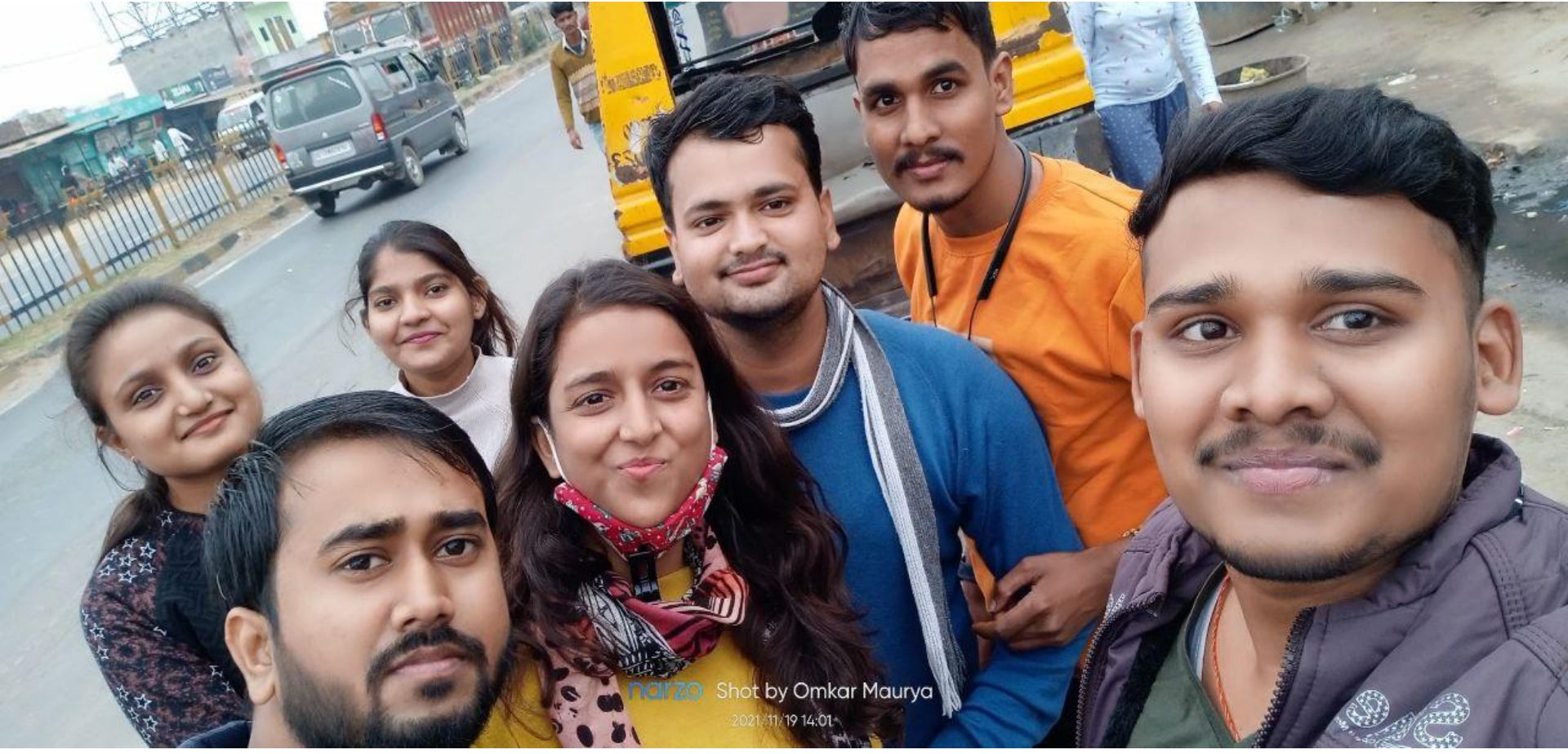# Trip Expenses Manager by CAMS

Omkar Maurya • 03 Jul 2023

Plan for Mathura Trip was so hassle, in terms of expenses management there was no transparency, fairness, and collaboration among members

Outline

- Introduction
- Problem Understanding and Solution
- Wireframes for the App
- Simplistic Excel Grid for Data Tracking

Q.1-What is the purpose of the Trip Expenses Manager app?

