NETWORK BASED APPLICATION DEVELOPMENT (ITIS 5166)

REQUIREMENT AND DESIGN DOCUMENT

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Table of Contents

1. Introduction

1.1. Purpose of the document

The main purpose of this document is to provide the customer with the final results of this project. The document should provide them with the detailed explanation of final result of this project. The project focuses on the content swapping domain.

1.2. Intended audience

The intended audiences for this document are the developers, production support team, and the team who does future development and enhancement.

1.3. Scope

This document should provide the intended audience with the summary of all information that are important in this project.

1.4. Definitions and acronyms
    1.4.1. Definitions

Terms	Definition
Full Name	Combination of user's first and last name
Catalog	Catalog here means list of items uploaded for swapping
Catalog category	All items are divided into categories. Which here refers as catalog category
Swap	Exchange of two furniture items
Item code want	Item code of item which logged in user requests to swap
Item code own	Item code of item which logged in user owns
Offer ID	Unique ID generated for offers created
User ID	Unique ID generated for users

1.4.2 Acronyms and abbreviation

Abbreviations	Meaning
HTML	Hyper Text Markup Language
CSS	Cascade Style Sheets
MVC	Model View Controller
URL	Uniform Resource Locator
EJS	Embedded Javascript
ERD	Entity Relationship Diagram
PK	Primary Key
FK	Foreign Key

2. Background and objectives

2.1. Application description

Furniswap is a content swapping website which focuses on swapping furniture users can swap their furniture using this platform. It helps to view and store user's items and successfully swap them with other users.

The application also allows to rate their furniture items and other user's items. It also provides the user's rating.

2.2. Requirements
- Web application must apply the MVC pattern.
    - Data objects to implement the business layer of the application (model)
    - Dynamic pages to present the view to the browser
    - Controller logic to control the flow of the application
- Pages must be valid HTML 5 standard. They must validate error – free.
- All the web pages must be responsive i.e. they should be rendered without distortion across all screen widths
- There must be complete separation of code
    - All CSS should be included into separate files – only link(s) to the external CSS files are allowed in the HTML document.
    - All JavaScript should be included into separate files – only link(s) to the external *.js files are allowed in the HTML document.
- Code design should have ease of maintenance, understandability, reusability and extensibility.
- Implementation of controller logic to operationalize the business logic.
- Utilize data objects for the model to represent the main data elements/business objects used.
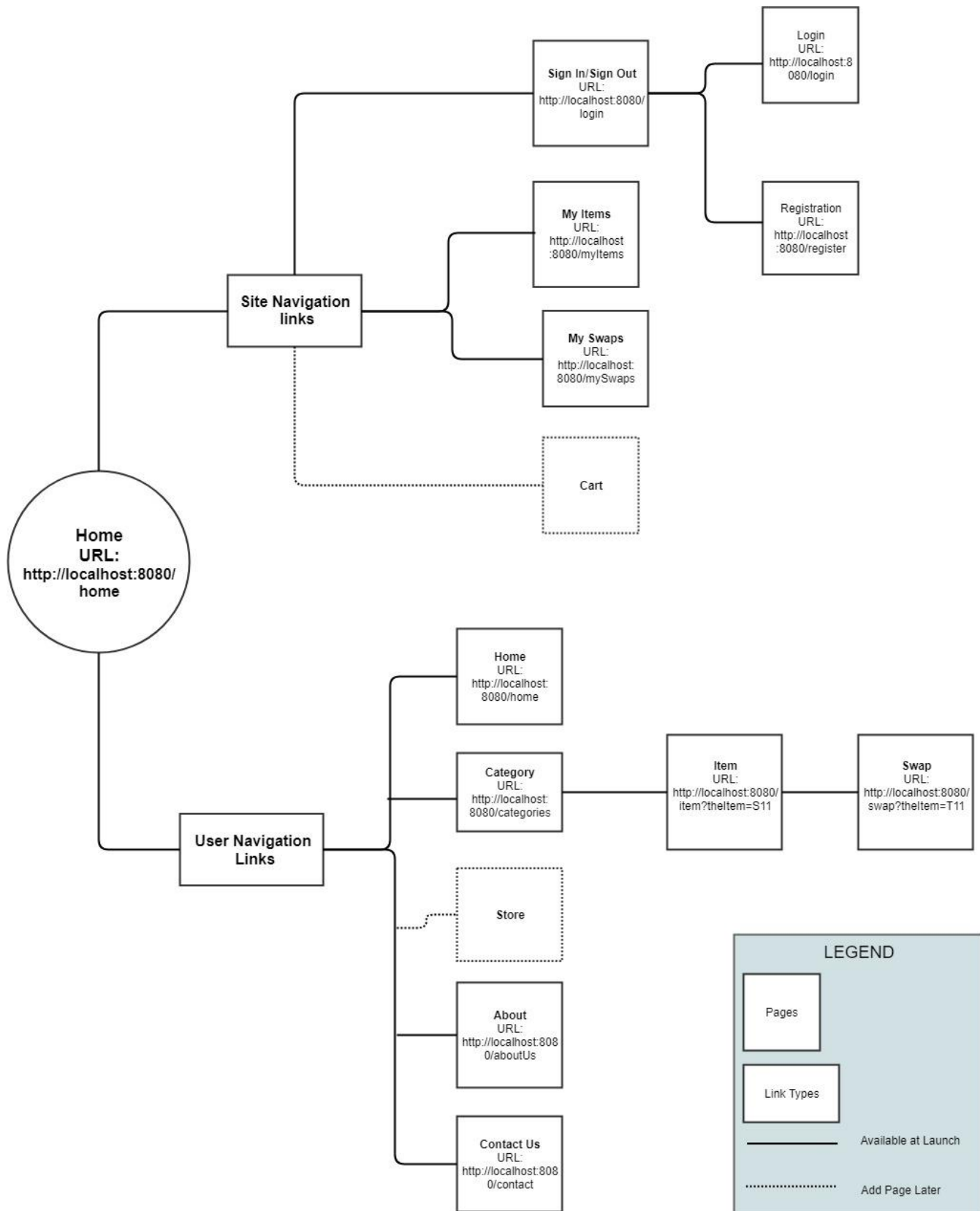
3. Project Overview

