VIT®

BHOPAL

1.Project Report:

Title- Finance system

Course- vityarthi project

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2. Introduction/Objectives

This is my very first project in python which shows how modules and libraries can be imported in python and how json dataset can be used to store data and help in finance system by adding expense showing balance and ease the life of consumers.

3. Problem Statement

The goal for this project is to finance expenses and help in better money management thus increasing savings and can lead to a better work life balance in user's life used python libraries and modules and conditional statement to achieve this

4. Working and Explaination

This project uses command line finance tracking to track the user's expense , total income , net balance, and this also stores the data in between the sessions for future reference.

It follows a modular design and is dividing the tasks –

1) Main.py—application loop
2) Storage.py—business logic
3) Utils.py—contains utility function
4) Services.py—handling persistence

Thus enabling the program as a whole to run together

5. Project source code

```python
from utils import print_menu
import math
import matplotlib.pyplot as plt
from services import add_expense, add_income, total_expenses, total_incomes, net_balance
from storage import load_data, save_data
a="    "
b="  "
def run():
    expenses, incomes = load_data()
    while True:
        print_menu()
        choice = input("Enter your choice: ")
        if choice =="1":
            desc =input("Description: ")
            amt=float(input("Amount: "))
            cat=input("Category: " )
            date=input("Date (YYYY-MM-DD): ")
            add_expense   (expenses, desc, amt, cat, date)
        elif choice=="2":
            src = input("Source: ")
            amt =float(input("Amount: "))
            date = input("Date (YYYY-MM-DD): ")
            add_income(incomes, src,  amt,  date)
        elif choice== "3":
            print("Total Expenses:", total_expenses(expenses))
            print("Total Income:", total_incomes(incomes))
            print("Net Balance:", net_balance(expenses, incomes))
        elif choice ==   "0"  :
            save_data(expenses, incomes)
            print("Data saved.. Program ending....")
            break




        else:
            print("Invalid choice. Try again.")
                (module) __main__
if __name__ == "__main__":
    run()
```

```python
def add_expense(expenses, desc, amt, cat, date): # defining add expense function
    new_id=len(expenses)+1
    exp={"id": new_id,"description": desc,"amount": amt,"category": cat,"date": date}
    expenses.append(exp)
    return exp
def add_income(incomes, src, amt, date):  # defining the add income function
    new_id=len(incomes) + 1
    inc={"id": new_id,"source": src,"amount": amt,"date": date}
    incomes.append(inc)
    return inc

def total_expenses(expenses): # definig the total expense expense function
    return sum(e["amount"] for e in expenses)
def total_incomes(incomes): # defining total income function
    return sum(i["amount"] for i in incomes)
def net_balance(expenses,incomes):  # defining the net balance function
    return total_incomes(incomes) - total_expenses(expenses)
```

```python
import json  # importing json module for storage

import os  #   importing  os

FILE_PATH="finance_data.json"  # this is the file which has all the data entered and stored by a progra


def load_data(): # defining load data function
    if not os.path.exists(FILE_PATH):
      return [],[]

    with open(FILE_PATH, "r") as file:
        data=json.load(file)
    return data.get("expenses",[]),data.get("incomes", [])


def save_data(
    with open(FILE_PATH,"w") as file  :
        json.dump({"expenses": expenses, "incomes": incomes}, file)

```

(constant) FILE_PATH: Literal['finance_data.json']

```python
def print_menu():
    print("\n=== Finance Tracker Menu ===")
    print("1. Add Expense")
    print("2. Add Income")
    print("3. View Balance")
    print("0. Exit")
```

6. Implementation Details

This projects demonstrates the use of ai to successfully tackle a real life problem.The finance system management system covers data storage ,input validation and statistics. It is simple,lightweight and usefull for daily productivity.

7. Conclusion

**The program provides a core functionality which is very usefull for transactions and summary data

** it follows a modular design data persistency

** it has a light weight management system making it usefull in fast finance management and tracking

8. References

The user have took reference from the following concepts and logic—
1 **Python Code:** It uses only basic Python commands.
2 **Clean Setup:** The code is split into small files, so each part has one job (like calculating or saving).
3 **Data Storage:** It holds all your records in simple lists.
4 **Saving:** It uses **JSON** to write the data to a file so it's not lost.