Shopping Recommendation App
Design Manual

By

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10th January 2014

Contents

Revision History

Date	Version	Description	Author
06/01/2014	1.0	Initial Draft	Ayhan Sahin
07/01/2014	1.1	Overview UI Design	Ayhan Sahin
08/01/2014	1.2	Use Cases	Ayhan Sahin
09/01/2014	1.3	Use Cases Further Data Design	Ayhan Sahin
10/01/2014	1.4	Final Document	Ayhan Sahin

1 Introduction

1.1 Purpose

The purpose of this document is to describe the implementation of the Shopping Recommendation Application.

1.2 Scope

This document contains complete description of the design of Shopping Recommendation Application. The document describes each component of the application. This document is intended for the developers of the application. It defines architecture, use cases, data design and user interface design. The application will be developed according to this document; however minor changes may occur during the development process.

1.3 Overview

This project aims to develop a mobile application which will allow users to recommend products to each other. The application will allow users to add products to the system for different categories; the products will be available for all the users for recommendation.

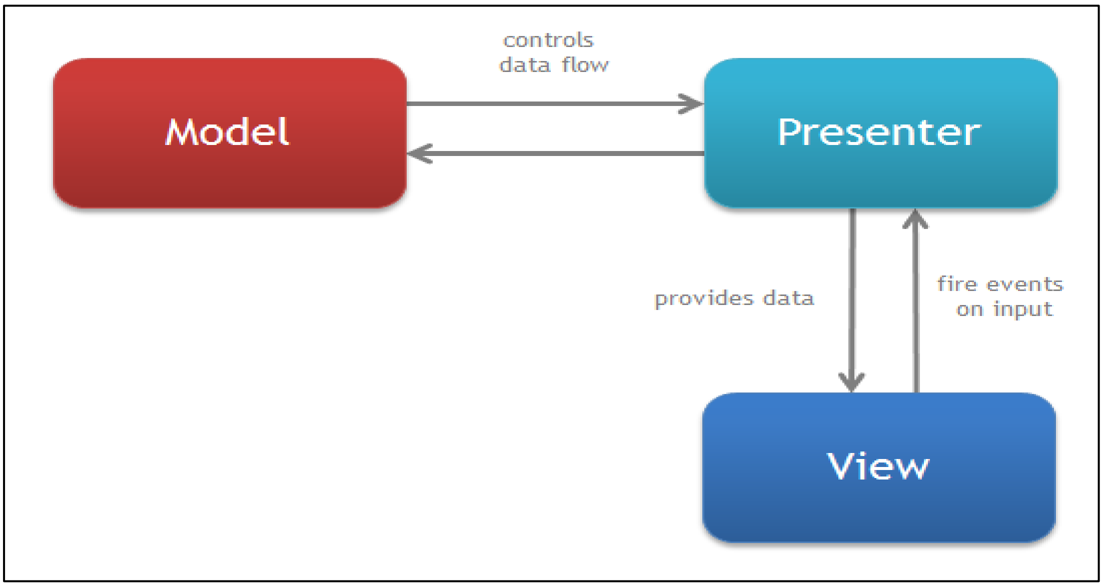
The application will make it easier for people to shop locally. It will allow wide range of products to be added to the system which everyone can have access.

1.4 Definitions and Acronyms

Term	Definition
SRA	Shopping Recommendation Application.
MVC	Model View Controller Pattern

