PHASE 1: OCR & BILL EXTRACTION (FOUNDATION)

Goal:

Convert bill images into structured data

Steps:

1. Accept bill image upload (mobile)
2. Preprocess image (grayscale, threshold)
3. Run Tesseract OCR
4. Extract:
    - Store name
    - Date
    - Item names
    - Prices
5. Store output as:

```
{
  "store": "Target",
  "date": "2025-01-12",
  "items": [
    {"name": "Milk", "price": 4.99},
    {"name": "Bread", "price": 2.50}
  ]
}
```

PHASE 2: BILL SPLITTING LOGIC (CORE FEATURE)

Goal:

Automatically divide expenses

Steps:

1. User creates a group
2. Upload bill
3. Select group members
4. Split total equally
5. Display:

- Who owes whom
- Amount per person

Example:

Total: $60

Members: 3

Each pays: $20

PHASE 3: DATA STORAGE (ANALYTICS BASE)

Goal:

Store history for recommendations

Tables / CSVs:

- Users
- Groups
- Expenses
- Items (item name, price, store, date)

Use **SQLite or CSV** (prof-friendly)

PHASE 4: RECOMMENDATION ENGINE (DATA SCIENCE PART)

Goal:

Predict next month grocery needs

Logic:

1. Count item frequency per user/group
2. Predict likely next purchases
3. Compare prices across stores
4. Recommend:
    - Items
    - Cheapest store

Use:

- Pandas
- Simple statistical rules (no heavy ML needed)

PHASE 5: MOBILE-FRIENDLY WEB UI

Goal:

Easy usage on phone

Features:

- Upload bill
- View extracted items
- View split result
- View recommendations

Responsive using **Bootstrap**