

RoomEase

Team 16 Project Backlog

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Problem Statement:

The problem of coordinating with your roommates has been a problem since the inception. Having roommates can be a challenge especially when it comes to coordinating schedules, quiet hours, chores and other expenses or day to day challenges. RoomEase addresses these problems by creating an application that allows roommates to create groups where they can share chores, grocery lists, and organize quiet hours/calendars. While there are applications out there that handle these individual tasks like Splitwise for grocery sharing or Google Calendar for calendar sharing, there doesn't exist any one application to handle all of the coordination challenges that a roommate group might face.

Background Information:

Audience

Living with roommates creates several challenges coordinating group expenses, chores, and room scheduling. Since most college students and many young adults today live with roommates, it is shocking that there is yet to be an app that consolidates many of these features and more to service this large market of users.

Similar Platforms

There are many existing platforms that allow people to coordinate group expenses, chores, and room scheduling like shared Google Calendars, Splitwise, Slack, and Discord. These services allow groups to coordinate certain tasks with each other. Google calendars allow people to share their schedules, splitwise focuses on sharing specific expenses, and discord and slack focus on communication between groups of people.

Limitations

These apps/services, however, lack the specificity for coordinating the challenges of roommates, and they require for users to communicate extra outside of these apps to handle specific tasks like grocery shopping and chores. For example, SplitWise only allows for an even split of the costs, which may not be reflected on how much each roommate purchases/utilizes, and this oftentimes leads to groups who purchase items of varying cost doing the splitting themselves. The other communication/Calendar apps like Slack, Google Calendar, and Discord are essentially text message channels that

require a lot of setup and external communication to coordinate chores, groceries, room scheduling, etc. These apps are also limited because they are all separate services which forces extra setup and external communication to coordinate between the apps.

We aim to address these problems by creating an app focused solely on handling roommate challenges that will include all of the specific features needed like chores, expenses, and schedules without any unnecessary setup requirements.

Functional Requirements:

1. As a user, I would like to register and login using my Google account
2. As a user, I would like to log out of my account and save my data.
3. As a user, I would like to be able to create a profile with my name, birthday, profile picture, and contact information.
4. As a user, I would like to be able to edit my profile at any time.
5. As a user, I want to launch a main page that displays all my roommate groups.
6. As a user, I want to create and join a roommate group.
7. As a user, I want to be able to invite others to my roommate group.
8. As a user, I want each roommate group to have a UI that displays all the features that RoomEase provides for each group in the form of common appliances.
9. As a user, I want a room called the “master room” which will compile all the tasks, quiet hours, expenses from all groups that I am a part of into one room UI.
10. As a user, I want to assign, track, and set deadlines for household chores.
11. As a user, I want to receive notifications when a chore is due or completed.
12. As a user, I want to mark my chores as complete.
13. As a user, I want to add items to a shared grocery list.
14. As a user, I want to add comments to the items I put on the list.
15. As a user, I want to mark an item on the list as purchased and request payment for the amount that I spent on it.
16. As a user, I want to be able to mark when a payment has been completed.
17. As a user, I want to receive notifications when I have unpaid grocery balances.
18. As a user, I want a UI to display all bills/ recurring expenses in the group.
19. As a user, I want to add bills/recurring expenses onto the bills UI and be able to indicate which group members are a part of the expense.
20. As a user, I want to edit any of my bills/recurring expenses from the group and be able to edit which group members are a part of the expense.
21. As a user, I want to indicate a “Pay Master” (the person that actually pays the bill) for each bill/recurring expense that everyone must send what they owe to.
22. As a “Pay Master”, I want to indicate when members of my specific bill/recurring expense have paid me or not.

