Expenses Tracker

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Introduction

I am a Computer Science graduate student at SUNY Binghamton, and for my independent study, I plan to develop a web-based expense tracker. This project will not only help me gain hands-on experience with various web technologies but also delve into the underlying algorithms that power them. The main goal is to create an expense tracker app that students can use to split and manage shared expenses. I plan to use ReactJS for the frontend, Spring Boot for the backend, and SQL for the database, though the technology stack may evolve based on project requirements.

The Idea

As an international student, I often share living expenses with suitemates. Over time, it becomes challenging to keep track of who owes what. While apps like Splitwise exist, their free versions have limitations, and the paid versions are often not affordable for students. Additionally, I've found the ads and usage limits on Splitwise frustrating. This project represents a great opportunity to build and deploy a full-fledged full-stack application that could benefit fellow students, while also enhancing my own skills.

Tech Stack

For this project, I plan to use Java Spring Boot and MySQL for the backend and ReactJS for the frontend. I will also experiment with other technologies to compare their performance, such as HTMX versus React and SQLite versus MySQL. For API testing, I will use Postman, and for database visualization, I will use DBeaver. The primary development environments will be IntelliJ IDEA and VS Code. In addition to these core technologies, I will employ various smaller libraries and tools as needed.

Plan

This project is ambitious, but I will break it down into manageable phases to ensure realistic progress.

Phase 1 (Mandatory)

In this phase, I will focus on the foundational aspects of the project:

- Defining entities and creating an ER diagram
- Developing a low-level design diagram
- Setting up the GitHub repository
- Creating APIs for user authentication
- Designing the authentication UI
- Conducting initial testing

Phase 2 (Required)

In this phase, I will expand the core functionality:

- Finalizing APIs and UI pages
- Implementing 1:1 expense transfers
- Building necessary APIs and services
- Developing UI components for different pages
- Continued testing

Phase 3 (Good to Have)

This phase will add more advanced features:

- Brainstorming ideas for group expense management
- Developing APIs and utility methods for group transfers
- Adding UI components for group-related pages
- Additional testing

Phase 4 (Ambitious)

This phase focuses on bringing the project to completion:

- Deploying the application
- Setting up CI/CD actions
- Marketing the app to potential users