The project focuses on developing a content swapping website. This website implements the furniture swap domain where Users can swap their furniture with another user's furniture.

New Users are required to register before using all the feature, without creating a profile you can only view all the items but cannot perform any operation on it. If you have a login created, you can directly login and continue swapping.

The website provides features to upload and save the items, view another user's items, view the status of their own items, rate their and other items and request to swap. Once the swap is complete User can rate another User also.

4. Site Map

Sign In/Sign Out
URL:
http://localhost:8080/
login

Login
URL:
http://localhost:8080/login

Registration
URL:
http://localhost:8080/register

My Items
URL:
http://localhost:8080/myItems

My Swaps
URL:
http://localhost:8080/mySwaps

Cart

Site Navigation links

Home
URL:
http://localhost:8080/home

Home
URL:
http://localhost:8080/home

Category
URL:
http://localhost:8080/categories

Item
URL:
http://localhost:8080/item?theItem=S11

Swap
URL:
http://localhost:8080/swap?theItem=T11

User Navigation Links

Store

About
URL:
http://localhost:8080/aboutUs

Contact Us
URL:
http://localhost:8080/contact

LEGEND

Pages

Link Types

Available at Launch

Add Page Later

5. Page Designs

5.1. Common content elements

5.1.1. Header

The header will be same throughout the website. It will be having the following contents
- o Logo / primary branding in the header
- o Website name
- o Placeholder for login name
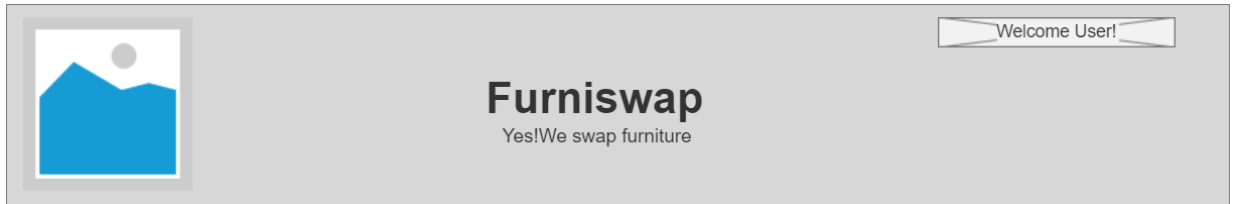
5.1.2. User-specific Navigation

Representative links for user-specific navigation (sign-in, my items, my swaps, cart, etc.)
- o Sign-in link will redirect to login page. Sign-in sign changes to SignOut once user is logged in. SignOut link is used to log out from the current profile.
- o My items link will redirect to user's profile view page
- o My swap will provide navigation to the current offers page.
- o Cart will redirect to shopping cart page.
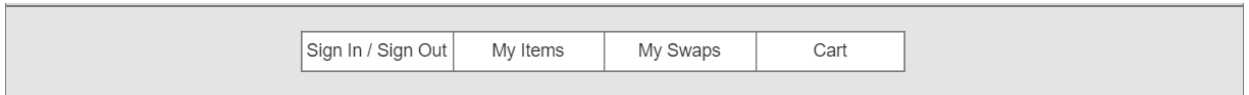
5.1.3. Site-specific Navigation

Representative links for general site navigation (home, catalog, store, about, etc.)
- o Home link provide navigation to the home page.
- o Category page will navigate to the item catalog page.
- o Store will be having the items users ca buy if they want to.
- o About page is about the vision and mission of the furniswap.
- o Contact us page provide navigation to the contact page where users can send their queries to the website management.
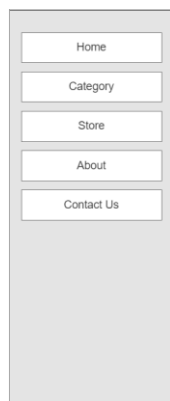
5.1.4. Footer

Representative footer information (copyright, etc.). Also contains social media links.
- o Links to home, blog, store, about, FAQs, contact.