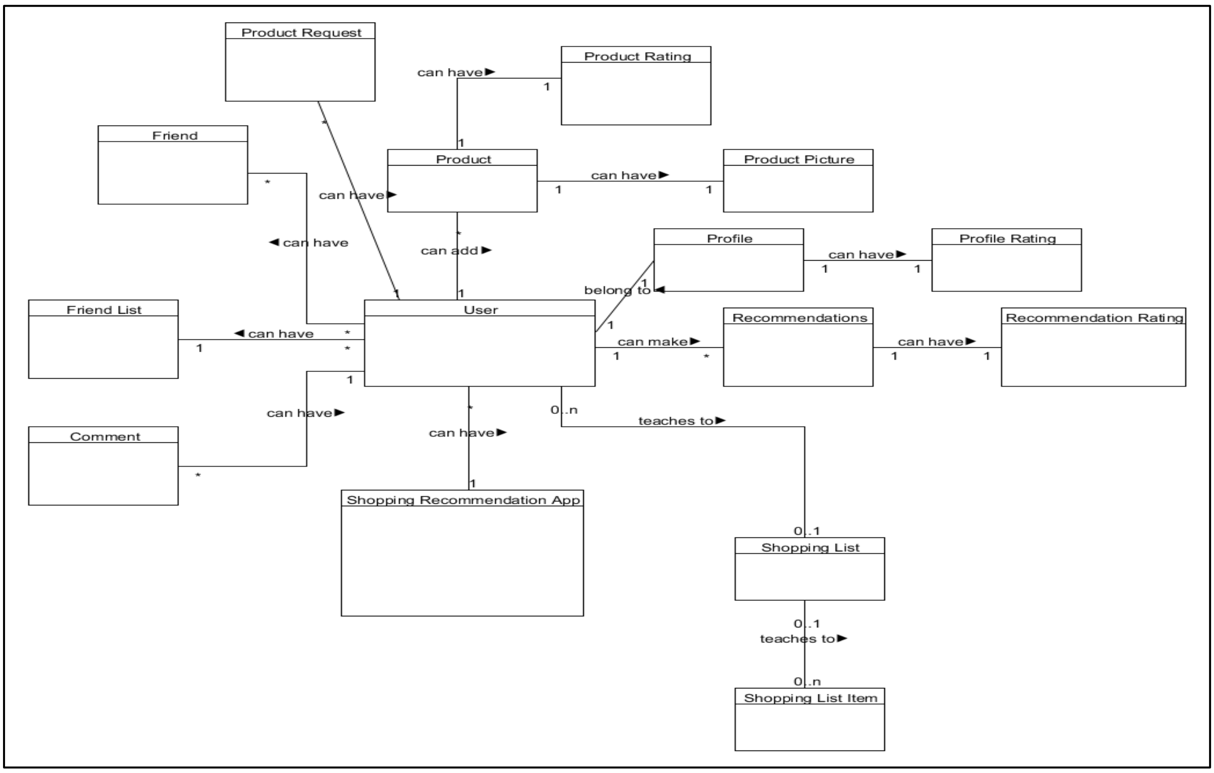
2 System Architecture

The application will be developed using the model-view-controller architectural design pattern which is the pattern used for developing Android. The model-view-controller pattern allows separation of logical operations from the user interface. The following diagram illustrates the MVC pattern.

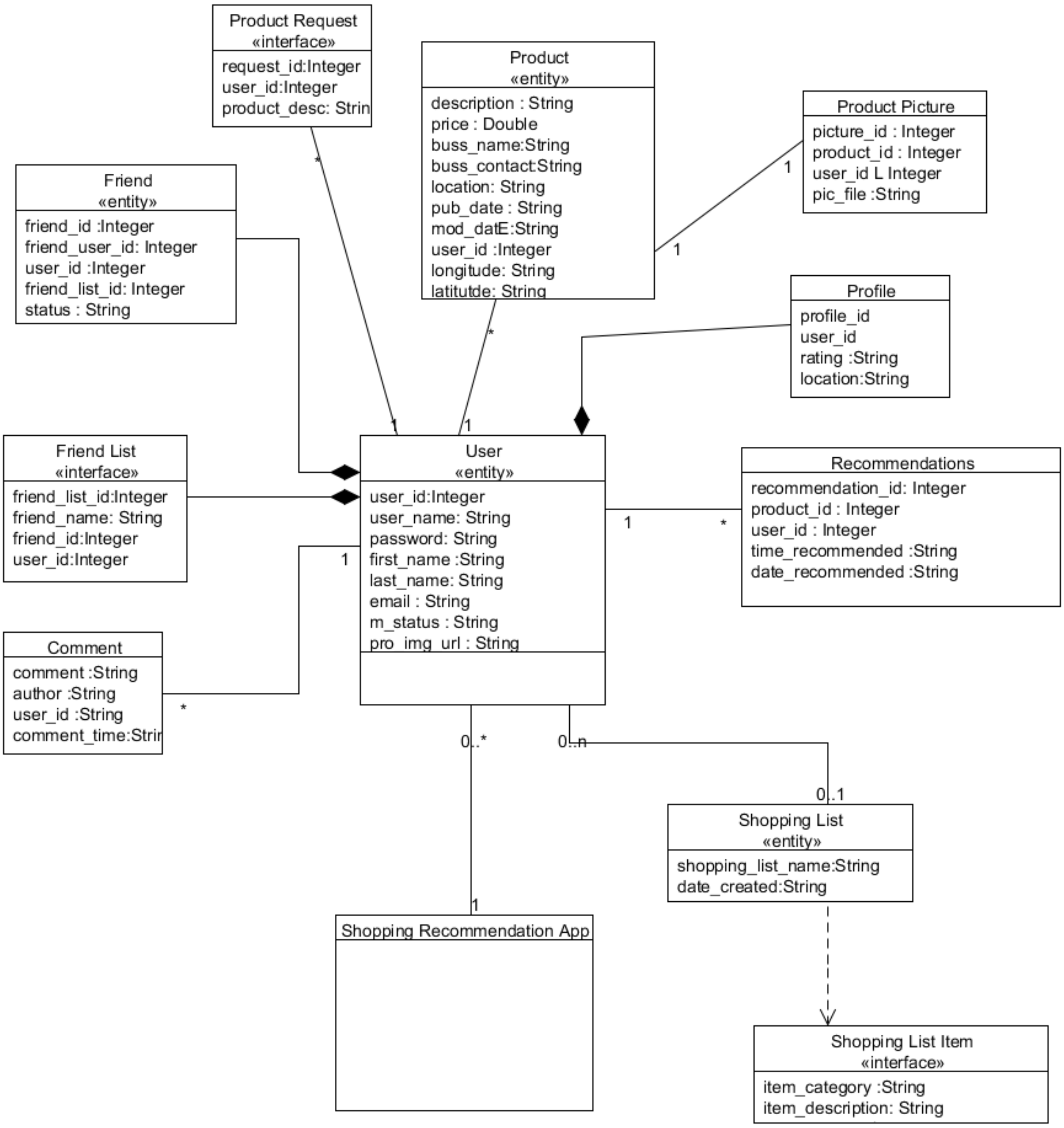


[MVC]

