

P2: ForSale.MIT.edu

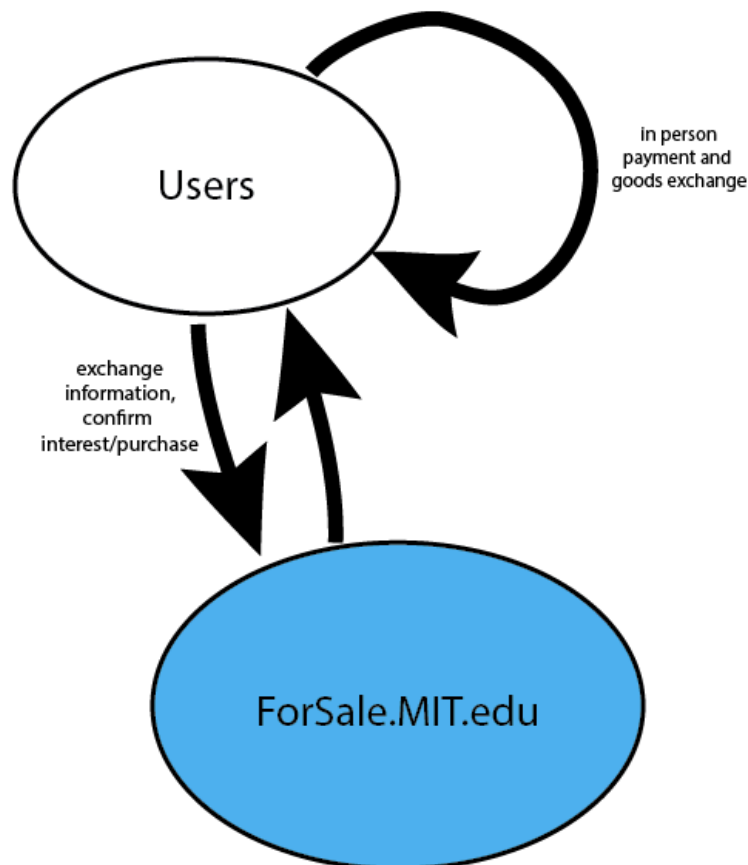
III. Problem Analysis

A. Overview

Purpose and goals:

At the end of the year students at MIT, specifically seniors try to find a way to sell all of the things they do not need or use in their room. The old fashioned way was, send out an email with a list of all the things they are selling, and get 20 emails back. And 10 more come in after the student sends out the “claimed” email. The goal of this application is to create an interface for students with MIT certificates to keep track of the items they are selling, and allow other students to buy them. This will require implementation of a shopping cart. Buyers will claim the items in a cart, until it expires in an hour, allowing other students to try and buy the items.

Context diagram



Notes:

- login for all users will eventually be through MIT certificates, but is currently using a username named *Kerberos*. Because of incompatibility with RoR it has not been implemented yet.
- item info (and eventually images) uploaded by user

Unusual requirements

None.

Key features

Users

- have a Room and a Bag
- Through the Room, can create items and enter information for each item
- Through the Bag, can purchase items

Room

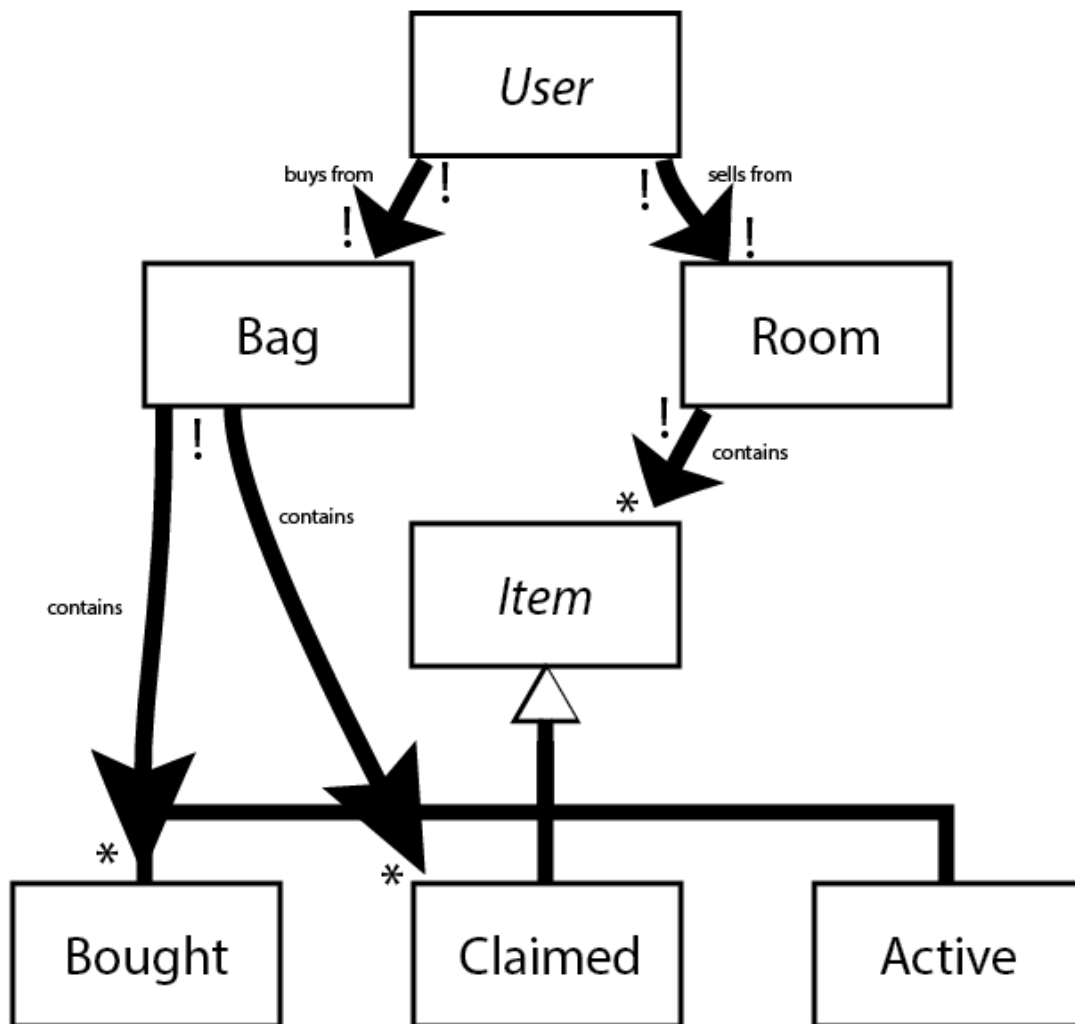
- each user has a room that is created when they register, even if they aren't planning to use the sell functionality of the site
- items are identified by rooms, rather than users

