COMPUTING GROUP PROJECT

EXPENSE TRACKER APPLICATION

Group (B) 57

Group Members

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Introduction

1) Overview of the Project

   Users may track and manage their income and spending with the help of the expense tracker project, which is a software program. In addition to financial data displays, the program offers an intuitive user interface for adding, modifying, and removing transactions. Several categories are supported by the application as well.

2) Purpose of the Project

   Tracking and managing personal or business funds is a challenge that the project seeks to address. Keeping track of their earnings and out-of-pocket spending is a challenge for many people, particularly when they have several sources of income or obligations. Inadequate savings, excessive spending, or failure to meet crucial deadlines or payments might result from this. In addition to helping users plan and accomplish their financial objectives, the spending tracker program strives to assist users in keeping an eye on and managing their financial condition.

3) Justification for the Project

   The initiative is justified by the target audience's commercial and social needs. Individuals and small enterprises in need of an easy-to-use financial management solution make up the target audience. The project takes care of the target audience's demands and advantages.

4) Scope and Objectives

   The project aims to offer the following features and advantages to the end users:

   - By keeping track of their expenses, users may gain valuable insight into their spending habits. Making wise financial decisions starts with having this awareness. This goal's scope includes enabling users to add, modify, and remove transactions.

   - The software allows users to categorize their expenditures, providing insight into where their money is being spent. Common costs include groceries, utilities, rent or a mortgage, entertainment, and other things. This goal aims to give consumers an easy-to-use and flexible system for categorizing their transactions.

   - Users may use any device or browser to view their financial information from anywhere. This goal's scope includes ensuring the application's availability and security as well as deploying it as a web-based program that works with any browser and device.

Background

1) Literature Study
   a) Exist Applications:
      i) Mint
         - Well-known cost tracker Mint offers features for budgeting, bill tracking, and credit score monitoring. It gathers financial information from many accounts to provide a complete view of a person's financial situation. However, some people have expressed concerns about the security and privacy of their data.
      ii) YNAB (You Need a Budget):
         - Giving each dollar a task is the aim of the budgeting program YNAB. It strongly emphasizes proactive budgeting and pushes users to designate every dollar to a certain area. YNAB assists users in improving their money management skills in addition to providing educational resources and a vibrant community. Manually entering transactions, meanwhile, might take a lot of time for certain individuals.
      iii) Wallet:
         - Wallet is another program that helps you keep track of your spending. It may be used to scan receipts, manage your budget, and receive bill reminders. Users can personalize the expenditure categories and set financial targets. However, some users have reported occasional synchronization issues and malfunctions.
      iv) Expensify:
         - Tracking and reporting company costs is the main purpose of Expensify. It may be used for scanning receipts, expenditure classification, and mileage tracking. Interacting with accounting software and submitting reimbursement claims is made simple with Expensify. Some people think its user interface is less intuitive than competing applications.

   b) Evaluation:
      i) Advantages:
         - Convenience: Keeping track of spending and managing money while on the road is made easy with the help of these applications.
         - Automation: To save users time and effort, several apps provide functions like automatically classifying transactions and scanning receipts.
         - Insight: By giving users useful information about their spending patterns, expense tracker apps help users pinpoint areas for development and make wise financial decisions.
      ii) Disadvantages:
         - Privacy Concerns: Because of worries about data security and privacy, some users might be reluctant to enter critical financial information into third-party apps.
         - Learning Curve: It might take some time to become proficient with a new cost tracker tool, particularly for non-techies.
         - Cost: Although many cost tracker applications have free versions, certain more sophisticated features can require a one-time payment or subscription, which not all users may be able to afford.
2) Theoretical Framework for the Solution

a) The foundation for developing an expense tracking application is theory drawn from the fields of financial management, behavioral economics, and user experience design. Crucial points to consider are:
   i) User-Centered Design:
      - When creating the application, the needs and preferences of the user should be considered, with a focus on user-friendliness, straightforward navigation, and transparent financial data display.
   ii) Behavioral Economics:
      - The insights of behavioral economics can be applied to support budgeting and other prudent financial practices. It is possible to motivate users to follow through on their financial objectives by employing techniques like goal setting, nudges, and visual feedback.
   iii) Financial Management Theories:
      - Theories of financial management cover topics like budgeting, cash flow management, and investment principles, which ought to direct the creation of the application's features and capabilities. By having access to tools for goal setting, expenditure classification, and budget tracking, users may manage their money more skillfully.

   Through the integration of these theoretical ideas into the application's development process, the cost tracker may offer a useful and user-friendly method for managing personal finances.