2.1.1 Domain Model

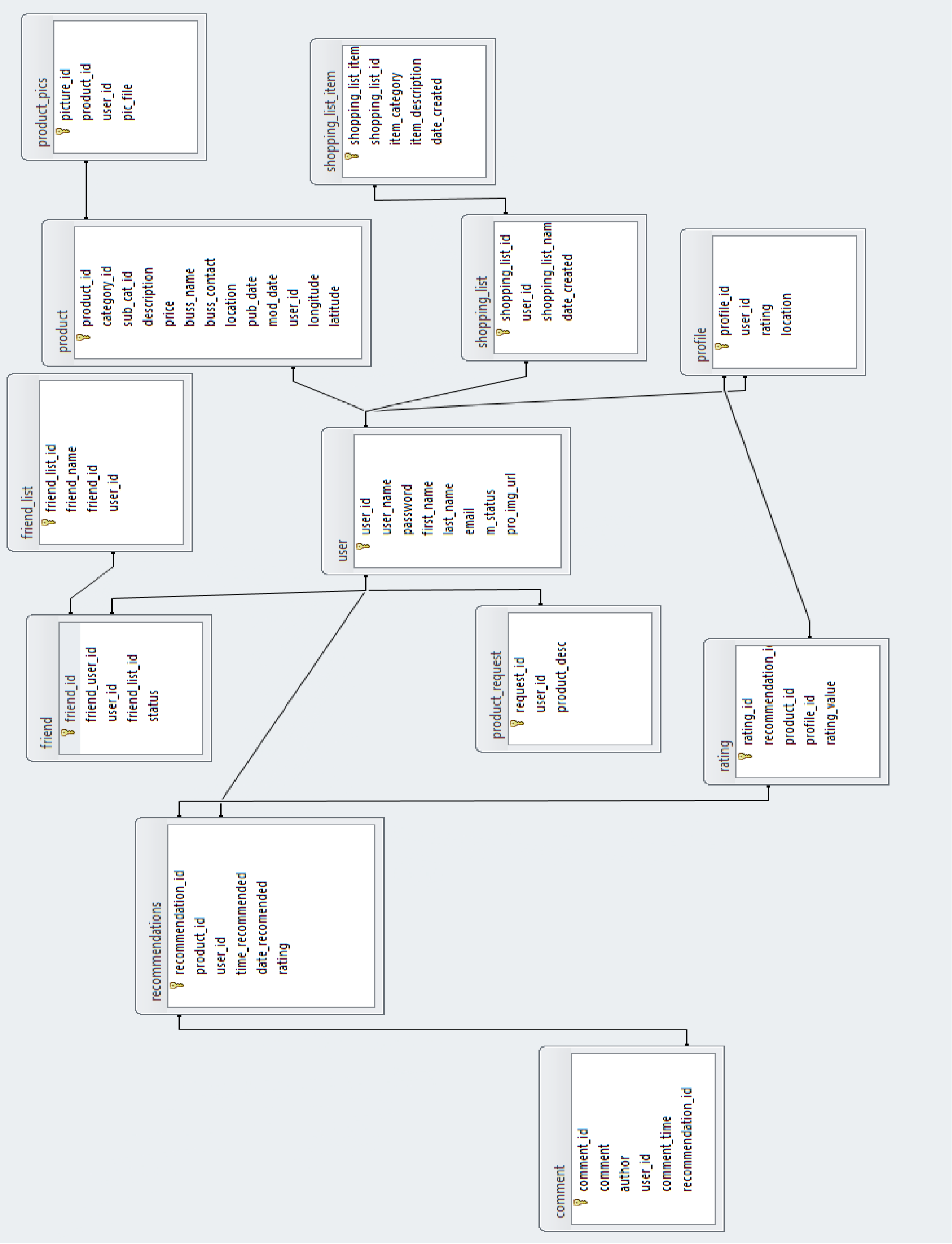


2.1.2 Class Diagram



3 Data Design

The following diagram illustrates the data model of the Shopping Recommendation application.



3.1 Data Description

The application data will consist of user profile data, product data, comments, ratings, product taxonomy and shopping list data.

All the data within the database tables will be related to each other through the use of primary keys and relationships.

3.2 Data Dictionary

The above data design diagram can be clarified as follows;

3.2.1 User Table

Column Name	Data Type	Description
user_id	Integer	- Auto generated integer value to hold user id.
user_name	String	- Up to 10 alphanumeric characters for username
password	String	- Up to 8 alphanumeric characters for password
first_name	String	Up to 10 alphabetic characters
last_name	String	Up to 10 alphabetic characters
email	String	Valid email address structure to be validated
m_status	Boolean	Boolean to specify membership status – Active or Banned
pro_img_url	String	URL for the profile image

3.2.2 Profile Table

Column Name	Data Type	Description
profile_id	Integer	Auto generated integer value to hold profile id.
user_id	Integer	UserID for the profile
rating	Integer	Number of counts for the profile rating
location	String	Alphabetic characters to store user’s location data.

3.2.3 Shopping_list Table

Column Name	Data Type	Description
shopping_list_id	Integer	Auto generated integer value to hold shopping list id.
user_id	Integer	User Id which the shopping list belongs to.
shopping_list_name	String	Up to 8 alphabetic characters to hold shopping list name.
date_created	String	Alphanumberic characters to hold creation time of the list.