Streamline Expenses management, cost splitting, and payment reconciliation for groups during a trip or outing. It promotes transparency, fairness, and collaboration among users, making the financial aspects of group activities more organized and hassle-free.
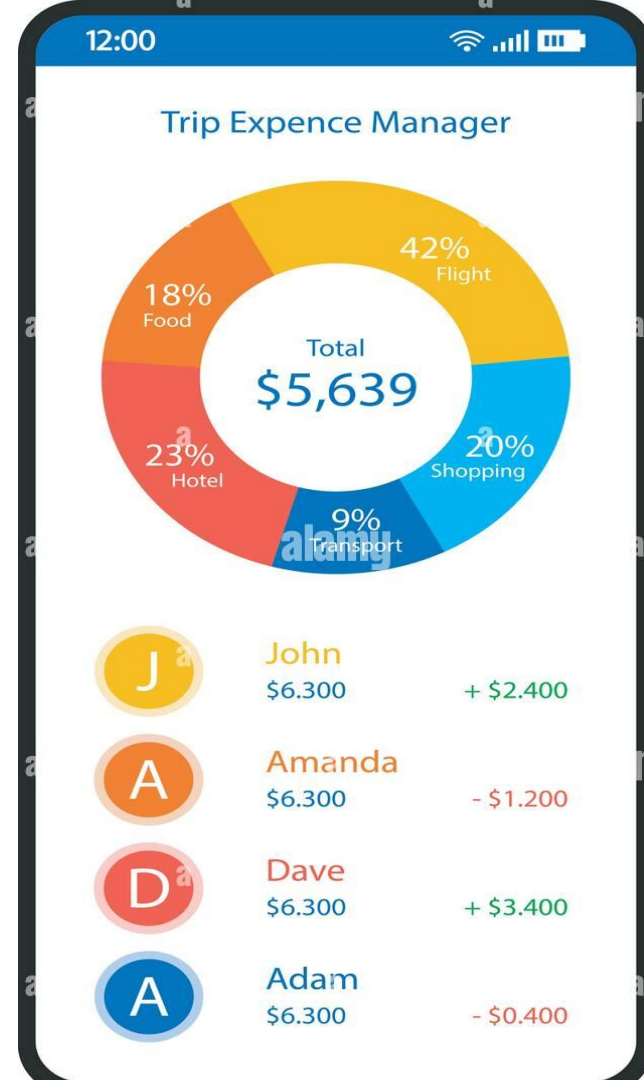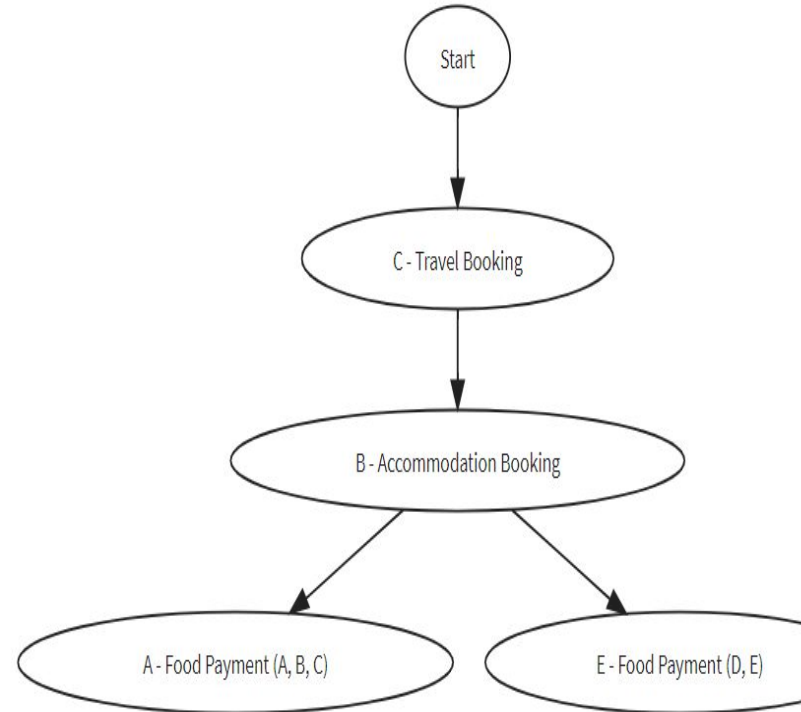
Problem Statement/ Process Flow Diagram:

- A group of 5 friends (A, B, C, D, E) are going on a 2-day trip.
- C is responsible for handling the travel booking for the group.
- B is in charge of booking the accommodation.
- Food expenses are divided into two groups: A pays for A, B, and C,
- while E pays for D and herself.