Home   Blog   Store   About   FAQ   Contact

Copyright information

5.2. Home Page (index.ejs)

5.2.1. Purpose

Home page is the landing page of the application. It will contain mostly static content. The introduction to the website will the presented here.
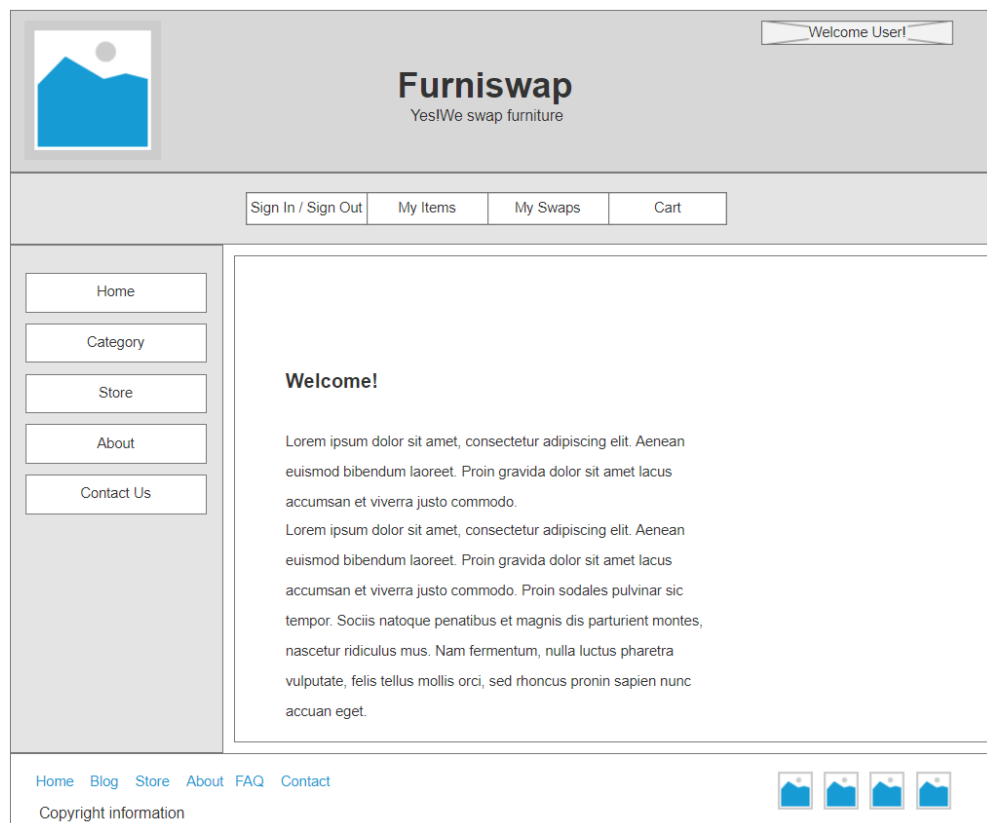
5.2.2. Audience

General Audience. Anyone can view this page. Doesn't require login to view it.

5.2.3. Elements on the page

Only placeholder is used to keep static text.

5.2.4. Prototype

Welcome User!

Furniswap
Yes!We swap furniture

| Sign In / Sign Out | My Items | My Swaps | Cart |

Home

Category

Store

About

Contact Us

Welcome!

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean euismod bibendum laoreet. Proin gravida dolor sit amet lacus accumsan et viverra justo commodo.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean euismod bibendum laoreet. Proin gravida dolor sit amet lacus accumsan et viverra justo commodo. Proin sodales pulvinar sic tempor. Sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Nam fermentum, nulla luctus pharetra vulputate, felis tellus mollis orci, sed rhoncus pronin sapien nunc accuan eget.

Home   Blog   Store   About   FAQ   Contact

Copyright information

5.3. Login Page (login.ejs)

5.3.1. Purpose

This page is linked into the application flow from the "Sign In" link in the user navigation bar. It provides submission of username (email) and password for a user to login to the application and view their profile of saved items.

5.3.2. Audience
General Audience. Anyone can view this page who wish to login to the site.

5.3.3. Elements on the page
- o Labels for "email" and "password" text
- o Text type textbox for email
- o Password type textbox for password
- o Submit button –
  - o On click the sign in button this sends a request to verify that username and password submitted belong to an already registered user.
  - o On success, profile view is displayed.
  - o On failure, the login view displays showing an error message. (e.g. Either username or password are incorrect.)
- o Register link is present for new users to register if they doesn't have an account. – redirects to register page.

5.3.4. Prototype

5.4. Register Page (register.ejs)

5.4.1. Purpose
This page is linked into the application flow from the "Register" link in the Login page. It provides submission of User information to register as a new user. User is able to login with its newly created username(email) and password.

