1. **Overview**

This document will serve as a summary of Lab 1. The summary includes the expected deliverables of the lab, as well as the detailed write-up of the respective deliverables.

1. **Deliverables**

The following defines the deliverables to be submitted to the Lab TA prior to Lab 2:

**2.1 Team formation and team leader assignment**

The team will choose an appropriate team name. The team will also appoint a member of the team as the team leader. The team must fill in the Team Registration Form as instructed by Lab TA.

**2.2** **Documentation of Functional Requirements (FR) and Non-Functional Requirements (NFR)**

The team will proceed to brainstorm a project idea which will serve as guidance for the team project. The team will also formulate the target audience of the project. The team will proceed to liaise with the stakeholdersto elicit FR and NFR. The team will then formulate a documentation which contains the FR and NFR.

The team will use [SRS\_Template.doc](https://ntulearn.ntu.edu.sg/bbcswebdav/pid-3068116-dt-content-rid-27044536_1/xid-27044536_1), under sections *4. System Features* and *5. Other Nonfunctional Requirements* as references for the template.

**2.3 Data Dictionary**

The team will create a data dictionary which includes important terms used throughout the project. The team will ensure that the data dictionary contains attributes of, and the relationship between each term.

**2.4 Use Case Models**

The team will identify certain use cases based off the FR. The team will proceed to depict the use cases using a Use Case Diagram.

The team shall make sure that each use case is accompanied by a use case description. The description will explain the interaction between an end-user and the system to carry out a functionality.

**2.5 User Interface (UI) Mock-ups**

The team will use relevant software tools, or hand-drawn methods (if applicable) produce a mock-up of the project’s preliminary user interface.

1. **Project Ideas**

The following are the proposed project ideas:

* 1. **Carpark availability application**

The web application will provide a heatmap of the carparks around Singapore. The heatmap will depict the number of available parking spots in each carpark.

**3.1.1 Feedbacks**

The complexity of the initial project idea is not sufficient to demonstrate the work of a 5-man project.

* 1. **Taxi availability application**

The web application will provide a heatmap of the live location of all taxi around Singapore.

**3.2.1 Feedbacks**

A web application for taxi hailing may not be appropriate. The team considered that a taxi hailing application should be a mobile application instead

* 1. **COVID-19 cases heatmap**

The web application will provide a heatmap of the live COVID-19 cases within Singapore.

* + 1. **Feedbacks**

The team agrees that the project idea is overused and lacks innovation.

* 1. **Dengue fever heatmap**

The web application will provide a heatmap of the live Dengue fever cases within Singapore.

* + 1. **Feedbacks**

The team agrees that the project idea is overused and lacks innovation.

* 1. **Music recommendation web application**

The web application will allow the user to compile a list of favourite music. The list shall then be used to recommend the user other music of which the system deem the user may be interested in.

* + 1. **Feedbacks**

A web application that allows a user to compile a list of music is redundant, as ordinary music players such as Spotify contains said features. The project idea can retain as a supplementary feature and should be built on top of an alternate project idea.

* 1. **AI Shopping Tracking System**

The web application will track the user’s search pattern. Based on the search pattern, the system will recommend the user a list of items that the system predicts the user may be interested in. The web application will also perform a cross-platform check to find the best deals of the items. The best deal includes the cheapest price and rebates, whichever is applicable.

The team has decided to select *3.6 AI Shopping Tracking System* as the project idea.

1. **Team Name**

The following are the proposed team names:

* 1. **FindR**

The name *FindR* mimics the pronunciation of *Finder* and provides a catchy feeling to the customers.

Since there are no alternate suggestions or proposals, the team has unanimously decided to select *4.1 FindR* as the team’s name.

1. **Target Audience**

Based on the selected project idea, the following characteristics shall define the target audience:

* 1. **Users who lack time to perform shopping physically.**

We are targeting workers who have packed schedules. We strongly believe the AI shopping recommendation system will help reduce time taken to shop for goods. The cross-platform comparison feature will also help to save the time needed to navigate through multiple stores or platforms to find the best deals.

* 1. **Users who live far away from physical convenience stores.**

We are targeting customers whose location are inconvenient for physical shopping. An online AI shopping recommendation system will aid the customers in their daily online shopping. The cross-platform comparison feature will further serve to aid the customers in finding the best deals of their everyday online shopping.

* 1. **Users who are home-bound or have mobility issues.**

We are targeting elderlies or disabled customers. The customers could already be engaged with online shopping activities. Thus, an online AI shopping recommendation system with cross-platform comparison feature will certainly aid the customers to make better and informed decisions.

* 1. **Tech-savvy users.**

We are targeting young adults who are mostly familiar with navigating the online world. Our online AI shopping recommendation system will aid the customers to make informed decisions in their purchases.

1. **Functional Requirements (FR)**

The following are the proposed preliminary FR:

**6.1** The user must be able to register for an account with our system.

**6.2** When the user searches for an item, our system must be able to recommend at least three other items to the user.

**6.3** The system must be able to retrieve the prices of the searched items from at least one e-commerce platform.

**6.4** The system must be able to retrieve at least one relevant rebate of the searched item.

**6.5** The system must be able to provide a set of parameters such as price, number of purchases, form of rebate, delivery fee, payment methods and rating which can be tweaked by the user to sort the result.