With different individuals handling different aspects, it becomes challenging to track and manage expenses accurately.
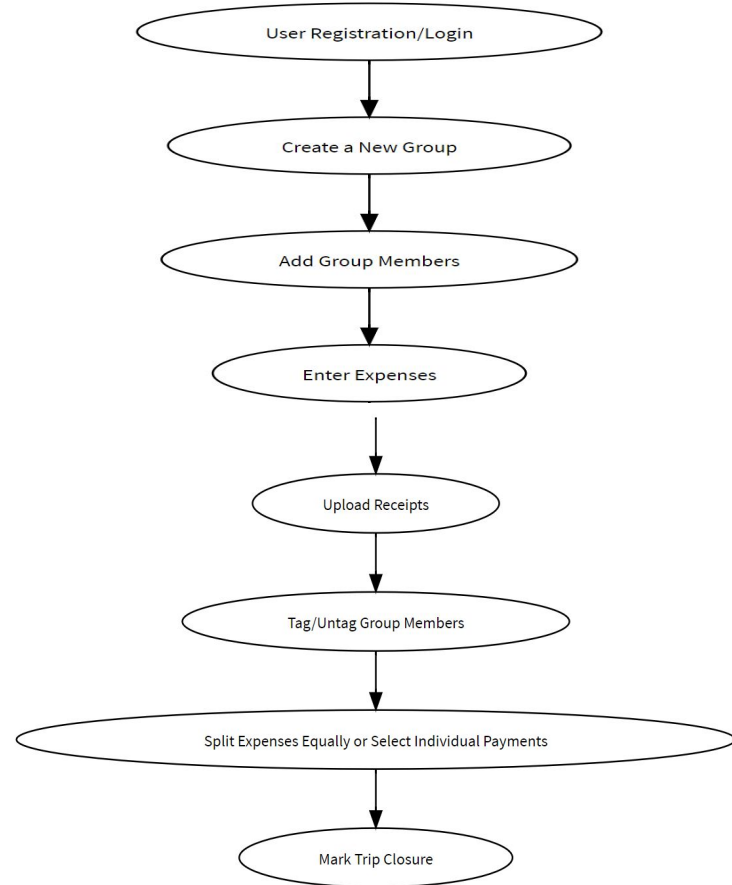

Travel Plan Flow Diagram

Start → C - Travel Booking → B - Accommodation Booking → A - Food Payment (A, B, C) / E - Food Payment (D, E)

Process Flow Diagram

Expense Management App

```
User Registration/Login
        ↓
Create a New Group
        ↓
Add Group Members
        ↓
Enter Expenses
        ↓
Upload Receipts
        ↓
Tag/Untag Group Members
        ↓
Split Expenses Equally or Select Individual Payments
        ↓
Mark Trip Closure
```

Tools and Technology Required

Tools

1. Python
2. Streamlit
3. MYSQL Connector/ python
4. Pandas
5. Graphviz
6. PIL(Python Imaging Library)
7. Base64
8. IDE(Integrated Development Environment)
9. Web Server(Heroku, AWS)
10. Wireframing (Figma)

Technology

1. VS Code
2. Command Prompt
3. MYSQL

Feature List on the App:

1. **Onboarding:** Users can create their accounts/ login

2. **Group Creation/Modification:** Users can create or modify groups for specific purposes, such as trips, stay, Vehicles, outings, meals etc.

3. **Expense Entry:** Users can record individual expenses incurred during the trip, including details like date, category, and amount.

4. **Receipt Upload:** Users can conveniently upload digital copies of receipts to maintain accurate records.