5.4.2. Audience
General Audience. Anyone can view this page who wish to create a new user profile.

5.4.3. Elements on the page
- o   Labels for Fullname, Address, Email, Password, Confirm Password.
- o   Textbox for first name and last name.
- o   Address textboxes consist of six segments address line 1, address line2, city, state, zip code and country.
- o   Email type textbox for email
- o   Password and confirm password textboxes.
- o   Submit button to register
    - o   On register click, application will check for all the required validations, email format validation, matching of password and confirm password validation.
    - o   On success, New user data is saved in the "users" collection.
    - o   On failure, proper message is displayed.

5.4.4. Prototype

5.5. Category Page (category.ejs)

5.5.1. Purpose

Category page will consist of all the categories of the items and the items in each category. It will allow users to view the catalog of furniture. Further user can select individual item to go on to item page of each item.
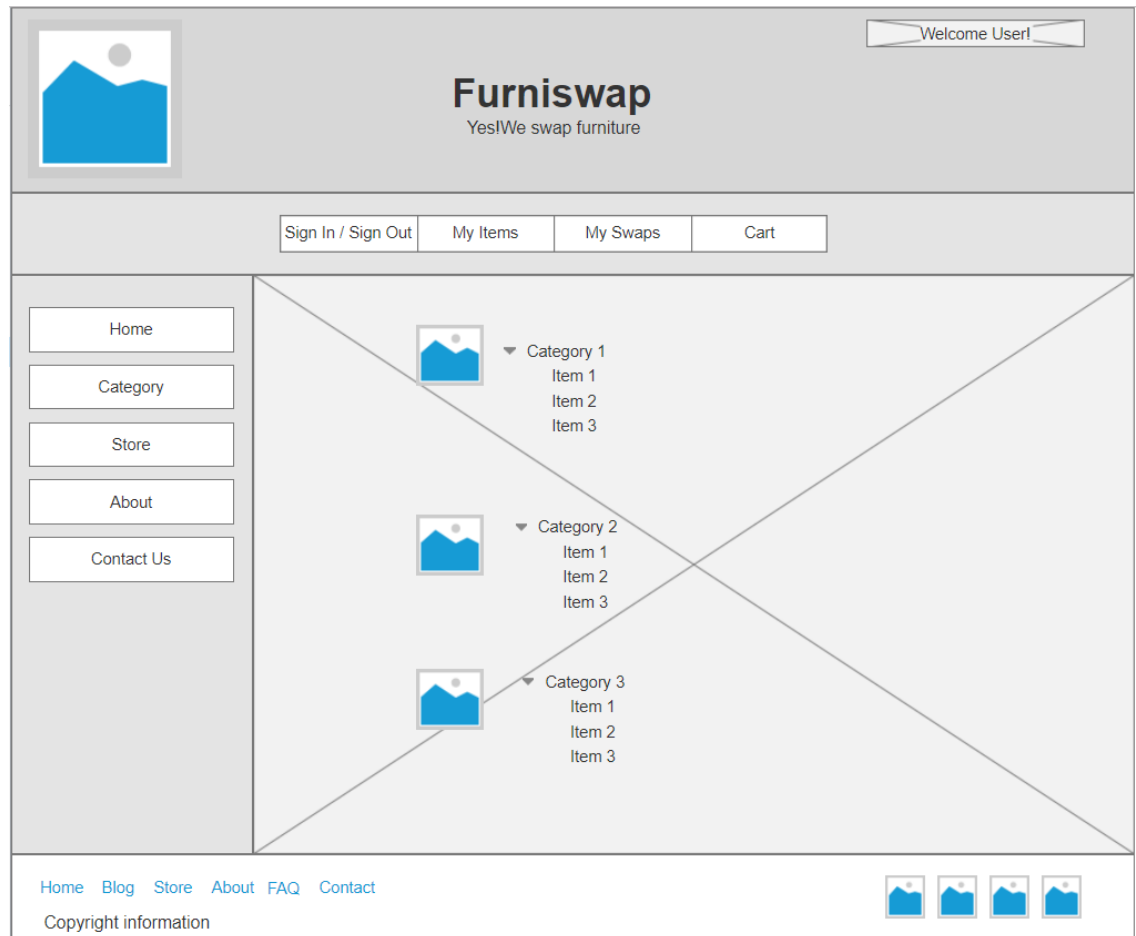
5.5.2. Audience

The intended audience for this page are registered as well as non-registered users. Once user logs in with his credentials only other user's items will be displayed. However, if the user is just browsing the catalog without logging in, all the items are displayed.

5.5.3. Elements on the page
- Image placeholder for category images
- List of items (links)

5.5.4. Prototype

5.6. Item Page (item.ejs)

5.6.1. Purpose
Item page will display details of an individual item for all the items listed in the catalog page. Item page will also provide button to navigate to swap page and rate functionality for the user.

5.6.2. Audience
The intended audience for this page are registered users only. User is required to login with the registered credentials, then only he can use the swap or rate functionality.