User Requirement

1) Identification of Users (Stakeholders):
   a) Primary Users:
      i) Personal finance managers
      ii) Small business owners
      iii) Financial professionals (Advisors, Planners)
      iv) Non-profit organizations
      v) Financial enthusiasts
   b) Secondary Users:
      i) Developers
      ii) Testers
      iii) Product managers

2) User Interviews/Observations and Surveys (Fact Gathering):
   a) Conduct interviews with potential users from each primary group to understand their:
      i) Financial management needs and challenges
      ii) Preferred features and functionalities
      iii) Experience with existing expense trackers
      iv) Pain points and frustrations
   b) Observe how potential users manage their finances currently.
   c) Create and disseminate surveys to a larger audience to collect numerical data on user demographics, use trends, and requested features.

3) Use Case Analysis:
   a) For budgeting, a young professional must keep track of their everyday costs.
   b) Through the software, a couple must share and oversee their shared finances.
   c) For taxation purposes, a small company owner must keep track of and classify their business spending.

4) Persona Development:
   a) Create user personas based on interview and survey data, reflecting each user group's most common characteristics and needs.

5) Requirements Prioritization:
   a) High Priority:
      i) Easy expense entry (manual or automatic)
      ii) Expense categorization
      iii) Spending reports and visualizations
      iv) Budget setting and tracking
   b) Medium Priority:
      i) Bill reminders
      ii) Goal setting for savings
      iii) Integration with bank accounts
      iv) Multiple currency support
   c) Low Priority:
      i) Advanced investment tracking

ii) International money transfer
iii) Real-time financial advice

6) Functional & Non-Functional Requirements:
   a) Functional:
      i) Users can add expenses, including amount, date, and category.
      ii) Users can view past transactions with filters.
      iii) Users can set budget limits and track progress.
      iv) The app generates reports and charts for visualizing spending trends.
   b) Non-Functional:
      i) The app is secure and protects user data.
      ii) The app is user-friendly with a clear and intuitive interface.
      iii) The app is available on the web.

7) Validation and Verification of the Findings:
   a) Present prototypes and mockups to potential users for feedback to ensure the design and features meet their needs.
   b) Conduct rigorous testing to verify the app functions as intended, is free from bugs, and meets technical requirements.

Functional Specification

1) Requirements
   a) Requirement Description: User Authentication
      Dependencies: User database system
      Acceptance Criteria: It must be safe for users to register, log in, and log out. Encrypting passwords and implementing account verification procedures are essential.
      Priority: High

   b) Requirement Description: Allow users to record individual expenses.
      Dependencies: User interface components and data storage mechanism.
      Acceptance Criteria: For every cost, users can input the amount, date, category, and optional remarks. The entered data is stored and retained across sessions.
      Priority: High

   c) Requirement Description: Users must be able to create budgets for various categories or periods within the app.
      Dependencies: Budget data storage mechanisms and user interface components (such as dropdown menus and input fields) are used while creating budgets.
      Acceptance Criteria: Budgets can be set by users for categories (like groceries or meals) or periods.
      Priority: Medium

   d) Requirement Description: Shopping Cart
      Dependencies: Product Catalog
      Acceptance Criteria: It should be possible for customers to change the contents in their shopping cart, see the final cost, and check out.
      Priority: High

   e) Requirement Description: Checkout Process
      Dependencies: Shopping Cart and User Authentication
      Acceptance Criteria: It must be possible for users to examine their order, confirm the purchase, and enter shipping and payment details.
      Priority: High

   f) Requirement Description: Search Functionality
      Dependencies: Product Catalogues
      Acceptance Criteria: It should be possible for users to look for items using keywords, categories, or names.
      Priority: Medium

Technical Specification

1) User Interface Design (UI/UX):
   a) The Expense Tracker App's user interface design prioritizes clarity and usability. We've used a simple, contemporary style with call-to-action buttons that are obvious and easy to browse menus. Wireframe, sitemap, and low fidelity competitive analysis, user research, personas, high fidelity, UX design, typography, and color scheme.

2) Data modeling:
   a) Data Flow Diagrams (DFDs) are used to show how data flows through our cost tracker. Relational database architecture has been adopted to manage data efficiently. For the data modeling, we are building a schema model.