5. **Tagging/Untagging Group Members:** Users can tag or untag specific group members relevant to each expense, ensuring transparent cost sharing.

6. **Payback Functionality:** Users have the ability to select a group member and initiate payback, either in whole or in parts.

7. **Group Closure:** The app allows for the closure of a group once all expenses are split equally and reconciled with payments between all 5 users.

Menu

Add Expense ▼

Add Expense

View Expenses

Upload Receipts

Tag/Untag Members

Reconcile Expenses

1. Onboarding

User Login and Registration

Login

Email

omkarm0542@gmail.com

Password

••••••••••

Login

Login successful!

New Registration

Email_id

omkarm0542@gmail.com

Password(8 digit)

••••••••••

Confirm Password

••••••••••

Name

OMKAR MAURYA

Date of Birth

1998/10/04

Phone

8528927670

Address

ALAUDDINPUR
VARANASI U.P. INDIA

User Type

☑ I am a viewer

☐ I am a group member

☐ I am an investor

☐ I am a tour manager

Register

Registration successful!

2. Group Creation/Modification

Significance:

- **Organizing Expenses:** Allows users to categorize expenses based on different purposes or events.
- **Customization and Flexibility:** Users can easily update the group details and ensure accurate expense tracking.
- **Collaboration and Communication:** Users can involve relevant members in expense management and ensure everyone is on the same page.
- **User Control:** Users can control of their expense management process.
- **Data Segmentation:** User can analyze expenses more effectively. They can generate reports, compare spending patterns across groups, and gain insights into their financial activities.

Create User Group

Group Name

meal

Select Members

D x   B x   C x

Create Group

User group 'meal' with members '['A', 'B', 'C', 'D', 'E']' created successfully!

3. Expense Entry

Add Expense

Expense

563

Amount

6596.00

Paid By

B

Shared Among

C × D × B ×

Add

🔗 **Trip Expenses Manager**

View Expenses

Expense	Amount	Paid By	Shared Among
		empty	

4. Receipt Upload

Trip Expenses Manager

Tag/Untag Members

Expense Index

0   —   +

Members

C ×   B ×   E ×   ⊗ ▾

Tag/Untag

6. Payback Functionality

Perform Payback ▼

Expense Manager

🔗 **Payback**

Payer for Payback

A ▼

Recipient for Payback

C ▼

Amount for Payback

50.00   −   +

Perform Payback

Payback of 50.0 from A to C has been recorded.

7. Group Closure

Trip Expenses Manager

Reconcile Expenses

[Reconcile]

Friend	Travel Expenses	Accommodation Expenses	Food Expenses
A			
B			
C			
D			
E			

```python
def reconcile_expenses():
    # Calculate total expenses for each user
    user_expenses = expenses_df.groupby('Paid By')['Amount'].sum()

    # Calculate the total amount spent
    total_amount = user_expenses.sum()

    # Calculate the equal share for each user
    equal_share = total_amount / len(user_expenses)

    # Calculate the amount to be paid or refunded for each user
    user_expenses = user_expenses - equal_share

    # Display the payback amounts
    st.write("Payback amounts:")
    st.table(user_expenses)
```

Group: Trip Expenses

Expense ID	Amount	Description	Payment Date	Paid By	Receipt	Tags
1	$50	Transportation	2023-07-01	C	Receipt 1	A, B, C
2	$100	Accommodation	2023-07-01	B	Receipt 2	B
3	$80	Meals	2023-07-02	A	Receipt 3	A, B, C
4	$60	Meals	2023-07-02	E	Receipt 4	D, E

User Balances:

User	Balance
A	-$65
B	$50
C	-$65
D	$30
E	$30

Excel Grid for Data Tracking:

Here, During Group Closure we can identify the expenses done by members, and also segregate the payment which have to pay sharings. This help to make trip fair with expenses.

Conclusion:

This app aims to streamline the process of managing group expenses during trips. By providing a user-friendly interface and essential features like expense entry, receipt upload, and payback functionality, this app ensures transparency and accuracy. With the ability to create, modify, and close groups, users can effortlessly split expenses and reconcile payments, making the entire experience hassle-free.