3.2.4 Shopping_list_item

Column Name	Data Type	Description
shopping_list_item_id	Integer	Auto generated integer value to hold the item id.
shopping_list_id	Integer	Shopping list id for the Item.
Item_category_id	Integer	Category ID of the Item.
item_description	String	Up to 15 alphanumeric characters to store description
date_created	String	Alphanumeric characters to hold creation time of the item.

3.2.5 Recommendations Table

Column Name	Data Type	Description
recommendation_id	Integer	Auto generated integer value to hold the recommendation id.
product_id	Integer	Product ID for the recommendation.
user_id	Integer	User for the recommendation
time_recommended	String	Alphanumeric characters to hold creation time of the recommendation.
date_recommended	String	Alphanumeric characters to hold creation time of the recommendation.

3.2.6 Product_request Table

Column Name	Data Type	Description
request_id	Integer	Auto generated integer value to hold the request id.
user_id	Integer	User which requested the product.
product_desc	String	Up to 20 alphanumeric characters to store product description.

3.2.7 Product_pics

Column Name	Data Type	Description
picture_id	Integer	Auto generated integer value for each picture
product_id	Integer	Id of the product which the picture relates to.
user_id	Integer	ID of the user which uploaded the picture.
pic_file	String	URL path for the picture.

3.2.8 Product TABLE

Column Name	Data Type	Description
product_id	Integer	Auto generated value to hold product id
category_id	Integer	ID of the Main category of the product.
sub_cat_id	Integer	ID of the Sub Category of the product.
description	String	Up to 20 alphanumeric characters to store description
price	Double	Double value to store the price data
buss_name	String	Up to 20 alphanumeric characters to store business name
buss_contact	Long Integer	Numeric value to store the telephone number of the business
location	String	Alphanumeric characters to store the location description.
pub_date	String	Alphanumeric characters to store the posting date and time of the product.
mod_date	String	Alphanumeric characters to store the update date and time of the product.
user_id	Integer	Auto generated integer value to store user who posted the product.
longitude	String	Set of characters to store the longitude coordinate.
latitude	String	Set of characters to store the latitude coordinate.

3.2.9 friend_list TABLE

Column Name	Data Type	Description
friend_list_id	Integer	Auto generated integer value for each friend list
friend_name	String	Up to 40 characters to store the friends name
friend_id	Integer	ID of the friend.
user_id	Integer	User Id of the user.

3.2.10 friend TABLE

Column Name	Data Type	Description
friend_id	Integer	Auto generated integer value for each friend
friend_user_id	Integer	User ID of the Friend
user_id	Integer	User ID of the user.
friend_list_id	Integer	ID of the friendship which relates to list.
status	String	Will state the status of friend request either pending or accepted.

3.2.11 comment TABLE

Column Name	Data Type	Description
comment_id	Integer	Auto generated integer value for each comment
comment	String	Up to 140 characters for storing the comment.
user_id	Integer	ID of the user which uploaded the picture.

pic_file	String	URL path for the picture.

3.2.12 rating TABLE

Column Name	Data Type	Description
rating_id	Integer	Auto generated integer value for each comment
recommendation_id	Integer	ID of an individual recommendation
product_id	Integer	ID of an individual product listing.
profile_id	Integer	ID of an individual user profile
rating_value	Integer	An integer rating value from -5 to 5.

4 User Interface Design

4.1 Overview of User Interface

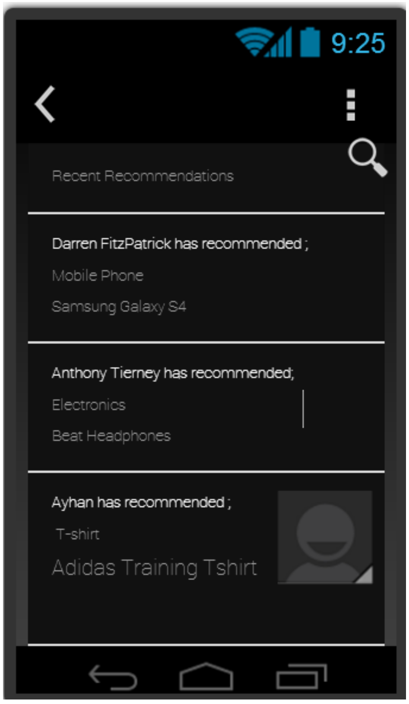
The application will use the Holo theme for the user interface design. Holo theme is found on all devices running Android Ice Cream Sandwich 4.0 or later. [H14]

The Holo theme and its user interface objects, colour options etc. will create a unique and consistent look and feel throughout the application. Shopping Recommendation application will maintain a simplistic and user friendly UI.

4.2 Screen Images

Some of the screen images are as follows;

