) for persistence.

3. Expense Categories :

Allow users to categorize their expenses by providing a predefined set of categories or allowing custom categories.

4. Data Analysis :

Implement functions to summarize monthly expenses and provide category-wise expenditure breakdowns.

5. User Interface :

You can start with a simple command-line interface (CLI) and later expand to a graphical user interface (GUI) using libraries like Tkinter or PyQt.

6. Error Handling :

Include checks for valid input (e.g., numeric amounts, non-empty descriptions) and handle potential errors gracefully.

7. Documentation :

Provide clear comments and documentation throughout your code to explain the logic and structure.

Here is a basic example to illustrate these points:

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``` Python Program

```python
import json

from datetime import datetime


# Data structure to store expenses

expenses = []


# Load data from file if exists

def load_expenses(file_name='expenses.json'):

    global expenses

    try:

        with open(file_name, 'r') as file:

            expenses = json.load(file)

    except FileNotFoundError:

        expenses = []


# Save data to file

def save_expenses(file_name='expenses.json'):

    with open(file_name, 'w') as file:

        json.dump(expenses, file)


# Function to add an expense

def add_expense(amount, description, category):

    expense = {

        'amount': amount,

        'description': description,

        'category': category,

        'date': datetime.now().strftime('%Y-%m-%d')

    }
```

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```python
    expenses.append(expense)

    save_expenses()


# Function to summarize expenses by category

def summarize_expenses():

    summary = {}

    for expense in expenses:

        category = expense['category']

        amount = expense['amount']

        if category in summary:

            summary[category] += amount

        else:

            summary[category] = amount

    return summary


# Function to view monthly summary

def view_monthly_summary():

    monthly_summary = {}

    current_month = datetime.now().strftime('%Y-%m')

    for expense in expenses:

        if expense['date'].startswith(current_month):

            category = expense['category']

            amount = expense['amount']

            if category in monthly_summary:

                monthly_summary[category] += amount

            else:

                monthly_summary[category] = amount

    return monthly_summary
```

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```python
# Main interface

def main():

    load_expenses()

    while True:

        print("\nExpense Tracker")

        print("1. Add Expense")

        print("2. View Monthly Summary")

        print("3. View Category Summary")

        print("4. Exit")

        choice = input("Enter your choice: ")


        if choice == '1':

            try:

                amount = float(input("Enter amount: "))

                description = input("Enter description: ")

                category = input("Enter category: ")

                add_expense(amount, description, category)

                print("Expense added successfully!")

            except ValueError:

                print("Invalid input. Please enter a numeric value for amount.")


        elif choice == '2':

            summary = view_monthly_summary()

            print("Monthly Summary:")

            for category, total in summary.items():

                print(f"{category}: {total}")


        elif choice == '3':

            summary = summarize_expenses()
```

```
        print("Category Summary:")

        for category, total in summary.items():

            print(f"{category}: {total}")


    elif choice == '4':

        print("Exiting...")

        break


    else:

        print("Invalid choice. Please try again.")


if __name__ == "__main__":

    main()


```
```

OUT PUT :

Here is the expected output when running the provided Expense Tracker code:


```

Expense Tracker

1. Add Expense

2. View Monthly Summary

3. View Category Summary

4. Exit

Enter your choice: 1

Enter amount: 50

Enter description: Groceries

Enter category: Food

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Expense added successfully!

Expense Tracker

1. Add Expense

2. View Monthly Summary

3. View Category Summary

4. Exit

Enter your choice: 1

Enter amount: 20

Enter description: Bus ticket

Enter category: Transportation

Expense added successfully!

Expense Tracker

1. Add Expense

2. View Monthly Summary

3. View Category Summary

4. Exit

Enter your choice: 2

Monthly Summary:

Food: 50.0

Transportation: 20.0

Expense Tracker

1. Add Expense

2. View Monthly Summary

3. View Category Summary

4. Exit

Enter your choice: 3

# PYTHON PROJECT - 3

Category Summary:

Food: 50.0

Transportation: 20.0


Expense Tracker

1. Add Expense

2. View Monthly Summary

3. View Category Summary

4. Exit

Enter your choice: 4

Exiting...

```