23. As a user, I would like to see a history of how much recurring expenses have cost in the past (track changes in electricity/water usage).
24. As a user, I want to receive notifications when a new bill or recurring expense has been created with me as a contributor.
25. As a user, I want a UI to display my total balance owed/am owed by each group member.
26. As a user, I want to mark as settled all of what I owe/am owed by each group member at once (this would mark all payments requested as "paid").
27. As a user, I want a UI that displays all room states requested (present and future).
28. As a user, I want to view the room's current state.
29. As a user, I want to set quiet hours for the household.
30. As a user, I want to receive notifications when a roommate's requested quiet hours has begun or been scheduled.
31. As a user, I want to be able to earn points based on completing my tasks/getting groceries for my roommates.
32. As a user, I want to use points to purchase cosmetics to decorate my rooms.
33. As a user, I want to be able to leave my group and notify other members in the group.
34. As a user, I want to be able to enable a monthly review of my roommates in certain categories (cleanliness, noise, expenses paid, etc.) for groups larger than 2 people.
35. As a user, I would like to have a group chat for each roommate group.
36. As a user, I would like to enable a chat filter (blur profanities) for my roommate group chat.
37. As a user, I want to upload a group photo that will display on the door that leads to the group page.
38. As a user, I want to enable a bulletin board in my room where I post and remove notes to be publicly displayed
39. As a user, I would prefer to create and see clauses in my roommate agreement with my roommate(s)
40. As a user, I want to be able to see and add house rules to a section of the bulletin board
41. As a user, I would like to be able to see a clock which dictates the current state of the room
42. As a user, I would like to add pictures to a section of the bulletin board to save memories that I share with my roommate.
43. As a user, I would like to be able to interact with the different sections of the room that show me the different features

44. As a user, I want a feature that allows me to request to swap chores with one of my other roommates
45. As a user, I want to be able to click a gavel on the desk that allows roommates to vote on disputes within the apartment
46. As a user, I want to be able to bring up a page to vote on disputes
47. As a user, I want to be able to issue a dispute through the UI the gavel brings up when clicked
48. As a user, I want to be able to customize the appliances within each individual bedroom.
49. As a user, I want to be able to set chore difficulty levels and allocate points based on difficulty.
50. As a user, I want to add notes/comments/expectations on chores (when completed / how to complete)
51. As a user, I want to see “RoomEase Wrapped”, which is a monthly leaderboard of who did the most of what chores / bought groceries the most, etc.
52. As a user, I want to view an all time, dynamically updated leaderboard of who did the most of what chores / bought groceries the most, etc. throughout the entire existence of the roommate group.
53. As a user, I want to be able to customize the “master bedroom” so that each different group has their own customizable aesthetic
54. As a user, I want a settings page for each roommate group where I can enable or disable certain RoomEase features such as grocery splitting, chore list, etc.

Non-Functional Requirements:

Architecture and Performance

We plan to develop an app with a separate frontend and backend that is connected with RestAPIs. This will allow the team to separate work better and update each side separately.

The backend will be developed using Express.js, which will handle API requests and communicate with a MongoDB database to store and process data. The backend will expose RESTful API endpoints to deliver relevant data to the frontend. We expect our API response times to be under 200ms for simple queries and under 500ms for more complex database operations under normal load conditions. The frontend will be developed using React that will make requests to the API to populate the application’s visuals with relevant information. Using React will also allow us to port the application to multiple different devices (Android, IOS, Web)

Security

We plan to utilize the google API features so that users must login through their google accounts. This will allow us to use the built-in google security features to prevent users from accessing other accounts. Additionally, we plan on screening user inputs to ensure that they are valid. This will allow us to avoid XSS and code injection attacks as users won't be able to upload malicious items.

Usability

Usability is a top priority for RoomEase. We will create a basic UI that clearly displays the most important information to the user at any point in time. We additionally aim to limit the amount of pathways that a user must go through to access any specific information they are looking for. Many other applications over-complicate their system by creating many channels that often go almost unused. We will mitigate this by organizing functionalities into groups so that a user can clearly navigate from one task to another in as few clicks as possible. We aim to have 5 or fewer clicks from the homepage to any individual feature that the user is attempting to access.

Hosting/Deployment

Since the backend and frontend are disjoined, they can be deployed and updated separately. Further down the development process, we can host the backend on a free Render server for testing. The frontend can then be hosted as a Github Pages website.