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import json

import os

from collections import defaultdict

from datetime import datetime


# Function to load existing expenses from a file or create a new file if not exists
def load_expenses():
    if os.path.exists("expenses.json"):
        with open("expenses.json", "r") as file:
            return json.load(file)
    else:
        return defaultdict(list)


# Function to save expenses to a file
def save_expenses(expenses):
    with open("expenses.json", "w") as file:
        json.dump(expenses, file, indent=4)


# Function to add a new expense
def add_expense(expenses, amount, category, description):
    date = datetime.now().strftime("%Y-%m-%d")
    expenses[date].append({"amount": amount, "category": category, "description": description})


# Function to calculate monthly expenses
def calculate_monthly_expenses(expenses):
    monthly_expenses = defaultdict(float)
    for date, daily_expenses in expenses.items():
        month = datetime.strptime(date, "%Y-%m-%d").strftime("%Y-%m")
        for expense in daily_expenses:

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        monthly_expenses[month] += expense["amount"]
    return monthly_expenses

# Function to calculate category-wise expenditure
def calculate_category_wise_expense(expenses):
    category_wise_expense = defaultdict(float)
    for daily_expenses in expenses.values():
        for expense in daily_expenses:
            category_wise_expense[expense["category"]] += expense["amount"]
    return category_wise_expense

# Main function to interact with the user
def main():
    expenses = load_expenses()

    while True:
        print("\nExpense Tracker Menu:")
        print("1. Add Expense")
        print("2. View Monthly Expenses")
        print("3. View Category-wise Expenditure")
        print("4. Exit")

        choice = input("Enter your choice: ")

        if choice == "1":
            amount = float(input("Enter the amount spent: "))
            category = input("Enter the category: ")
            description = input("Enter a brief description: ")
            add_expense(expenses, amount, category, description)

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    save_expenses(expenses)

    print("Expense added successfully!")

elif choice == "2":

    monthly_expenses = calculate_monthly_expenses(expenses)

    for month, amount in monthly_expenses.items():

        print(f"{month}: ${amount:.2f}")

elif choice == "3":

    category_wise_expense = calculate_category_wise_expense(expenses)

    for category, amount in category_wise_expense.items():

        print(f"{category}: ${amount:.2f}")

elif choice == "4":

    print("Exiting...")

    break

else:

    print("Invalid choice! Please enter a valid option.")


if __name__ == "__main__":

    main()
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