5.6.3. Elements on the page
- o Picture of item
- o average rating
- o Item detail description
- o Button to add the item to items for swap list
- o Button to rate the item.
- o Back button to go back to catalog listing

5.6.4. Prototype

5.7. Swap Page (swap.ejs)

5.7.1. Purpose
Swap page allows users to see the item description and swap it with his available list of items.
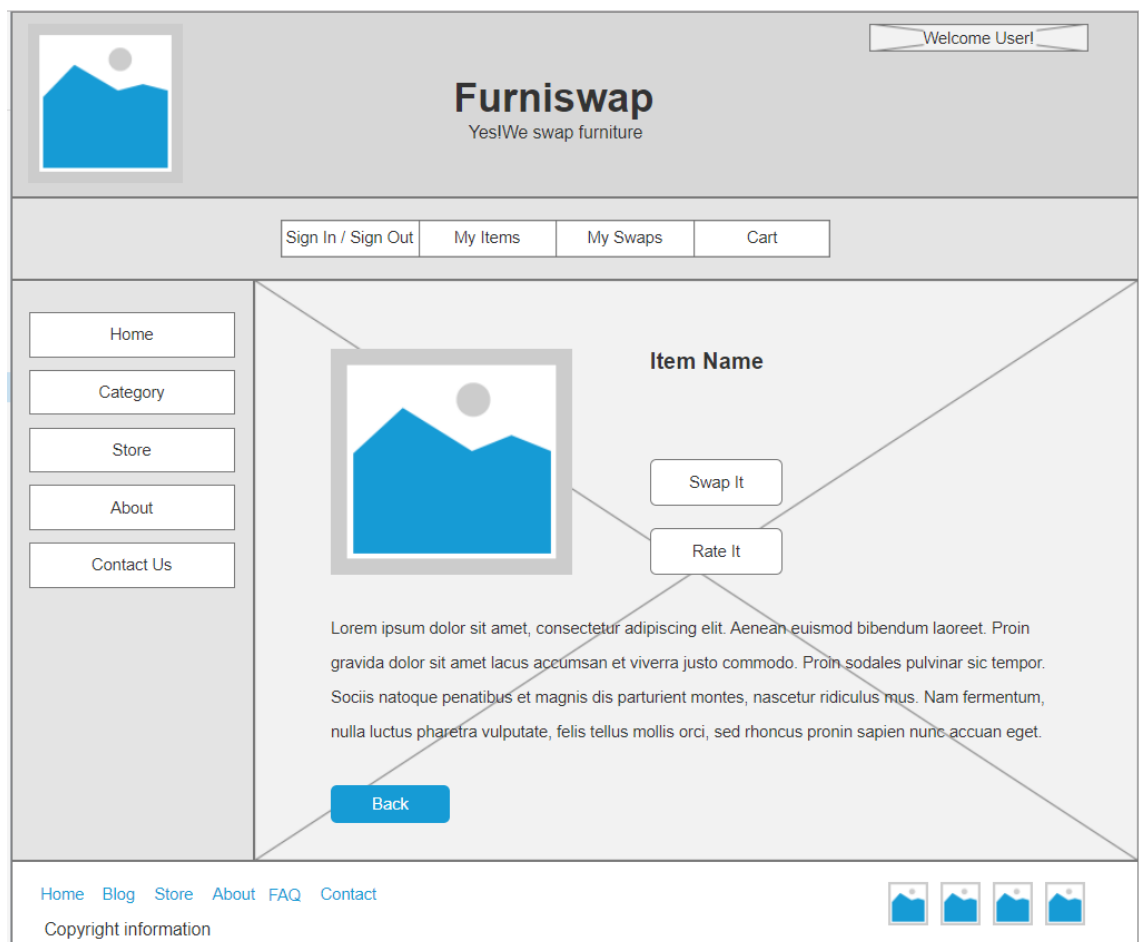
5.7.2. Audience
The intended audience for this page are registered users only. User is required to login with the registered credentials, then only he can use the swap functionality.

5.7.3. Elements on the page
- o   Picture of item
- o   Item detail description
- o   Radio buttons to show his available list of items from which he can swap the item.
- o   Submit button
    - o   If none of the available list item is selected, error message is displayed.
    - o   On success, the user item and the item which is requested to swap are saved in "offers" collection.
    - o   New row is displayed on "mySwaps" page with both the items and a "withdraw swap" button.