Main Screen

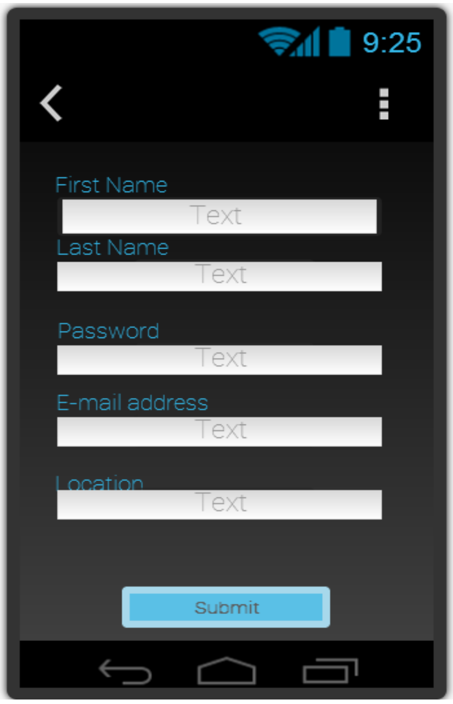


Darren FitzPatrick has recommended ;
Mobile Phone
Samsung Galaxy S4

Anthony Tierney has recommended;
Electronics
Beat Headphones

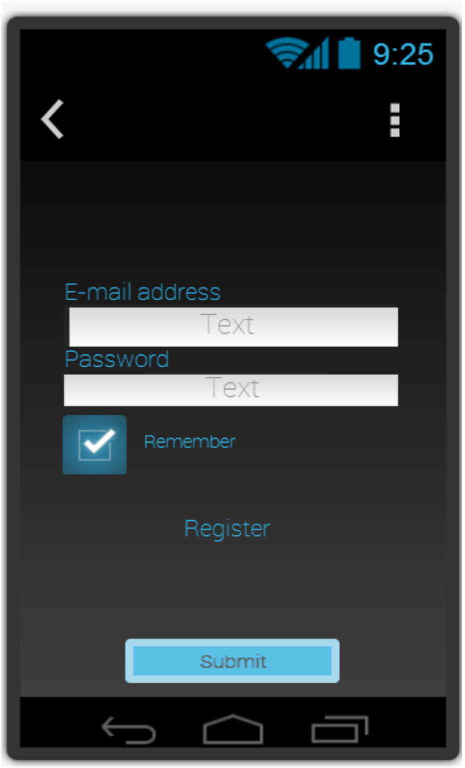
Ayhan has recommended ;
T-shirt
Adidas Training Tshirt

Registration Screen



First Name: Text
Last Name: Text
Password: Text
E-mail address: Text
Location: Text

