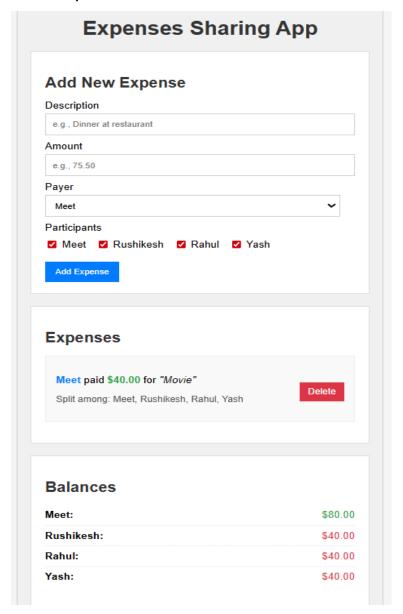
# **Expenses sharing app**

# 1. Task Description

Develop a web app that helps a group track shared expenses, visualize everyone's net balance and automatically suggest the most efficient way for group members to settle their debts.

# 2. Task Output Screenshot



# 3. Widget/Algorithm Used In Task

- Expense Form: Input for description, amount, payer (dropdown), and participant checkboxes.
- **Submit Button:** Adds the new expense to the state.
- Expense List: Lists all expenses, with details and a delete button for each.
- Balance Summary: Displays each user's net balance.
- **Settlement Suggestions:** Shows who should pay whom and how much.
- Modal Alert: Displays notifications for successes, errors, and delete confirmation.
- Global State Management: Handles data flow and updates via React's useState and useMemo.

# 4 Algorithm and Logic Used:

#### Data Model:

Each expense has an id, description, amount, payer, and participants.

## • Expense Addition:

Validates input, then adds to the expenses array.

## • Balance Calculation:

For each expense, the amount is split equally among participants.

- Payer's balance increases by the full amount paid.
- Participants' balances decrease by their share (equal split).
- Positive balance means the user is owed money (paid more than shared).
- Negative balance means the user owes others (paid less than shared).

## Settlement Suggestions:

- Finds users with negative balances (debtors) and positive balances (creditors).
- Computes the minimum number of transactions to settle all debts:
- List users sorted by balance.
- Match the smallest debt with the largest credit, record the transfer, and update balances.
- Repeat until all debts/credits are resolved.

# • Delete Expense:

Prompts for confirmation, then removes the expense and recalculates balances.