**6.6** The system must be able to provide the best deal for the user according to the parameters set by the user.

**6.7** The user must be able to compile a wish list of items which must be sold on at least one e-commerce platform.

1. **Non-Functional Requirements (NFR)**

The following are the proposed preliminary NFR:

**7.1** The system must be able to successfully register for an account for the user after the user fills in all the details required within 15 seconds.

**7.2** The system must be able to retrieve and display the search result of the user within 30 seconds.

**7.3** The system must be able to support searches from at least three e-commerce platform.

**7.4** The system must not be down for more than three hours in one year.

**7.5** The system must encrypt the user’s credential information using AES algorithm.

**7.6** The system must be able to display help information in the local language of the user based on the user’s location.

1. **Data Dictionary**

|  |  |
| --- | --- |
| Voucher | An online code that entitles the holder to a discount, or that may be exchanged for goods or services. |
| Cashback | A form of incentive offered to buyers of certain products whereby they receive a cash refund after making their purchase. |
| Rebate | A form of discount applied to a product sold in the form of cashback or voucher. |
| Wish list | A list of desired items by the user which are available on an e-commerce platform. |
| E-commerce platform | An online platform where sellers advertise and sell their goods to consumers. |
| Price | The amount of money expected, required, or given in payment for the item sold. |
| Delivery fee | The cost of transporting or delivering goods. |
| Payment methods | A method for customers to pay for a product or a service. |

1. **Use Case Diagrams**

**9.1** Account Registration & Account Login

Diagram

Description automatically generated

**9.2** Search & Recommendation System

Diagram

Description automatically generated

**9.3** Wish-list System

Use Case ID: 003

Wish-list System

Diagram

Description automatically generated

1. **Use Case Description**

**10.1** Account Registration & Account Login

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID: | 001 | | |
| Use Case Name: | Account Registration & Account Login | | |
| Created By: | Lee Juin | Last Updated By: | Lee Juin |
| Date Created: | 25th October 2022 | Date Last Updated: | 25th October 2022 |

|  |  |
| --- | --- |
| **Actor:** | App User, Account Registration System |
| **Description:** | The App User can register for an account with the Account Registration System. The App User may login to his/her account subsequently using the correct username and password. |
| **Preconditions:** | 1. The Account Registration System must be up and online. 2. The App User must be connected to the Internet. |
| **Postconditions:** | 1. The App User has successfully registered an account for the application with a unique username and password. 2. The App User is notified of the reason(s) why the registration of an account is unsuccessful. 3. The App User has successfully logged into his/her application account. 4. The App User is notified of the reason(s) why he/she is unable to login to his/her account. |
| **Priority:** |  |
| **Frequency of Use:** |  |
| **Flow of Events:** | 1. For registration of an account by new App Users 2. The App User connects to the web application through the Internet. 3. The App User clicks on **Register**. 4. The registration page prompts the App User to input a valid email, a username and a password which contains at least one uppercase letter, one lowercase letter and one digit. 5. The App User inputs the credentials accordingly. 6. The website verifies with the Account Registration System on the information provided. 7. The App User is asked to verify his/her email through a one-time password (OTP) sent to his/her email inbox. 8. If the information is verified, the App User is notified of the successful registration of his/her account via email and notification on the website. 9. For login of an account by existing App Users 10. The App User connects to the web application through the Internet. 11. The App User clicks on **Log in**. 12. The login page prompts the App User to input his/her username and password. 13. The App User inputs the credentials accordingly. 14. The website verifies with the Account Registration System on the information provided. 15. If the information is verified, the App User is redirected to his/her account dashboard. 16. For help of lost account due to forgotten username or password 17. The App User clicks on **Forgotten?** on the login page. 18. The website prompts the App User to input his/her registered email. 19. The App User is asked to verify his/her identity through a one-time password (OTP) sent to his/her email inbox. 20. The website prompts the App User to input a new set of username and password. 21. Once completed, the App User is redirected back to the login page. |
| **Alternative Flows:** | AF-A1: If the App User inputs a taken username   1. The website returns to (A) Step 2 and displays the registration page again. 2. The registration page further displays the message “Username has been taken. Please try again!” to explain to the App User the reason why the account registration is unsuccessful.   AF-A2: If the App User did not receive the OTP in his/her email inbox   1. The website allows the App User to resend another OTP after 60 seconds.   AF-B1: If the App User inputs an incorrect username or password   1. The website returns to (B) Step 2 and displays the login page again. 2. The login page further displays the message “Invalid username and/or password!” to explain to the App User the reason why the account login is unsuccessful. |
| **Exceptions:** | EX-A1: If the App User requests for more than three resent of OTP   1. The website returns to (A) Step 3. 2. The registration page further displays the message “Please try again with a different email.”   EX-B1: If the App User inputs incorrect username or password for more than five times   1. The website returns to (B) Step 2 and displays the login page again. 2. The login page further displays the message “Account suspended! Please login again after 15 minutes.” |
| **Includes:** |  |
| **Special Requirements:** |  |
| **Assumptions:** |  |
| **Notes and Issues:** |  |