5.7.4. Prototype

5.8. My Items Page (myItems.ejs)

5.8.1. Purpose
This page is linked to the application from the My Items tab in the user navigation. My items page allows users to see their uploaded items along with their category and rating. It also allows users to update the offer and delete the item.
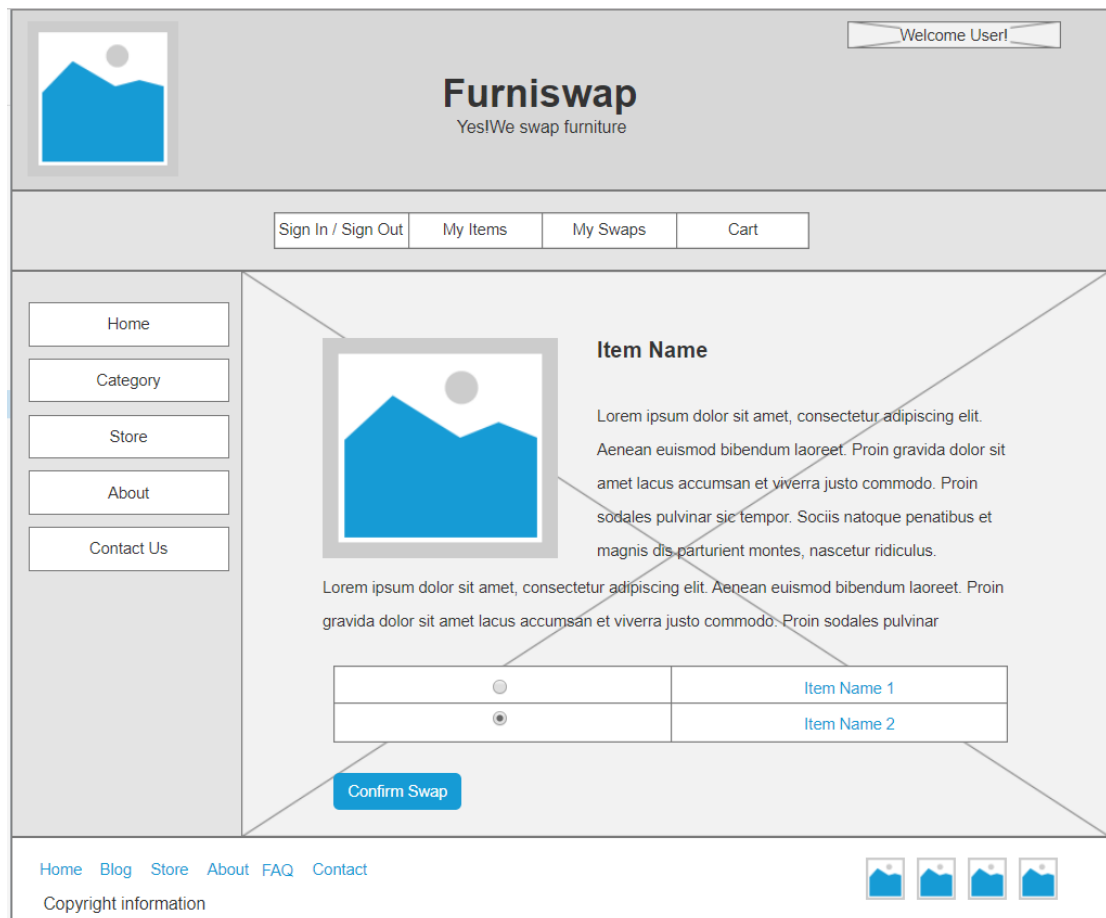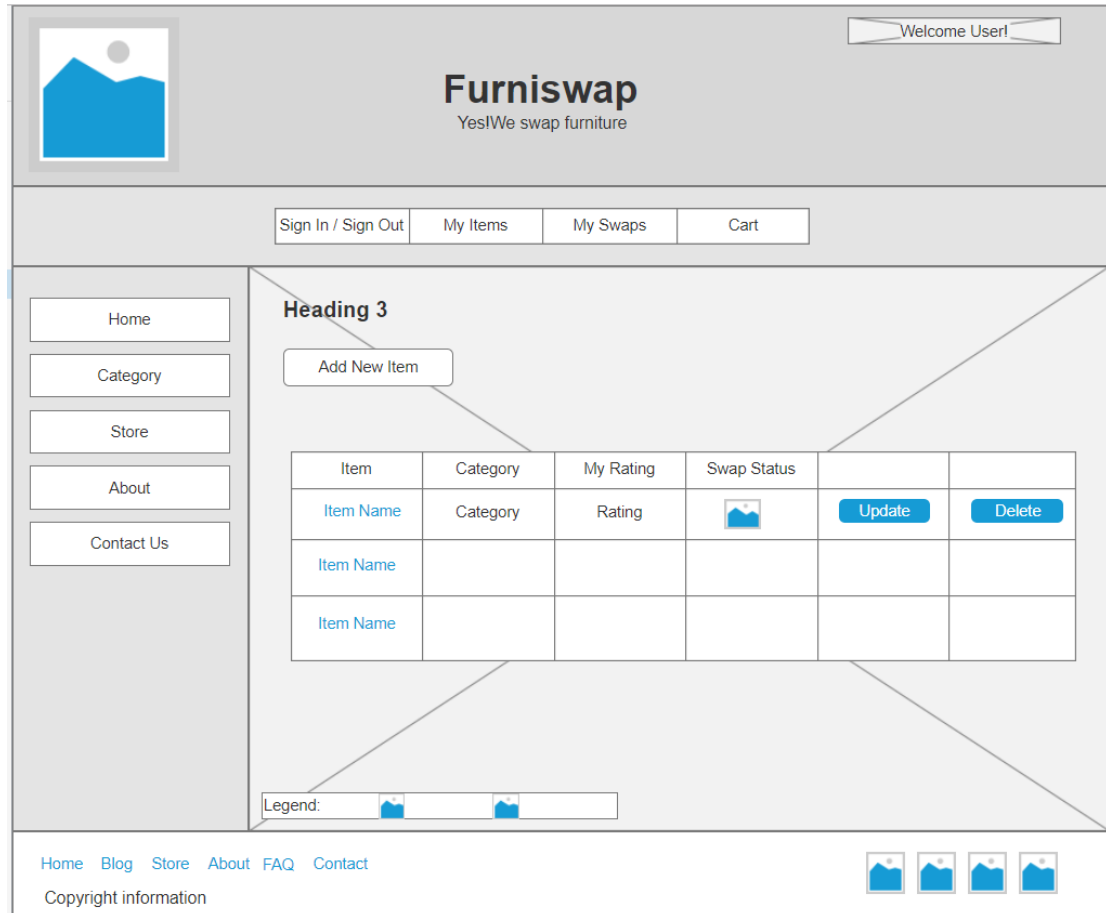
5.8.2. Audience
The intended audience for this page are registered users only. User is required to login with the registered credentials, then only he can view "my items" page. It's required to login to use update and delete functionality.

