Requirements Document

SplitSmart

CIS 376

Ryan Klingensmith & Dominic Baughman

Introduction

1.1 Purpose of Document

This is a Requirements Specification document for the expenses sharing software SplitSmart. SplitSmart is an expense sharing software to allow for sharing of expenses among friends and family. This software would be accessible via mobile app or web platform and be viable for use in many different scenarios. This document describes the scope, objectives, and goal of the new system. In addition to describing non functional requirements, the document shows the functional requirements with use cases, interaction diagrams, and class models. This document is meant to direct the implementation and design of the system in an object oriented manner.

1.2 Project Summary

Project Name: SplitSmart Expense Sharing System

Project Managers: Dominic Baughman, Head Architect, CIS 376 Engineering

Ryan Klingensmith, Head Architect, CIS 376 Engineering

1.3 Background

When splitting expenses amongst a group, most people will work off of verbal agreement or an honor system, which can and does lead to many issues. Money is a sensitive topic for many people, and enforcing a verbally agreed upon contract can cause unneeded and problematic conflict. This remains a constant problem among friend and family groups, and is an issue that SplitSmart seeks to remedy. Our customers consist of a wide variety of people in a wide variety of demographics and stages of life, as borrowing money and/or splitting expenses is an extremely common universal practice among adults. As paying other people becomes easier via advances in digital banking apps, the willingness for people to send each other money will only increase, and SplitSmart seeks to fill this niche for its rise into the future.

Since the software allows the users to create their own groups and payment, it is versatile enough to withstand any changes that may be made to the way that people pay each other, as long as it can be tracked somehow. And with its highly customizable group and payment options, it can adapt to potential change in social and / or group norms, allowing people to use the software however they and their group would wish.

The software is meant to be flexible and easy to use from anywhere you may need it. As such, the software is available in both website and mobile app form. This is to maximize ease of use, from paying your friend on your phone right in the moment to paying them later at home after a long night of financial planning on your home computer.

1.4 Project Scope

The scope for this project is a web application and a mobile application that facilitates the grouping, splitting, and paying of shared expenses. The actual paying of the expenses is not within the scope of this project.

This software is a standalone product, and so has no reliance on any external systems being updated or overhauled to function correctly.

1.5 System Purpose

1.5.1 Users

SplitSmart is an exclusively customer facing software, and so is only used by Customers:

Customers: Any customer who downloads the mobile app or accesses the website will be able to use the full feature and functionality of SplitSmart

15.2 Location

SplitSmart is available exclusively online to any user via either accessing the website on a browser or downloading the mobile app onto a device with a mobile app store.

1.5.3 Responsibilities

Primary Features of SplitSmart

- The ability to create individual user accounts
- The ability for a user to create and add other users to a group
- The ability to create and customize expenses and attach them to a group
- The ability to push notifications to every user in a group when a new expense is created
- The ability to track the balance owed by one user to any other individual users
- The ability to track any standing payments and see when they have been fulfilled
- The ability to see a report and a summary of expenses, balances, and payments based on criteria given by the user

Secondary Features of SplitSmart

- A consistent aesthetic across the entire website and app
- The ability to change the name of an individual account or group
- The ability to give names and descriptions to payments

1.5.4 Need

SplitSmart is necessary to make paying and sharing expenses among peers an easy and transparent experience in order to prevent conflict within these kinds of arrangements

1.6 Overview of the Document

The rest of this document serves the purpose of giving thorough specifications of the rest of the SplitSmart software.

- Section 2: Functional Requirements

  Each major feature of the software is explained in detail in order to ensure clarity between expectations and deliverables.
- Section 3: Non-Functional Requirements

  Each minor feature of the software is explained in detail in order to ensure clarity between expectations and deliverables.
- Section 4: Context Model

  This section both visualizes and explains in written text the ways that the software interacts with the world around it during its use.
- Section 5: Use Case Model

  This section describes in detail the flow of app usage for each of the types of users that may access the software.
- Section 6: Class Model

  This section visualizes the relations between all of the internal parts of the software and how they interact with each other.
- Section 7: Appendix

This section holds the appendix that has an overview of the entire document.

Functional Requirements

2.1 High Priority

- The software allows for individual users to create and manage their own accounts that hold and track all of their expenses
- The software allows for users to create customizable groups which other users can be added to or removed from at any time
- The software allows for the creation, assignment, splitting, customization, and payment tracking of expenses

2.2 Medium Priority

- The software creates and pushes to the user notifications when a new expense is created
- The software automatically tracks the standing balance owed between users
- The software automatically tracks standing expenses owed to a group and notifies them when it has been paid
- The software generates a report on a prompt from the user using the data held within the app

2.3 Low Priority

- The software has a specific and consistent look and feel across the whole of it
- The software allows the user to change the name of their account or group
- The software allows the user to make names and descriptions for payments