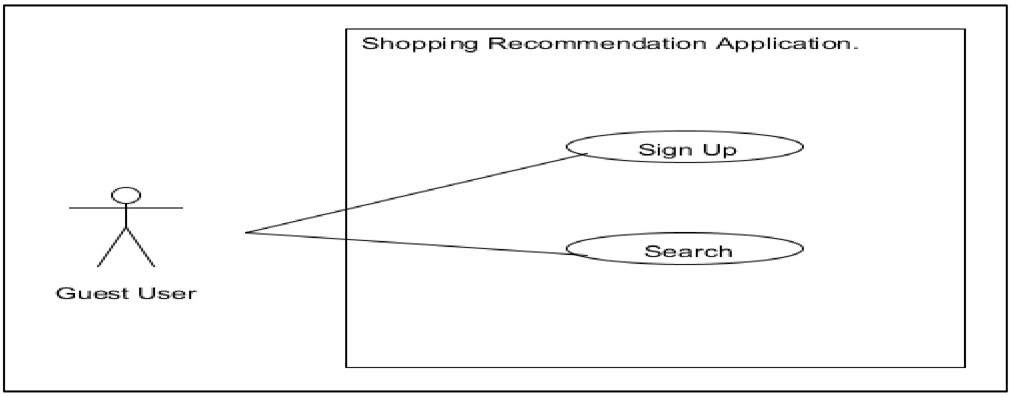
Login Screen



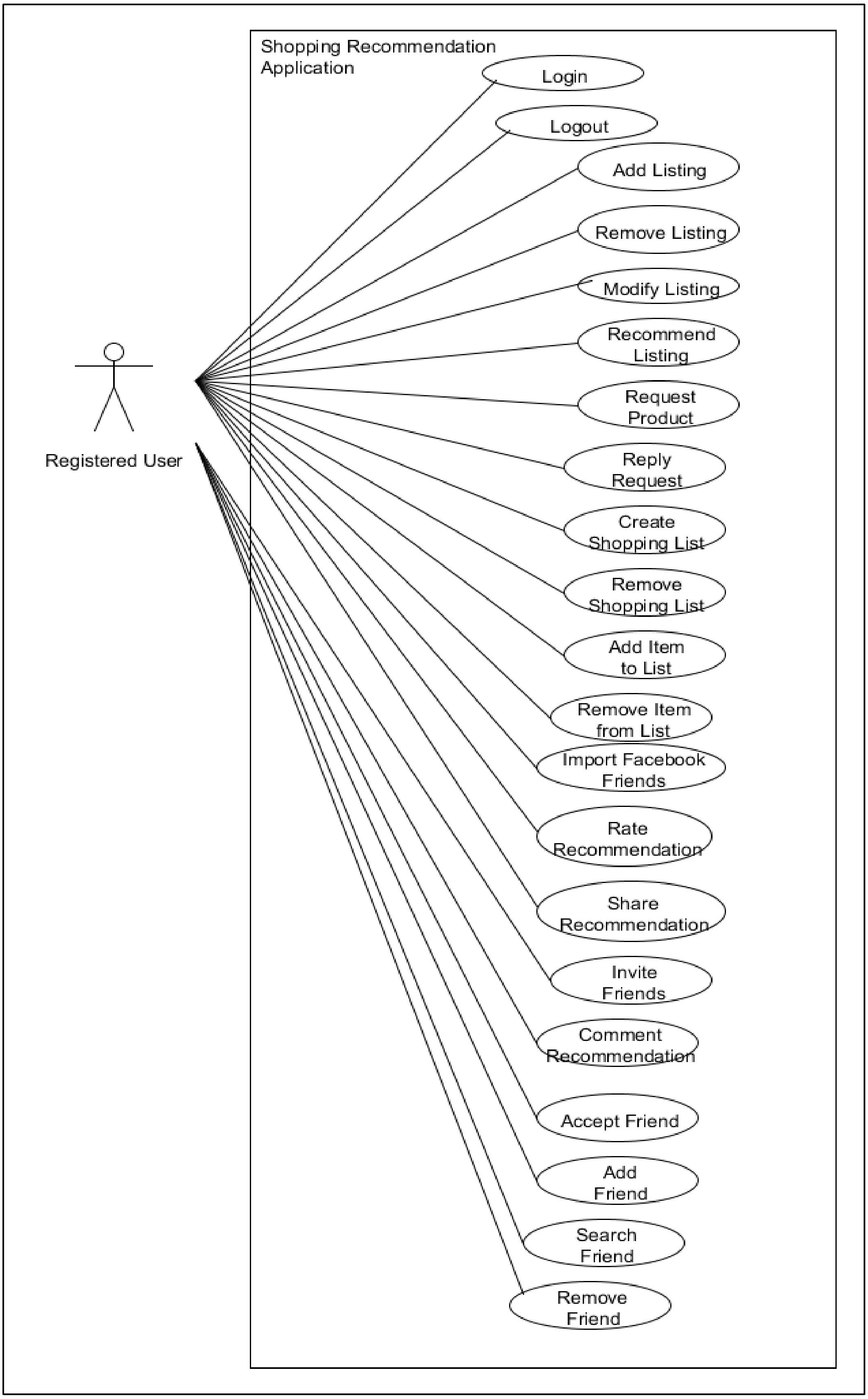
5 Use Cases

The following Use Case diagrams displays the all possible use cases to occur in the application.

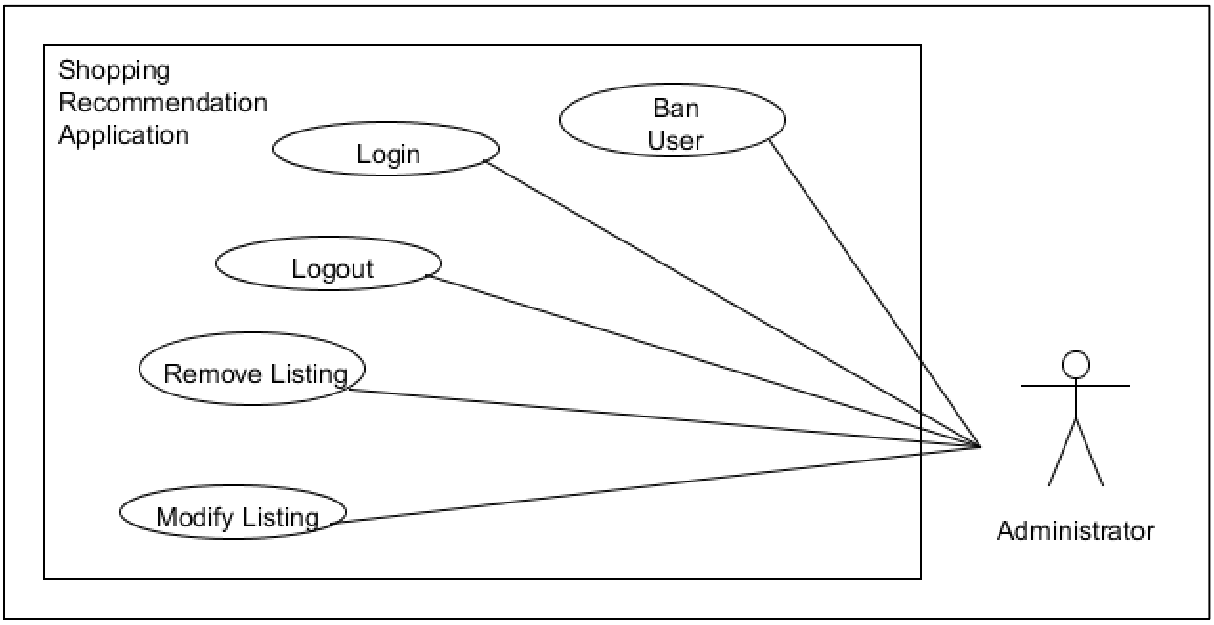
Guest User Use Cases



Registered User Use Cases



Administrator Use Cases



This section also provides information for use cases in written format as below;

5.1 Sign up

Actors: Guest User

Main Scenario:

1. The user arrives at the application main screen and selects the link to sign up.
2. Application brings user to registration screen.
3. User fills all the required fields for registration.
4. User taps the submit button to complete the process.

Preconditions:

- The user is not registered to the system.

Postconditions:

- The guest user is registered to the system.

5.2 Search

Actors: Guest User, Registered User

Main Scenario:

1. The user selects the “Search” option in the application menu.
2. The application switches to the Search screen.
3. Firstly, user inputs the search keyword.
4. User is required to specify the search criteria such as distance range, price range, and search category.
5. User taps the “Search” button to start the search process.

Preconditions:

- None

Postconditions: User is provided with a search result.

5.3 Login

Actors: Registered User

Main Scenario:

1. The user arrives at the application main screen.
2. The application requires for username and password.
3. The user fills the required fields.
4. Once the fields are filled, user presses the “login” button.
5. The use case ends when the application confirms the provided data.