5.8.3. Elements on the page
- o   Add item button – redirects to upload new item page.
- o   Table displaying all the item's information
    - o   Column1: Item name
    - o   Column2: Category name
    - o   Column3: Rating user gave to his item
    - o   Column4: swap status – swapped icon, pending icon, no status indicates item is available.
    - o   Column5: Update button.
        - ▪   If item is available, redirects to catalog to allow user to swap that item.
        - ▪   If item is swapped, redirects to the item detail page to rate the item and shows a message "item swapped".
        - ▪   If item is in pending state, redirects to my swaps page, which allow user to accept/reject the offer if he has received the offer and withdraw the offer if he made it.
    - o   Column6: Delete button – Deletes the user item.
- o   Legend labels show the meaning of swapped and pending icons.

5.8.4. Prototype

Furniswap
Yes!We swap furniture

Welcome User!

| Sign In / Sign Out | My Items | My Swaps | Cart |

Home
Category
Store
About
Contact Us

Heading 3

Add New Item

Item	Category	My Rating	Swap Status		
Item Name	Category	Rating		Update	Delete
Item Name					
Item Name					

Legend:

Home Blog Store About FAQ Contact
Copyright information

5.8.5. My Swaps Page (mySwaps.ejs)

5.8.6. Purpose

This page is linked to the application from the My Swaps tab in the user navigation. My swaps page displays all the offers of the user. The offers which he received or made to. It also gives option to accept/reject/withdraw the offer.

5.8.7. Audience

The intended audience for this page are registered users only. User is required to login with the registered credentials, then only he can view "my swaps" page. It's required to login to Accept/Reject/Withdraw functionality.

5.8.8. Elements on the page
- o Link of User's item(link redirects to item page).
- o Link of offered item (link redirects to the item page).
- o Accept button – only for the offers which user received.
  - o On click, statuses of items are changed from pending to swapped and row is removed from my swaps.
- o Reject button – only for the offers which user received.
  - o On click, statuses of items are changed from pending to available and row is removed from my swaps.
- o Withdraw swap button - only for the offers which user made.

- On click, statuses of items are changed from pending to available and row is removed from my swaps.

