Team: Starfleet

Designs for SnapBack: An Application for the Lending and Returning of items

Overview

Purpose and Goals

SnapBack is an application designed to facilitate lending and borrowing items within MIT community. Many times we see emails asking if anybody has a specific item and it the sender can borrow it. Since there is no other way to ask a great number of people without sending emails, we decided to build SnapBack to transform the way people borrow things.

SnapBack allows for a more systematic borrowing and lendings. For example, college students are often short on cash, so we are constantly borrowing and lending money to our friends. However, keeping track of money we owe to other people and money they owe to us can be an ordeal. People generally do not keep reminding their friends about debts because bring up the topic of owing money can be a touchy subject, which causes both parties to forget. A good way to fix this is to introduce some third party system that periodically reminds the other person to pay you back.

Additionally, since college students don't have the luxury of buying every single item that they could potentially need (aka, most people wouldn't buy things like wood glue just to fix one wooden item that was broken), people often need to borrow these items from other students.

SnapBack is an application that will allow MIT students to easily return items, while implementing some reminder system that will encourage users to return items in a timely manner. It can remedy mentioned problems by allowing people to ask their friends, or members of our site, to borrow items.

Team: Starfleet

Context Diagram

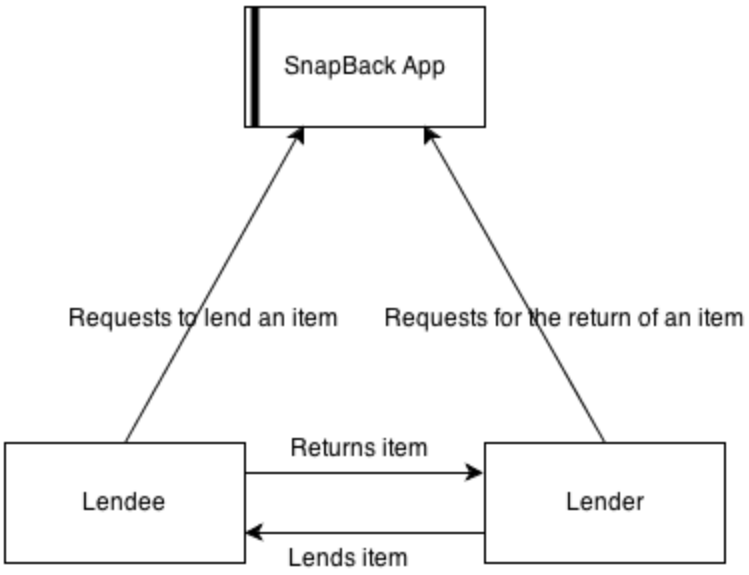


Figure 1: Context Diagram

Concepts

Key Concepts

The key concepts behind SnapBack are **lends**, **returns**, and **end-to-end validation**. Users of this system will be able to request **lends**, which are items (cash, books, clothing, etc.) that they borrow and will be able to return (if needed). Users will also be able to request **returns** from other users that they have lent items to. Because each request can be initiated independently, we will use **end-to-end-validation** to ensure that the requests are correct and unspammable. Each user will verify the request in this validation process