**10.2** Account Registration & Account Login

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID: | 002 | | |
| Use Case Name: | Search & Recommendation System | | |
| Created By: | Jerick Lim Kai Zheng | Last Updated By: | Jerick Lim Kai Zheng |
| Date Created: | 22nd August 2022 | Date Last Updated: | 26th August 2022 |

|  |  |
| --- | --- |
| **Actor:** | App User (Initiating), Search & Recommendation System, E-Commerce Platform |
| **Description:** | The App User will be able to search for items on the Search and Recommendation System. Based on the searched item, the Search and Recommendation system will be able to provide the prices and rebates from supported E-commerce platforms and recommend at least three other related items. |
| **Preconditions:** | 1. App User registered for an account with the Account Registration System. |
| **Postconditions:** | 1. App User obtained the best deal for the searched item. 2. App User was unable to obtain a search result for the item. |
| **Priority:** |  |
| **Frequency of Use:** |  |
| **Flow of Events:** | 1. The App User searches for an item in the search box of the application. 2. If the searched item is valid, the Search and Recommendation system retrieves the prices of the searched and recommended items from at least one e-commerce platforms. 3. The Search and Recommendation system uses the searched item to recommend at least three other related items. 4. The Search and Recommendation system will also retrieve and display at least one relevant rebate of the searched item if it exists. 5. The Search and Recommendation system will provide a set of parameters such as price, number of purchases, form of rebate, delivery fee, payment methods and rating to sort the results. 6. The App User will be able to sort the results from a tab at the top left corner of the page. 7. The Search and Recommendation system will be able to compute the best deal for the user based on the different rebates available. |
| **Alternative Flows:** | AF-S2: If the searched item is sold out   1. The Search and Recommendation system will display searched items from the e-commerce platform. 2. There will be a “Sold Out” symbol over the product 3. The Search and Recommendation system will display an estimated time before the item will be in stock again.   AF-S4: If there is no relevant rebate of the searched item   1. The Search and Recommendation system will not show any rebates and display the message “No relevant rebates.” |
| **Exceptions:** | EX-S1: If the searched item is not sold on the supported E-Commerce platforms   1. The Search and Recommendation system will not display any search results. 2. There will be a displayed message that says “No results found” 3. The Search and Recommendation system will return to Step 1 to wait for the user to search for a new item. |
| **Includes:** |  |
| **Special Requirements:** |  |
| **Assumptions:** |  |
| **Notes and Issues:** |  |

**10.3** Wish-list System

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID: | 003 | | |
| Use Case Name: | Wish-list System | | |
| Created By: | Oi Yeek Sheng | Last Updated By: | Oi Yeek Sheng |
| Date Created: | 22nd August 2022 | Date Last Updated: | 22nd August2022 |

|  |  |
| --- | --- |
| **Actor:** | App User (Initiating Actor), System, E-commerce Platforms |
| **Description:** | The Wish-list system enables the App User to add items sold in the supported e-commerce platforms to his/her wish list. The Wish-list system also allows the user to add friends through User ID and the wish-list added by both users are visible to each other. The user will receive a birthday notification if they request it. |
| **Preconditions:** | 1. The App User must be logged in to an account. |
| **Postconditions:** | 1. The App User successfully adds the item to his/her wish list.   Or   1. The App User is notified that the item is not sold on the e-commerce platforms.   Or   1. The App User successfully adds a friend and is able to view his/her friend’s wish list.   Or   1. The App User is notified that the searched username is invalid. |
| **Priority:** |  |
| **Frequency of Use:** |  |
| **Flow of Events:** | 1. For adding item into wish-list 2. The App User searches for an item using the search function provided in the Search and Recommendation System. 3. The Wish-list System checks for availability of that item on all supported E-commerce platforms. 4. If the item is available on at least one E-commerce platform, the Search and Recommendation System will display the items available to the App User. 5. The App User selects the item to be added to his/her wish list. 6. For adding friends 7. The App User adds friends by searching the unique username of each App User. 8. If the username searched is available in the Account Registration System, the App User may send a friend request to that user. 9. When the other user accepts the friend request, the App User can now view the friend’s wish list and birthday date. 10. If the App User request for birthday notification function, the Wish-list System will send a notification to the App User 7 days before his/her friend’s birthday. |
| **Alternative Flows:** | AF-A3: If the item is not sold on the supported e-commerce platforms   1. The item is not sold on the supported E-commerce platform. 2. The Wish-list system displays the message “No results found.” 3. The Wish-list system recommends at least one similar item to the user. 4. If the App User selects the recommended item, the Wish-list System will add the item to his/her wish list.   AF-B2: If the searched username is not available   1. The Account Registration System displays the message “The searched User ID is not available. Please insert a valid User ID.”   AF-B3: If the other App User rejects the friend request   1. The Wish-list System sends an email to the user about the friend request being rejected. |
| **Exceptions:** |  |
| **Includes:** |  |
| **Special Requirements:** |  |
| **Assumptions:** |  |
| **Notes and Issues:** |  |