5.8.9. Prototype
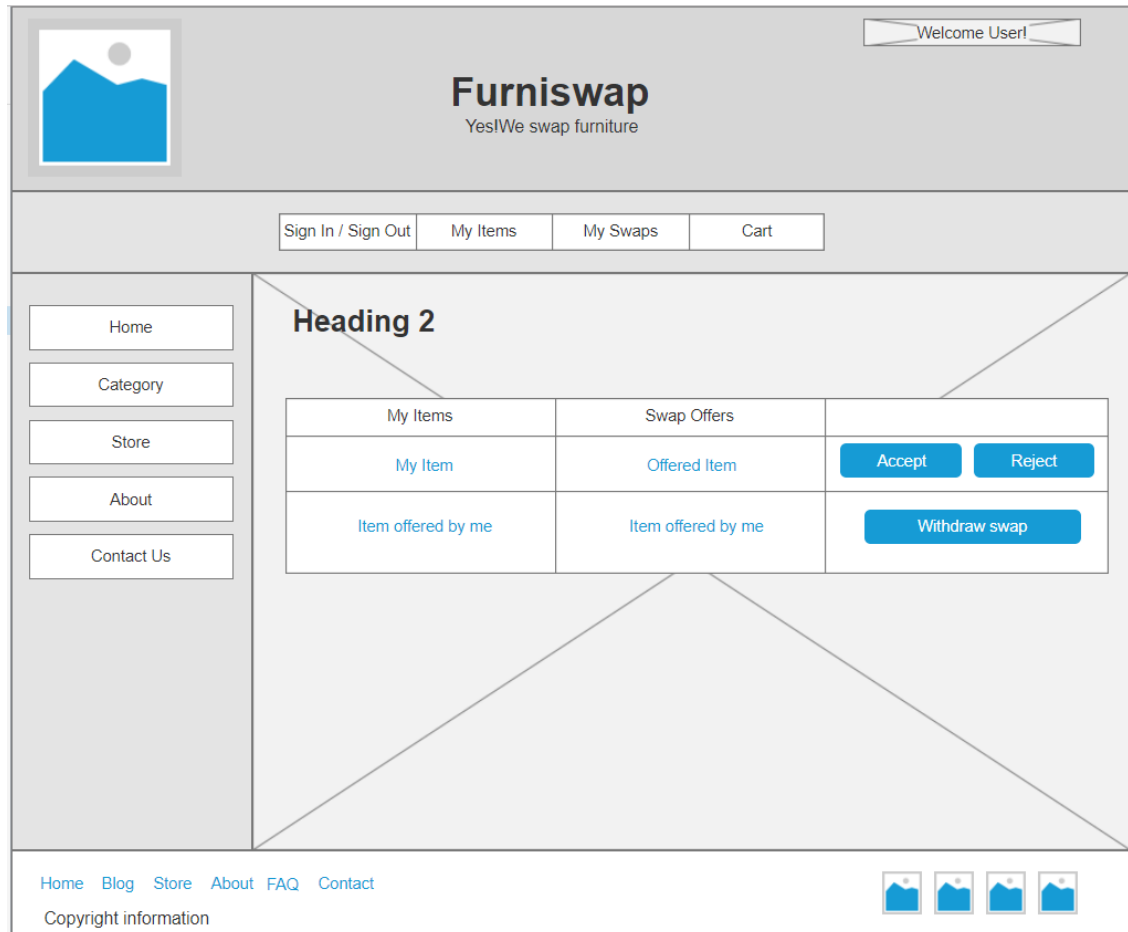
6. ER-Diagram
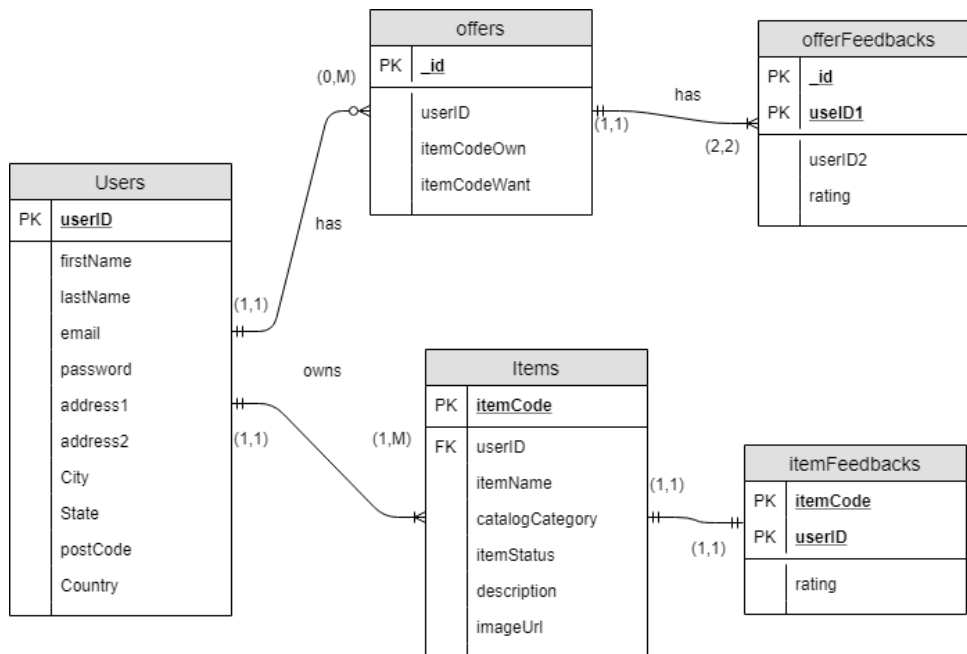
6.1 ERD Explanation

6.1.1 **Items** collection: items collection consists of each item in the catalog. It has <u>itemCode</u>, userID itemName, catalogCategory, itemStatus, description, imageUrl attributes. Each item is saved by its corresponding user. Initially item status is available for all items.

6.1.2 **Users** collection: users collection has all the user data. It stores users first name, last name, email, password, address, city, state, zipcode, country along with the <u>userID</u>, which is the primary key. Each user is related with the item. A user can have more than one items. But item will have only one owner. That explains one-to-many relationship.

6.1.3 **Offers** collection: Offers collection stores offerID, userID, itemCodeOwn(the item code of item which user is offering to swap), itemCodeWant (the item code of item which user wish to swap with). Each offers will be associated with only one user, but users can have many offers.

6.1.4 **ItemFeedbacks** collection: ItemFeedback collection has a feedback that user with userID is giving for item with itemCode. It stores <u>itemCode, userID</u>, rating as attributes. Item and itemfedback collections are related with one-to-one relationship since each item will have one and only one feedback.

6.1.5 **offerFeedbacks** collection: offerFeedbacks collection stores a feedback that user with userID1 is giving for user with userID2. Both users have completed a swap. Using the offerID we can verify and link this to an offer. It stores <u>offerID, userID1</u>, userID2, rating as attributes. Offer and offerfeedback collection is related with one-to-many relationship since one offer can have two feedbacks given by each of the two users.

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