Team: Starfleet

Object Model

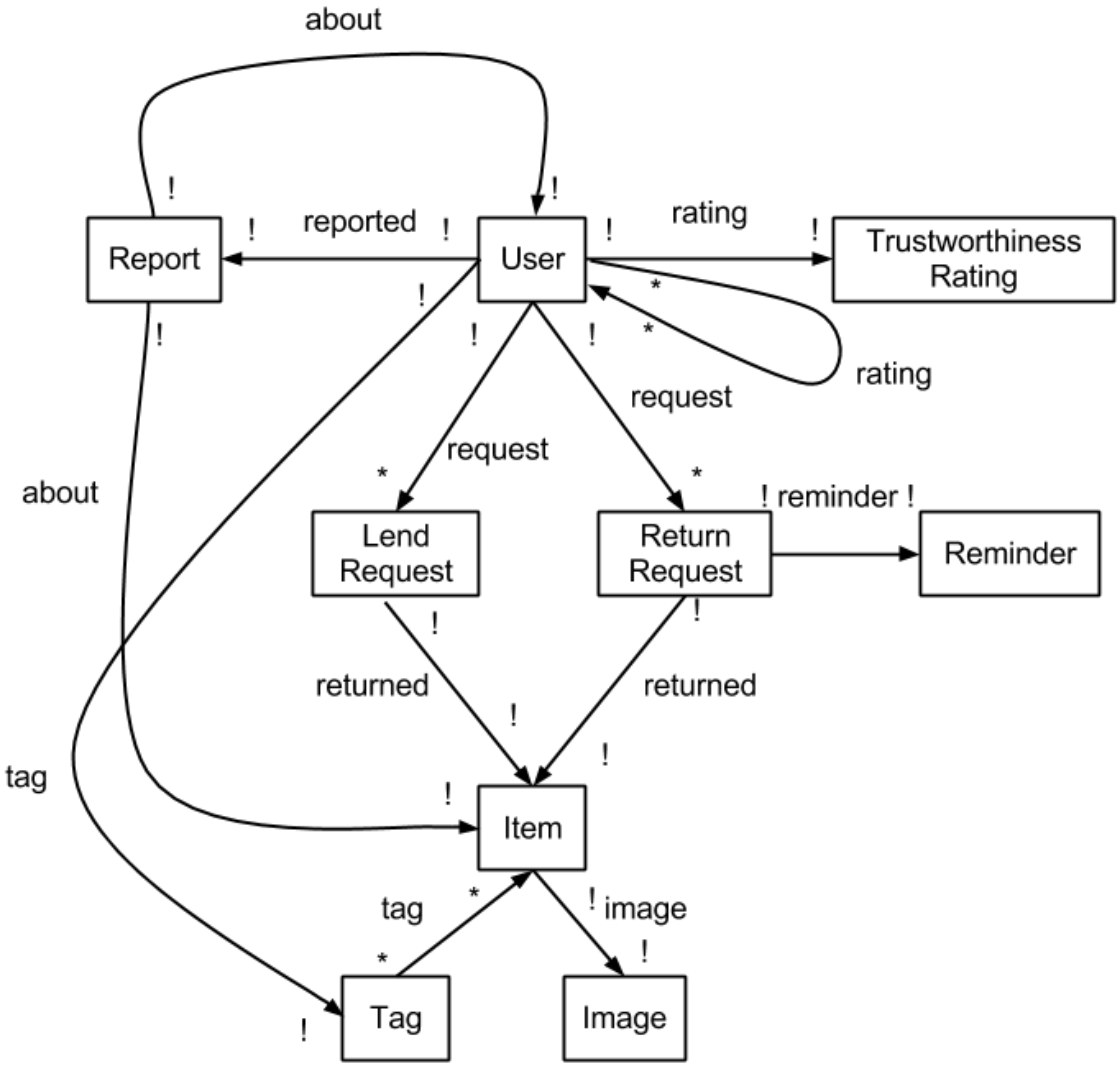


Figure 2: Object Model

Behavior

Feature descriptions

SnapBack provides following functionalities:

1. Lend request: a user can post a lend request for any object with tag and image.
2. Return request: a user who agrees to lend the object can specify the return date. Snapback will send a reminder email to the borrower before the return date.
3. Report: a user can report requests related to illegal objects, etc.
4. Trustworthiness ratings: a user can rate other user's trustworthiness based on their lending /borrowing experience
5. Tagging: a user can tag their lend requests for easy filtering and searching