Non-functional Requirements

3.1 Ease of use

Customer should be able to figure out how to use the app in x minutes

3.2 Resilience

App will never be down for more than x hours

App will have a buffer of x% users able to be on before it goes down

3.3 Security

App will prevent any uninvited users from joining groups

App allows users to sign in with passwords

3.4 Supportability

The app will be supported by every major device on the market

App will be supported by every major browser

3.5 User Help

The app will have a built in FAQ for questions

3.6 Customization

The app will allow users to change their profile pictures

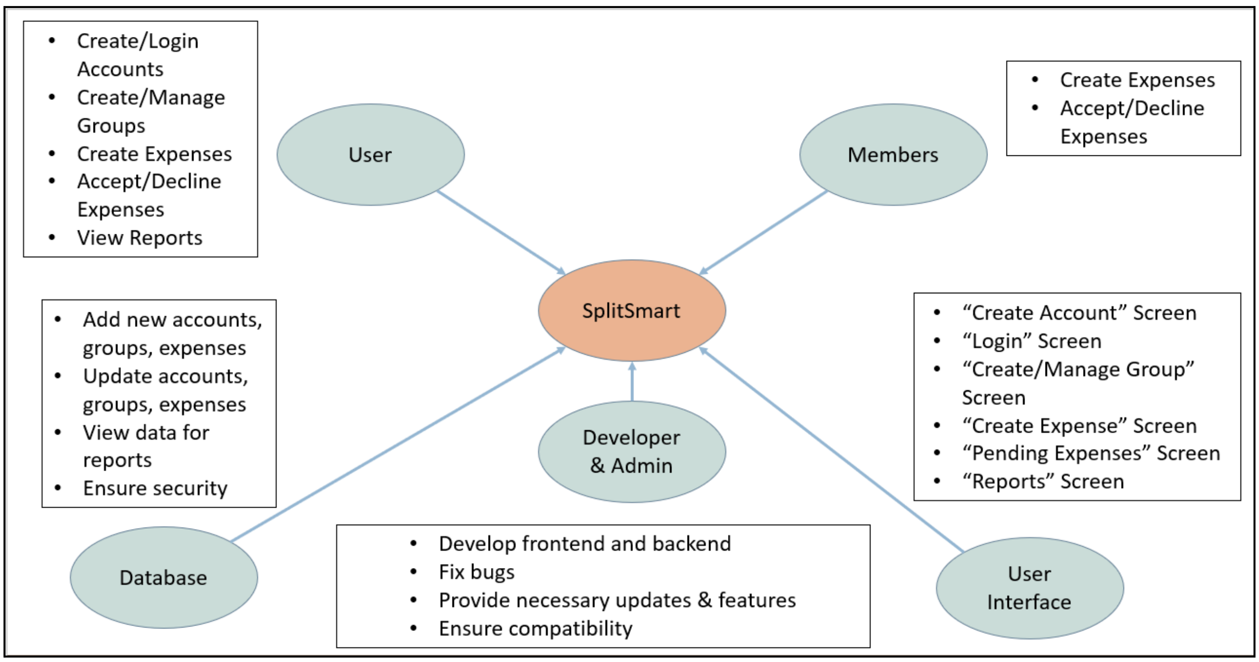
The app will have a light and dark mode

Context Model

4.1 Goal Statement

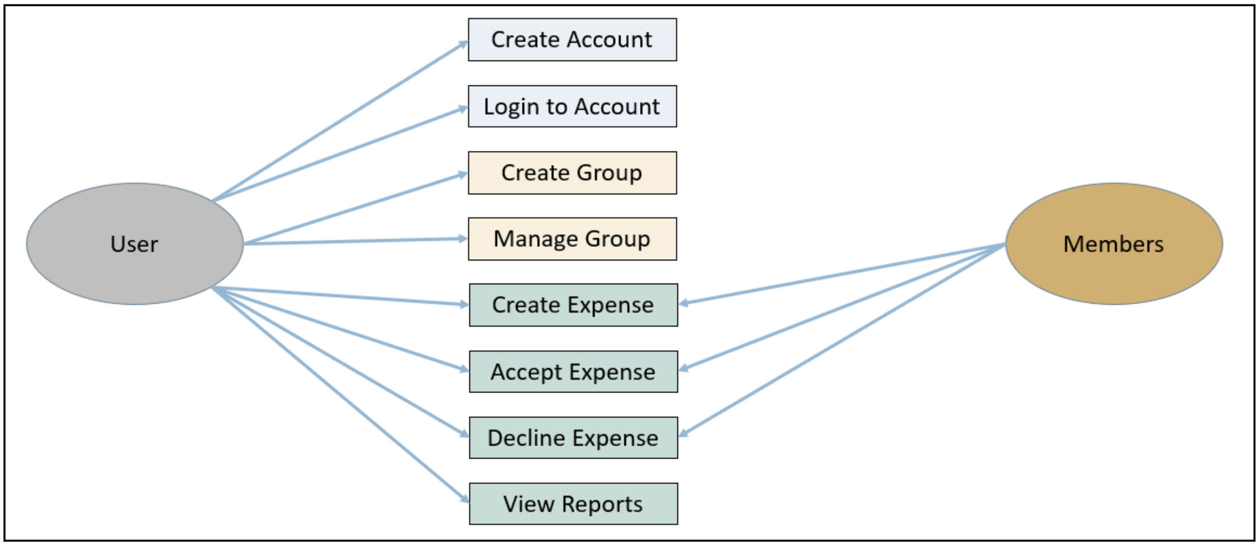
SplitSmart is a necessary application for making payments and sharing expenses among peers an easy, versatile, transparent, and secure experience.