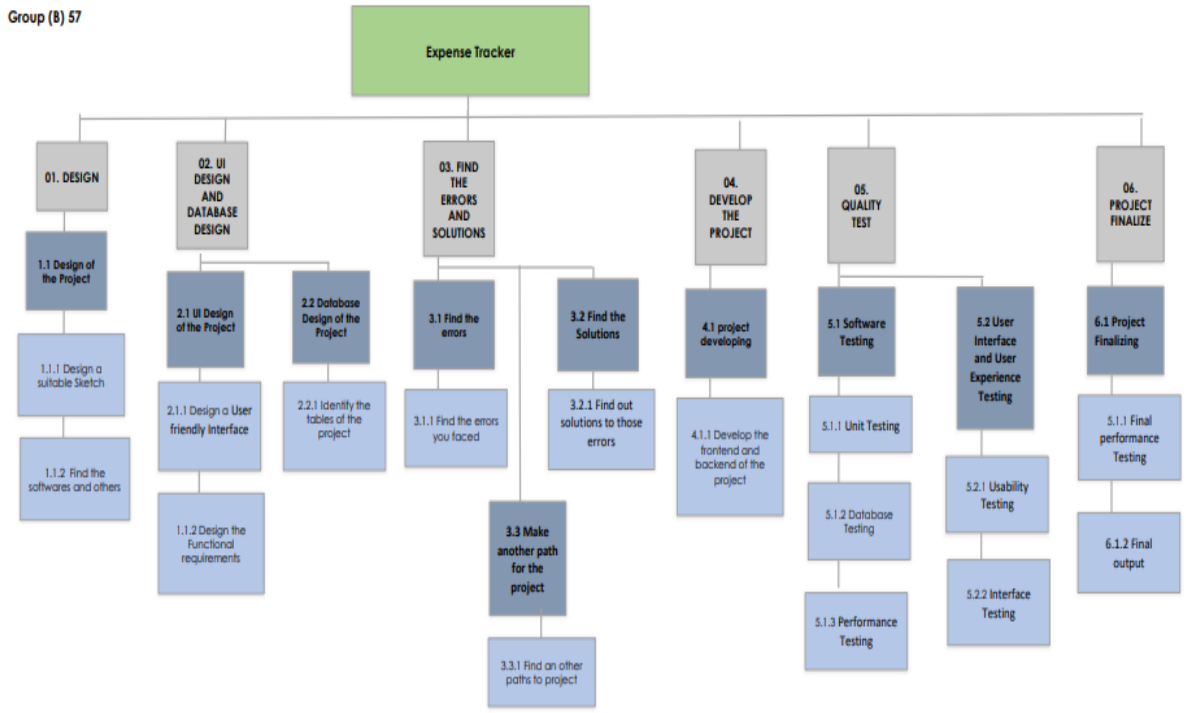
3) System architecture:
   a) We used Docker containers in the microservices-based system architecture to offer fault isolation and scalability. The cost tracker uses load balancing and auto-scaling techniques to manage varying workloads and ensure peak performance.

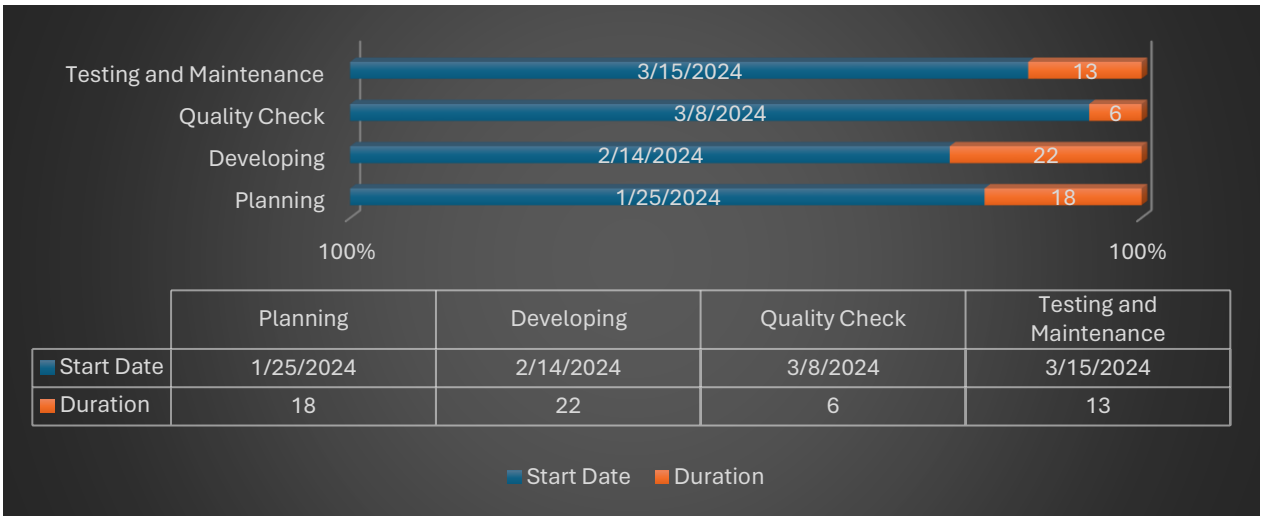
4) Deployment and infrastructure:
   a) Using CI/CD pipelines coupled with AWS services, the Expense Tracker App is automatically deployed. AWS RDS databases and backups securely store data, and the architecture is built to be highly available and fault-tolerant.