6. Searching: a user can search for specific requests
7. Image: a user can post an image along with their item requests

Security concerns

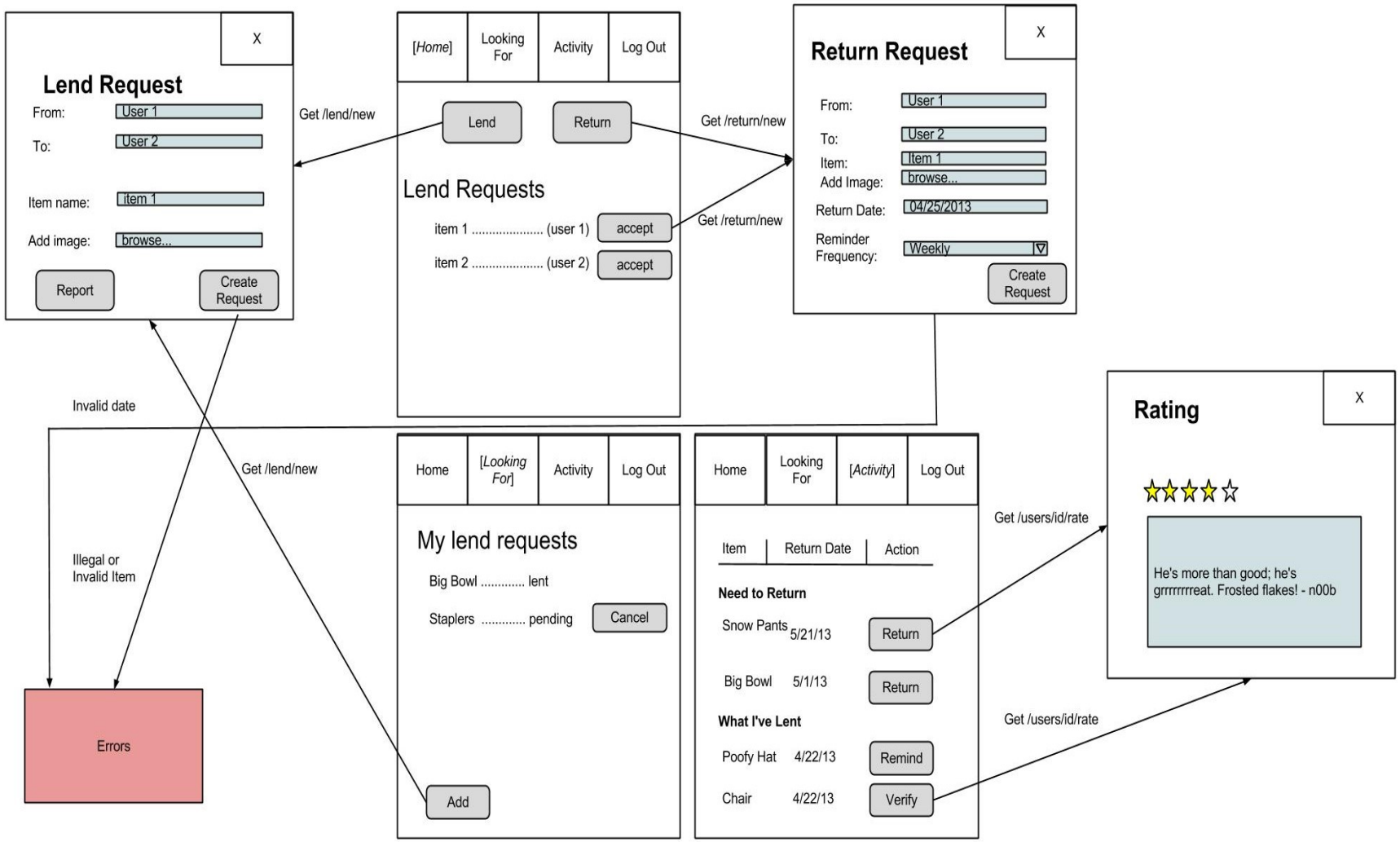
SnapBack has the following security requirement: it makes sure that a user registers with a valid MIT email and needs to login to make requests. The application may be vulnerable to the following potential security threats:

MIT Only
We want our application to only be available to MIT students and community members (those with mit.edu addresses), since we want students to feel safe interacting with others on the site. To do this, we will require that users sign in with their MIT emails, and click on a verification link in their email to make sure they are MIT students and that the email address is theirs.

Validation
A risk we have identified is that lend and return requests can be spammed to congest the system or make others' experiences miserable. To mitigate this, we will require end-to-end validation on both parties of the request. We will also have automatic checks in place to filter out duplicate requests.

Legality
Another risk is users potentially lending illegal items. To mitigate this, we will have user moderation and reporting to help keep our system legal.

Moderation
A final risk is that items that are lent could possibly not be returned. To mitigate this, we will have a user trustworthiness level that comes from ratings by other users. This will help users decide for themselves who they can lend to or borrow from.



Team: Starfleet

Team: Starfleet

Challenges

Design challenges

Lending/returning money and items
Money and items are sometimes lent in different ways, however we want to make a site that can be applicable and helpful in all use cases. For example, items can be requested, and then once the request has been fulfilled, users can issue a return for the item. However, money is often lent when immediately needed, so the user would only need to request a return. Our application will allow users to make return requests without having the need to have made a lend request first.

Guarantee of loans occurring
It's difficult to guarantee for sure that a loan has actually occurred. We don't want users lying and saying they've successfully lent out items, in an attempt to increase their trustworthiness factor. We will have the user on the lending and receiving end verify that a loan has occurred, or that money is owed.