

Smart Splitwise Assistant – Capstone Project Proposal

1. Project Title

Smart Splitwise Assistant

2. Problem Statement

Many international students globally struggle with manually tracking grocery bills and splitting expenses fairly. Key challenges include:

- Entering bills manually is time-consuming and error-prone.
- Splitting costs among group members requires manual calculation.
- Planning next month's groceries and finding the best prices nearby is difficult.

3. Proposed Solution

The Smart Splitwise Assistant will simplify expense management and grocery planning using a mobile-friendly web interface.

Key Features:

1. Upload Bill via Mobile: Users can upload a photo of their grocery bills directly from a mobile device.
2. OCR (Text Extraction): The app extracts item names, quantities, and prices automatically using OpenCV + Tesseract.
3. Bill Splitting: Automatically splits total cost among group members.
4. Recommendation Engine: Suggests groceries for next month based on:
 - Purchase frequency
 - Nearby store prices (scraped from online sources for cheapest options)
5. Mobile-Optimized Interface: A responsive web app (built with Flask and Bootstrap) allows easy interaction, visualization, and bill management on smartphones.

4. Tech Stack

- Backend: Python 3.x, Flask
- Frontend / UI: HTML, CSS, Bootstrap (mobile optimization)
- OCR: OpenCV, Tesseract
- Data Processing: Pandas, Numpy
- Web Scraping: BeautifulSoup, Requests
- Storage: SQLite / CSV
- Version Control: Git

5. Expected Outcome

- Reduce manual effort in bill tracking and splitting.
- Ensure fair expense distribution among group members.
- Provide smart recommendations for next month's groceries.
- Enable students to compare prices across nearby stores and plan budget-friendly shopping globally.