4.2 Context Diagram



Use Case Model

5.1 Use Case Diagram



5.2 Use Case Descriptions

Use Case Name	Login to User Account
Summary	The user must login with their preexisting account information in order to use the application.
Preconditions	The user has a preexisting account, is not currently logged in, is connected to the internet, and the application is at the login screen.
Postconditions	The user can now progress throughout and use the application as intended.
Main Flow	1. User arrives at the "login" screen 2. System prompts user to enter their login username and password 3. User enters their username 4. User enters their password 5. User clicks "Login" button 6. System verifies login username and password are correct 7. User is logged into the application and taken to the homepage

Use Case Name	Create User Account
Summary	The user must create an account in order to login and use the application.
Preconditions	The user is not currently logged in, is connected to the internet, the application is at the create account screen, and the user has desired credentials they intend to associate with their account.
Postconditions	The user can now login to the application.
Main Flow	1. User arrives at the "Create Account" screen 2. System prompts user to enter their desired username and password 3. User enters their desired username 4. User enters their desired password 5. User clicks "Create Account" button 6. System verifies username isn't already in use 7. System verifies password satisfies requirements 8. User is taken to the "Login" screen and prompted to login to account with new credentials

Use Case Name	Create Group
Summary	Users can create groups to create and manage shared expenses and payments.
Preconditions	The user is logged in, at the “Create Group” screen, and has the usernames of desired users they intend to add to new group.
Postconditions	The user will have created a group with desired members for them and others to create, manage, and share expenses within.
Main Flow	1. User arrives at the “Create Group” screen 2. System prompts user to enter their group name 3. User enters their group name 4. System prompts user to enter usernames for members and/or select usernames from shortlist 5. User enters usernames for member and/or selects their username from shortlist a. Repeat until all desired members are added 6. User clicks “Create Group” button 7. Members are sent invitations to formally join new group, which they can select or decline

Use Case Name	Manage Group
Summary	Users can manage groups to adjust settings, add member(s), or remove member(s) as desired.
Preconditions	The user is logged in, at the “Manage Group” screen, and has at least one existing group they created. To remove member(s), there must be at least one member currently in the group.
Postconditions	The user will have adjusted the settings within a group, added additional member(s), or removed existing member(s)
Main Flow	1. User arrives at the “Create Group” screen 2. System prompts user to enter their group name 3. User enters their group name 4. System prompts user to enter usernames for members and/or select usernames from shortlist 5. User enters usernames for member and/or selects their username from shortlist a. Repeat until all desired members are added 6. User clicks “Create Group” button 7. Members are sent invitations to formally join new group, which they can select or decline

Use Case Name	Create Expense
Summary	Users can create expenses for themselves and their groups and split and adjust the payments accordingly.
Preconditions	The user is logged in, at the "Create Expense" screen, and shares a group with any user(s) they would like to share expenses with.
Postconditions	The user will have created an expense that is shared amongst desired group(s) and member(s) to be accepted or declined.
Main Flow	1. User arrives at the "Create Expense" screen 2. User is prompted to enter a description, price, selects the applicable group(s) and applicable member(s), and how they would like to split the expense based on amounts or percentages. 3. User enters necessary information 4. User clicks "Add Expense" button 5. Applicable member(s) are sent notifications of new expense to accept or decline a. If accepted; payment will be automatically deducted from associated bank account or application balance b. If declined; original expense creator will be notified, and expense will be subject to further evaluation

Use Case Name	Accept Expense
Summary	Users can accept pending expenses created by other users and handle payments accordingly.
Preconditions	The user is logged in, at the “pending expenses” screen, and has at least one pending expense from another user.
Postconditions	The user will have accepted a shared expense and the payment will automatically be processed and sent
Main Flow	1. User arrives at the “Pending Expenses” screen 2. User selects the necessary expense to open details 3. User selects “Accept Expense” button 4. Expected amount will be automatically deducted from associated bank account or existing application balance

Use Case Name	Decline Expense
Summary	Users can decline pending expenses created by other users and the expense will be subject to further review.
Preconditions	The user is logged in, at the "pending expenses" screen, and has at least one pending expense from another user.
Postconditions	The user will have declined a shared expense and the expense will be subject to further review by the original creator.
Main Flow	1. User arrives at the "Pending Expenses" screen 2. User selects the necessary expense to open details 3. User selects "Decline Expense" button 4. Original expense creator will be notified, and expense will be subject to further evaluation

Use Case Name	Review Balance and Reports
Summary	Users can review their balance and other statistics regarding their expenses via reports for each groups.
Preconditions	The user is logged in, at the "Reports and Statistics" screen, and has accepted and completed at least one prior expense.
Postconditions	The user will have viewed the necessary reports and statistics to gain the data they're seeking.
Main Flow	1. User arrives at the "Balances & Reports" screen 2. User selects the desired report type 3. User can share and save their desired report

Appendix

Table of Contents