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EXPENSE TRACKER

A Data Structures Based Mini Project

Group Members

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INTRODUCTION

In today's fast-paced world, managing personal finances is essential to avoid overspending and achieve financial stability. Many individuals struggle to keep track of their daily expenses, often losing track of where their money goes. Traditional methods, such as noting expenses manually, can be time-consuming, error-prone, and lack analysis capabilities.

The *Expense Tracker* mini-project aims to address this by providing a structured, automated approach to expense management. Through this application, users can record their daily expenses, view totals, edit entries, and analyze their spending patterns with ease. By implementing an intuitive system that categorizes, records, and calculates expenses efficiently, this project seeks to empower users to take control of their finances with minimal effort.

PROBLEM STATEMENT

Managing personal expenses is challenging with traditional methods like notebooks and spreadsheets, which are time-consuming, prone to errors, and lack quick analysis capabilities. The *Expense Tracker* aims to simplify expense management by providing an easy-to-use, automated system that allows users to add, edit, delete, and review their expenses. It offers a streamlined way to view total spending and track financial habits, empowering users to make informed financial decisions with minimal effort.

APPLIED DATA STRUCTURES

1.Array (Expenses List):
expensesArray stores all expenses sequentially, allowing quick access for adding, viewing, editing, and deleting records.

2.Stack (Undo Feature):
expenseStack supports undoing the last added expense using a Last-In-First-Out (LIFO) approach, adding flexibility for users to revert recent actions.

3.Queue (Feedback Management):
feedbackQueue collects user feedback in First-In-First-Out (FIFO) order, maintaining feedback in the order received for organized processing.

4.Struct (Expense and Feedback Records):
Structs organize related fields for expenses (date, type, amount) and feedback (text, rating), keeping data modular and accessible.

These data structures enable efficient functionality in the Expense Tracker.

CODE FLOW

The **main()** function operates as a menu-driven interface, prompting users to select options.

Function Choices:

1. Add Expense
2. Edit Expense
3. Delete Expense
4. View Expenses
5. View Total
6. Give Feedback
7. Exit

Looping Mechanism:

The menu continuously displays until the user chooses to exit, allowing easy navigation through all functions.

CHALLENGES AND SOLUTIONS

❑ **Challenges:**

- Implementing circular queue logic for feedback.

•Ensuring data validation for accurate input, especially for date and amount fields.

•Managing stack overflow for the undo functionality.

❑ **Solutions**:

•Used circular queue logic to avoid feedback overflow.

•Added validation checks for inputs to prevent invalid data entry.

•Limited stack operations to recent entries to maintain memory efficiency.

FUTURE ENHANCEMENT

App Development: Transition from a console application to a user-friendly desktop and mobile app for better accessibility.

Advanced Features: Implement graphical expense visualization, budgeting tools, and bank integration for automated transaction tracking.

Cloud Synchronization: Introduce cloud backup to ensure data accessibility and security across multiple devices.

Target Audience: Cater to individuals, freelancers, and small businesses seeking effective financial management solutions.

Scalability and Monetization: Explore a freemium model with premium features and expand capabilities to include personalized analytics and multiple user accounts.

Thank You !!