Preconditions:

- The user has not logged in yet.

Postconditions:

- The user is logged in to system.

5.4 Logout

Actors: Registered User

Main Scenario:

1. The user selects the “logout” option from the navigation panel.
2. The user session is removed from the system and user is logged out.

Preconditions:

- The user must be already logged in.

Postconditions:

- The user is logged out successfully.

5.5 Add Product

Actors: Registered User

Main Scenario:

1. The use case begins when the user has taken a picture.
2. The user selects the category and product type.
3. The application updates the screen for further product details.
4. The user fills all the required fields.
5. The user selects the “add” option to complete the process.
6. The application uploads the images to server and adds the product to the system.

Preconditions:

- The user has taken a picture for the product.

Postconditions:

- The product is added to the system.

5.6 Remove Product

Actors: Registered User, Administrator

Main Scenario:

1. The application displays "Remove" option while the user is browsing the product.
2. The user selects the "Remove" option.
3. The application pops up a message to confirm the removal.
4. The user confirms to remove the product.
5. The product is removed from the system.

Preconditions:

- The user must have an existing product on the system.

Postconditions:

- The product is removed from the system.

5.7 Modify Product

Actors: Registered User, Administrator

Main Scenario:

1. The application displays the "Modify" option while the user is browsing the product.
2. The user selects the "Modify" option.
3. The application switches to a new screen for editing the product details.
4. The user updates the product information by refilling the fields.
5. The user taps "Save" button.
6. Application pops up a message to confirm saving the changes.
7. User confirms to save the changes.
8. Product details are modified.

Preconditions:

- The user must have an existing product on the system.

Postconditions:

- The product information is updated/modified.

5.8 Recommend Product

Actors: Registered User

Main Scenario:

1. User taps the "Recommend" option while browsing a product.
2. Application populates a pop-up to confirm type of recommendation.
3. User selects the recommendation type from the options 1.Public 2. Friend
4. If user has chosen "Friend", application allows user to select the friend from the list.
5. The product is recommended to public or to a friend.

Preconditions:

- None.

Postconditions:

- The selected product is recommended to friend/public.

5.9 Request Product

Actors: Registered User

Main Scenario:

1. The user selects the “Request Product” option in the application menu.
2. Application populates a pop up screen to user for selecting the friend for request.
3. User selects the friend for the product request.
4. Application populates the next pop up screen for product details.
5. User selects the product category, provides product details for the request.
6. User taps the “Submit” button to complete the process.

Preconditions:

- None.

Postconditions:

- A product is requested from a friend.

5.10 Reply Request

Actors: Registered User

Main Scenario:

1. The user selects the “Product Requests” option in the application menu.
2. User selects to browse a request from the list of requests.
3. User either adds a new product to reply or chooses an existing product on the system.
4. The user taps the “Submit” button to reply to request

Preconditions:

- There must be an existing request from a friend.

Postconditions:

- Friend’s request is confirmed.

5.11 Create Shopping List

Actors: Registered User

Main Scenario:

1. The user taps the “New Shopping List” option in the Shopping Lists section.
2. The application populates a pop up screen for user to enter the name of shopping list.
3. User inputs an appropriate name for the shopping list.
4. User taps the “OK” button to confirm.
5. Application creates a new shopping list in the system.

Preconditions:

- None.

Postconditions:

- The shopping list is created.

5.12 Remove Shopping List

Actors: Registered User

Main Scenario:

1. The user selects the "Remove" option in the Shopping Lists Section.
2. The application populates a pop up message for user to confirm the removal.
3. User confirms to remove the shopping list.
4. Application removes the shopping list and all its items from the system.

Preconditions:

- The user must have an existing shopping list.

Postconditions:

- Selected shopping list is removed.

5.13 Add Shopping List Item

Actors: Registered User

Main Scenario:

1. The user selects the "New Item" option while navigating a shopping list.
2. The application populates a screen for user to input the item name.
3. User inputs an appropriate name for the item.
4. User taps the "OK" button to confirm.
5. Application adds a new item to the shopping list.

Preconditions:

- The user must have an existing shopping list.

Postconditions:

- The shopping list is removed.

5.14 Remove Shopping List Item

Actors: Registered User

Main Scenario:

The user selects the "Remove Item" option while navigating a shopping list.

The application populates a pop up message for user to confirm this action.

User taps the "OK" button to confirm.

Application removes the selected item from the shopping list.

Preconditions:

- There must be at least one item in the shopping list.

Postconditions:

- The selected item is removed from the shopping list.

5.15 Import Facebook Friends

Actors: Registered User

Main Scenario:

1. The user selects the "Import Friends" option in the application menu.
2. Application populates a pop up screen for Facebook authorization.

3. User authorizes the application for accessing Facebook profile details.
4. Application connects to Facebook servers through an API.
5. Application identifies the friends who are also registered to SRA.
6. User selects the friends to import and taps the "OK" button.
7. Application adds the selected profiles to user's friend list.

Preconditions:

- The user must authorize the application to access own Facebook profile information.

Postconditions:

- The selected Facebook friend which uses the SRA is added as friend on SRA system.

5.16 Rate Recommendation

Actors: Registered User

Main Scenario:

1. The user browses a recommendation for rating.
2. User taps the "Rate" option in the recommendation.
3. Application populates a pop up screen to allow user to choose rating value.
4. User selects the rating value from the range of rates.

