



Team 32 - Product Backlog

Ali Fareed Shirazi, Sara Xiao, Jun Shern Lim, Ming Yan Ti

Problem Statement

Consider a situation where a university student needs a scientific calculator for a single exam; purchasing one makes no sense. Similarly, people might want to use certain items for just a fixed period of time instead of buying them. With Itembnb, users can offer up their items for borrowing and borrow other people's items. Other apps allow you to lend and borrow items, but none will have an interface as simple and accessible as Itembnb, with a calendar and chat system to facilitate communication between users.

Background Info

Audience

Many individuals only require a specific item for a short period of time, but once its purpose has been fulfilled, it becomes obsolete. There is a growing number of people willing to borrow items to save on resources and a growing number of item owners who are willing to lend out their possessions to help others and potentially earn additional income. Unfortunately, there has not been an active and organized platform to facilitate these—until now. Itembnb bridges this gap by providing a platform for individuals and communities to come together and share resources. Anyone interested in reusing items and saving money would feel at home with Itembnb.

Similar Platforms

Facebook Marketplace, while having the capability for sellers and buyers to negotiate borrowing arrangements, primarily serves as a platform for selling items. There are also several other apps, such as RentItems or Yoodlize, that specialize in facilitating borrowing transactions.

Limitations

Yoodlize is an IOS app, so its full functionality is unavailable on non-iOS devices or web browsers. On the other hand, RentItems (a web app) is difficult to navigate since many of its existing features are not implemented completely and have bugs. For example, its recommended items feed on the front page is empty, and the add item

and search buttons are broken. Both these applications are outdated and no longer actively maintained as well. Facebook Marketplace is the best alternative among the three; however, it only allows item purchasing/selling instead of renting/borrowing.

All three of these platforms are also inconvenient for the purpose of renting/borrowing since they don't have a calendar feature to view the availability of items. With Itembnb, we plan on creating a fresh, user-friendly, and responsive interface that contains most, if not all, of the needed features in a single place.

Functional Requirements

1. As a user, I would like to register for an Itembnb account.
2. As a user, I would like to log in to my account once I log out.
3. As a user, I would like to have the option to delete my account.
4. As a user, I would like to view my own user profile.
5. As a user, I would like to edit my own user profile.
6. As a user, I would like to view other users' profiles, showing a list of their posted items.
7. As a user, I would like to rate and review a lender or borrower after they've completed a transaction with me.
8. As a user, I would like to be able to act as a borrower and lender using the same account.
9. As a user, I would like to be able to view a simple chat interface with a given lender/borrower.
10. As a user, I would like to send and receive chat messages with another user for in-progress lending activities in real time. (items I have borrowed but have yet to return).
11. As a user, I would like to receive a notification if someone messages me.
12. As a user, I would like to see a feed for items up for borrowing and items that people have requested.
13. As a borrower, I would like to search for available items.
14. As a borrower, I would like to filter search items by category, tags, price range, etc.
15. As a borrower, I would like to view a posted item's details - description, lender profile, date, etc.
16. As a borrower, I would like to favorite a posted item to save it for later.
17. As a borrower, I would like to see a list of all my favorited items.
18. As a borrower, I would like to view a posted item's availability calendar.
19. As a borrower, I would like to add a borrowing request to the calendar.
20. As a borrower, I would like to view my borrowing history.
21. As a borrower, I would like to receive a notification one hour prior to my borrowing deadline.

22. As a borrower, I would like to confirm that I have received the item from the lender.
23. As a borrower, I would like to rate and review an item I have borrowed.
24. As a borrower, I would like to see a map view of items up for borrowing near me (if time allows).
25. As a borrower, I would like to create an item request for an item I want to borrow that is not listed on the site.
26. As a borrower, I would like to edit my item request.
27. As a borrower, I would like to delete my item request.
28. As a borrower, I would like to be notified when a lender has linked one of their posted items to my item request.
29. As a lender, I would like to link one of my posted items to an existing item request.
30. As a lender, I would like to post an item.
31. As a lender, I would like to add a price for borrowing my item to my posted item.
32. As a lender, I would like to add a thumbnail image and multiple preview images to my posted item.
33. As a lender, I would like to delete my posted item.
34. As a lender, I would like to edit my posted item.
35. As a lender, I would like to set up my posted item's calendar.
36. As a lender, I would like to edit my posted item's calendar.
37. As a lender, I would like my calendar to be automatically updated when an item is booked.
38. As a lender, I would like to view the list of borrowing requests for my posted items.
39. As a lender, I would like to be notified when a borrower has requested to borrow my item.
40. As a lender, I would like to be able to accept or deny a borrower's request.
41. As a lender, I would like to view my lending history.
42. As a lender, I would like to update the posted item's status.
43. As a lender, I would like to confirm that I have received the item back from the borrower.
44. As a lender, I would like to receive payment from a borrower for lending my item to them (if time allows).
45. As a lender, I would like to reimburse a borrower for returning my item to me (if time allows).
46. As a developer, I would like to host my application (if time allows).
47. As a developer, I would like to improve security by validating users' emails.
48. As a developer, I would like to delete the chat between users once their transaction is completed.

Non-functional Requirements

Architecture and Performance

The website's frontend and backend will be separated, with ReactJS being used for the frontend and NodeJS on the backend. We will use MongoDB as the database engine. These tried-and-tested frameworks will allow for a smooth experience with development and ease of deployment, but also offer significant and easy scalability for larger requests. The website's design will be relatively simple, as we do not want to bloat it with media that may slow it down; our goal is a quick response time for each page, i.e. <1000ms.

Usability

Since our target user base will be diverse, it is essential that the interface of our application is intuitive and user-friendly. This can be achieved by ensuring seamless navigation between pages and an overall design that is simple and easy to understand. Additionally, to cater to the varying preferences of our users, the interface should be adaptable to different screen sizes, letting users adjust the screen to their liking. Furthermore, it is crucial that the application is compatible with all browsers and mobile devices to ensure that our users have a seamless and uninterrupted experience.

Security

It is crucial to implement optimal security protocols that will discourage malicious actors from attempting to exploit vulnerabilities. One important aspect of this is protecting the database from the threat of malicious code injection. To accomplish this, we must ensure that all inputs for editing and creating profiles are thoroughly validated. Furthermore, all API calls to the server must be authenticated, and all users must be authenticated upon logging in.

In addition, it is essential that we take steps to safeguard sensitive information from outside entities. To accomplish this, we will implement encryption for all chats between lenders and borrowers, ensuring that these conversations are not directly visible on the server. Only the participants in the conversation will be able to view the chats, and once the transaction is completed, the chats will be deleted to prevent further access. By implementing these security measures, we can provide a safe environment for users to conduct transactions.

Hosting and Deployment

The backend and the frontend will be separate and will each be deployed and hosted on Heroku. We will not have to host the database ourselves because MongoDB offers a free cloud database.