Bag

- each user has a bag that is created when they register, even if they aren't planning to use the buy functionality of the site
- when a user adds an item to his/her bag it becomes 'claimed' and other users then cannot claim the item
- bags are saved through sessions, but items are only 'claimed' in a bag for 1 hour (there is a countdown in the bag to tell the user how much longer he has to purchase)
- when a user checks out his/her bag, the items in its status' are changed to 'bought', and they are moved to the user's purchased items list

B. Domain

Object model



Notes:

- 'Active' items are items that have not been claimed or bought by a user and can be added to a Bag.
- 'Claimed' items can still be viewed by all users, but are in a Bag currently and can't be added to another until it times out (in one hour)
- only the user who purchased it and the user who sold it can see 'Bought' items

Event model

User::= login (add_item edit_item destroy_item || add_to_cart checkout)* logout

Room::= add_item (edit_item | upload_img)* destroy_item

Bag::= (add_to_cart delete_from_cart)* (checkout)

C. Behavior

Feature descriptions

Rooms

Users will add items, add descriptions, and upload images to their online store.

Bags

Users can also browse other items by owner or by tag, add them to their bag, and checkout the bag. Eventually there will be a time-out feature. Adding an item to a bag will claim it for 24 hours, until which time it is unclaimed and able to be added to another student's bag.

Security concerns

Requires an MIT certificate validation. Currently this is implemented with usernames and passwords, completely unaffiliated with MIT Kerberos. The changing between items' statuses could be a security concern, but having certain operations available to items' with certain statuses should prevent this.

Operations

GET /

Effects: Returns DormRoom page, unless user not logged in, then log in page

GET /login

Requires: A kerberos and password (currently not attached to MIT certificates)

Modifies: Session

Effects: Authenticates and logs user in

GET /logout

Requires: User is logged in

Modifies: Session

Effects: Destroys session data

GET /signup

Requires: A Kerberos and password

Modifies: Users

Effects: Creates new user and logs them in

GET /users/1/addto

Requires: An item in 'active' status

Modifies: Item and user's Bag

Effects: Adds item to list of Bag's items, adds bag_id to item, changes status to 'claimed'

GET /users/1/removefrom

Requires: An item in 'claimed' status, in current user's bag

Modifies: Item and user's Bag

Effects: Removes item to list of Bag's items, changes bag_id to nil

GET /checkout
Requires: User is logged in
Modifies: User's Bag and item
Effects: Changes status to 'bought'

User interface

ForSale@MIT

Logged in as odim. [Log out](#)

odim's DormRoom

[Your Bag](#) [Dorm Room](#) [The Lounge](#)

Below you will find your items for sale, your previous purchases, and previous sales. Add new items, and edit those already for sale. Visit The Lounge to see what you can claim right now.

Selling							
	Item	Price	Status	Description			
	Starbuck Double Shot	\$2.00	active	Good for working late nights.	Delete	Edit	
	Leather Jacket	\$30.00	active	REAL LEATHER	Delete	Edit	
	computer	\$1,000.00	active	nice	Delete	Edit	
Add Item							
Purchases							
	Item	Price	Owner	Date			
	Heels	\$15.00	odim	2012-10-15 15:50:32 UTC			