Preconditions:

- The user must have experienced this recommendation.

Postconditions:

- The user rating is added to the overall recommendation rating.

5.17 Share Recommendation

Actors: Registered User

1. Main Scenario:
2. The user taps the "Share" option while browsing a recommendation.
3. The application populates a pop up switches to Facebook app screen for user authorization.
4. User authorizes the application for sharing.
5. User taps the "OK" button to confirm the process.
6. Application posts the recommendation on user's Facebook profile.

Preconditions:

- The user must authorize the application to access their social media platform profile.

Postconditions:

- The selected recommendation details are shared on the preferred social media platform.

5.18 Comment on Recommendation

Actors: Registered User

Main Scenario:

1. The user taps the “Comment” button while browsing a recommendation.
2. The application refreshes the screen to display the input area for the comment.
3. User inputs a brief comment for the recommendation.
4. User taps the “Submit” button to post the comment.
5. Application publishes the comment on the system.

Preconditions:

- The user must be logged in.

Postconditions:

- The user comment is added to the comments of the selected recommendation.

5.19 Add Friend

Actors: Registered User

Main Scenario:

1. The user selects the “Add” option in the friend search results or friend profile.
2. The application sends a friendship request to the other user.

Preconditions:

- Friend search is performed and friend has an SRA profile.

Postconditions:

- The friend is added and waiting for other user’s confirmation.

5.20 Remove Friend

Actors: Registered User

Main Scenario:

- The user selects the “Friend List” option in the application menu.
- Application switches to “Friend List” screen.
- User selects the “Remove Friend” option.
- Application populates a pop up screen for confirmation.
- User taps the “OK” button to confirm.
- Selected user is removed from the friend list.

Preconditions:

- User must have at least one friend.

Postconditions:

- Selected friend is removed from the friend list.

5.21 Search Friend

Actors: Registered User

Main Scenario:

1. The user selects the "Search Friend" option in the user profile menu.
2. The application populates a pop up screen for user to input an email address.
3. User inputs an email address and taps the "OK" button.
4. Application retrieves the server and checks if the provided email address is registered.
5. Application displays the result of the search to the screen.

Preconditions:

- None.

Postconditions:

- Search is performed.

5.22 Invite Friend

Actors: Registered User

Main Scenario:

1. The user selects the "Invite Friend" option in the user profile menu.
2. The application populates a pop up screen for user to input an email address.
3. User inputs an email address and taps the "OK" button.
4. Application validates the email address and sends an automated email to the address.

Preconditions:

- None.

Postconditions:

- An invitation email is sent to the specified email address.

5.23 Accept Friend

Actors: Registered User

Main Scenario:

1. The user selects the "Friendship Requests" option in the application menu.
2. Application switches to "Friendship Requests" screen.
3. User selects a friendship request and taps the "Accept" button.
4. Friendship request is accepted.

Preconditions:

- There is a pending friendship request.

Postconditions:

- The user has accepted a friendship request.

5.24 Reject Friend

Actors: Registered User

Main Scenario:

1. The user selects the “Friendship Requests” option in the application menu.
2. Application switches to “Friendship Requests” screen.
3. User selects a friendship request and taps the “Reject” button.
4. Friendship request is rejected.

Preconditions:

- There is a pending friendship request.

Postconditions:

- The user has rejected a friendship request.

5.25 Ban User

Actors: Administrator

Main Scenario:

1. The administrator chooses the “Ban User” option from administrator panel.
2. Administrator chooses a username to ban and taps the “Ban” button.
3. Administrator selects the time range for the ban.
4. Application populates a pop up message for admin to confirm.
5. Administrator taps the “OK” button to confirm.
6. User is banned for the specified length of time.

Preconditions:

- None.

Postconditions:

- The selected user is banned from the system.

5.26 Remove Comment

Actors: Administrator

Main Scenario:

7. The administrator chooses the “Remove Comment” option from administrator panel.
8. Application lists the all the comments available on the system.
9. Administrator selects the inappropriate comment to remove.
10. Then selects the “Remove Option”.
11. Application populates a pop up message for admin to confirm.
12. Administrator taps the “OK” button to confirm.
13. Selected comment is removed from the system.

Preconditions:

- There must be at least one comment in the system.

Postconditions:

- Selected comment is removed from the system.

6 Design Overview

Tools used for Design

There were a few different types of tools used for preparing the design document diagrams.

The user interface prototyping was designed using a free online tool called Fluid UI.

Domain Model, Class Diagram, Use Cases diagrams were designed with the aid of free UML tool called UMLet.

Microsoft Access 2010 database manager application was used for developing the data design of the application.

7 References

[H14] Google: Android 4.0 'Holo' theme to be mandatory on all devices with Android Market. 2014. Google: Android 4.0 'Holo' theme to be mandatory on all devices with Android Market. [ONLINE] Available at:http://www.engadget.com/2012/01/03/google-makes-holo-theme-mandatory/. [Accessed 10 January 2014].

[MVC]UI Design Using Model-View-Presenter (Part 2) | Informatech CR Blog. 2014.UI Design Using Model-View-Presenter (Part 2) | Informatech CR Blog. [ONLINE] Available at: http://blog.informatech.cr/2013/03/20/ui-design-using-model-view-presenter-part-2/. [Accessed 10 January 2014].