5) Testing Strategy:
   a) Our testing methodology includes unit testing, integration testing, and end-to-end testing. Front-end and back-end development frameworks are used to automate test suites.

6) Dependencies (API/libraries/OS/etc.):
   a) The currency conversion and geolocation features of the Expense Tracker App rely on third-party APIs. Our project makes use of the ASP.NET MVV (C#) libraries. Using CloudWatch for monitoring and S3 for file storage

Work Breakdown and Project Timeline





	Planning	Developing	Quality Check	Testing and Maintenance
Start Date	1/25/2024	2/14/2024	3/8/2024	3/15/2024
Duration	18	22	6	13

Current Status

1) Project Timeline Highlighting the Status:
   a) The project schedule has been set, and deliverables and milestones have been made explicit and the timeframe is moving along as planned, with the assignment being finished on time.

2) Progress Update:
   a) The project is progressing steadily overall, with major milestones being met per the project plan.

3) Key Achievements:
   a) Completed the required UI elements and close to finishing the front-end development.
   b) Created the designs for the database schema.

4) Work Completed:
   a) UI Design:
      i) Completed preliminary wireframes and mockups are awaiting final clearance before moving forward with development.
   b) Data Model:
      i) The completed database schema design is prepared for backend implementation.
   c) Frontend Development:
      i) Implemented main user interface elements continuing improvement based on design input.

5) Work in Progress:
   a) The focus of front-end work now is front-end and back-end integration. System architecture decisions to meet performance requirements and ensure scalability.
   b) A test framework is being selected and assembled to enable comprehensive testing of the application's constituent elements.

6) Current Issues, Risks & Mitigation Strategy:
   a) Issues:
      i) An imbalance in the team's workload results from resource limitations. Fair task distribution is ensured by mitigation, which also periodically reassesses job allocation and redistributes burden as necessary.
      ii) Tools and the previously suggested technological issues.

Conclusion and Summary

1) Reiteration of Key Points and Importance
   a) User-Centered Design:
      i) Prioritize user experience and simplicity of use by ensuring that financial data is shown clearly that devices are accessible, and that navigating is simple.
   b) Functional Accuracy:
      i) Make sure every feature works as it should to provide customers with trustworthy resources for effective cost management.
   c) Security and Privacy:
      i) Install robust security measures to protect users' sensitive financial data and maintain their faith in the app's reliability.
   d) Performance Efficiency:
      i) Reduce irritation and maximize user experience by optimizing responsiveness and loading time.
   e) Compliance and Accessibility:
      i) Make sure that industry standards and legislation are followed to minimize legal risks and make the app accessible to all users, including those with disabilities.

2) Recommendations and Suggestions for Deviations
   a) Feedback Mechanism:
      i) Include a feedback function in the app so users may report issues, offer general remarks for continuous development, and request features.
   b) Customization Options:
      i) Give users choices for categories, budgets, and notifications so they may tailor the app to their financial requirements and preferences.
   c) Integration with Financial Institutions:
      i) Look for methods to interface the app with users' bank accounts and financial institutions to enhance data accuracy and simplify transaction imports.
   d) Gamification Elements:
      i) You could consider including gamification elements such as challenges, progress tracking, and awards to encourage users and encourage consistent app usage.

3) Lessons Learned
   a) Continuous Improvement:
      i) Recognize that developing an app involves iterations and that obtaining ongoing user input is essential to identifying issues and implementing the necessary fixes.
   b) User Education:
      i) Provide clear instructions and instructional resources within the app to make sure users are maximizing their potential and getting the most out of it.
   c) Adaptability:
      i) To ensure that the app remains competitive and relevant in the always-evolving business, and stays up to date with user trends, legislative changes, and technological advancements.
   d) Community Engagement:

i) Encourage the growth of a sense of community among users by fostering collaboration, support, and information sharing through forums, social media, or user groups.

By incorporating these recommendations, reflecting on what has been learned, and emphasizing important information, the spending monitoring software may grow into a robust, user-friendly instrument that meets a variety of user needs and promotes responsible financial behavior.