YQR Plates
CS 476: Software Development and Demonstration Requirements
Dr. Samira Sadaoui

Patrick Fidek, (200426368), (paf792@uregina.ca)
Brett Harley (Team Lead), (200386756), (bch117@uregina.ca)
Somtochukwu Igbokwe, (200463208), (sci396@uregina.ca)
Quinn Schwabe, (200338344), (schwabeq@uregina.ca)
Dharma Tejash Surapaneni, (200460550),(dsq274@uregina.ca)

1.0 Problem Definition

Develop a web-based software application that provides dining suggestions within the city of Regina for indecisive customers. The software application allows customers to input preferences and based on the customer's input, the application outputs restaurant suggestions. Restaurant owners can also utilize the application to promote their business and provide customers with information.

1.1 Problem Requirements

The functional requirements of customers include creating an account; providing their preferences such as type of food, price range, and location; viewing restaurants and menus; generating customized restaurant suggestions; viewing promotions; and viewing a custom dashboard of restaurants based on preference categories. The functional requirements of restaurant owners include creating an account; advertising their restaurant; providing restaurant details such as food types, hours, and location; uploading menus and pictures; and viewing a custom dashboard with customer insights. The quality requirements for both user roles include user friendliness, correctness, time-efficiency, and robustness.

1.2 Application Domain

The YQR Plates application belongs to the matchmaking system domain which matches consumers of information with producers of information. YQR Plates enables customers (consumers) and restaurant owners (producers) to effectively share their preferences and capabilities (information), respectively. The YQR Plates application

processes the customers' and restaurant owners' shared information to identify matching information and outputs restaurant suggestions accordingly.

1.3 Project Motivations

When looking for a specific type of restaurant or food, it can be difficult to find good suggestions that accurately align with user preferences. The hopes of this application are that the individually curated results based on the user's input will leave the user satisfied and wanting to use the application again for their next meal. YQR Plates aims to fill the industry gap of being able to receive dining suggestions without any decision making required from the user - almost as easy as rolling a dice.

2.0 Gantt Charts

3.0 Application Benefits

NEEDS TO BE COMPLETED. *Application benefits: highlight the benefits of your application by comparing it to two existing systems. Choose two related systems and include their references/URLs (2 pages).*

From the notes I took: She wants comparison tables of YQR Plates to existing systems that are similar. Do a table of comparison for each system. Table 1 and Table 2. She wants two comparison tables done comparing it to two existing applications which shows what is the same and what is the added benefit or feature. She wants it compared in terms of functional requirement and quality requirements. Is it more robust? For example, ours doesnt allow incorrect user input whereas an existing one does. Maybe ours is more user friendly and has more functional requirements. What is the benefit. Have to bring some benefit to the market or a specific company. Has to have something unique about it that differentiates it from existing things. Don't just say it is better-prove that it is better and be very specific.

Restaurant Owner's Custom Dashboard: Other sites don't provide these statistics to owners

Customer preferences - Location (subdivision): Other sites require you to enter your address and you can filter by km's away. But, allowing the option to filter by subdivision introduces simplicity for the user by not having to know how far away in KMs they are willing to travel

Random generator - Other sites don't have the option to get a random restaurant suggestion, they just provide a list of the restaurants leaving the customer to still make a decision about where to eat out of all the listed restaurants

** I'll just keep this highlighted part here for now in case we want to add something to the below tables and reference this information later. - Brett

To differentiate YQR plates from other competitor applications in the restaurant selector/matchmaking category, Google Reviews (insert URL) and DoorDash (insert URL) were analyzed and compared to YQR Plates. Google Reviews is an application that enables customers to search for reviews or leave reviews of a customer's experience at a restaurant to facilitate dining decisions. DoorDash is an online system that enables customers to order food from a restaurant and have it delivered. Table 1 and Table 2 illustrate the results of the comparison between YQR Plates and these two related systems.

Table 1: Comparison YQR Plates and Google Reviews

Feature/Requirement	YQR Plates	Google Reviews	Benefit of YQR Plates
User Account Creation	Allow customers to create personalized accounts.	Does not require user accounts for viewing reviews; accounts are only needed for posting reviews.	Personalized experience through user accounts.
Preference Input	Users can specify preferences such as food types, dietary restrictions, price ranges, and specific Regina subdivisions.	Does not offer preference input; users manually search for information.	Tailored suggestions based on specific user preferences.
Customized Suggestion	Generates tailored restaurant suggestions based on user preferences.	Provides general information without personalized suggestions.	Offers personalized dining options.
Random Restaurant Generator	Features a random generator to suggest restaurants, eliminating decision fatigue.	Does not offer a random suggestion feature.	Simplifies decision-making for indecisive users.

Restaurant Promotions	Displays current promotions directly to users.	Does not display real-time promotions.	Keeps users informed about current deals, enhancing value.
Custom Dashboard	Provides a dashboard showing restaurants categorized by user preferences.	Lacks a personalized dashboard feature.	Offers a centralized view tailored to user interests.
Restaurant Owner Account Creation	Enables restaurant owners to create accounts to manage their listings.	Allows business owners to claim and manage their business profiles.	Similar functionality.
Advertising and Promotion Tools	Allows owners to advertise and post promotions directly to users.	Does not provide direct advertising or promotion posting features.	Direct control over promotions to reach potential customers.
Detailed Restaurant Information	Owners can provide comprehensive details, including menus, hours, and subdivision locations.	Displays basic business information; may lack detailed menus and specific location filtering.	More detailed and accurate information for users.
Custom Dashboard for Owners	Offers a dashboard with customer insights and preference matching statistics.	Does not provide a custom dashboard with detailed customer insights.	Empowers owners with data to tailor offerings and marketing strategies.

Table 2: Comparison YQR Plates and DoorDash

Feature/Requirement	YQR Plates	DoorDash	Benefit of YQR Plates
User Account Creation	Allows customers to create personalized accounts.	Requires user accounts for ordering and delivery tracking.	Similar functionality.
Preference Input	Users can specify preferences such as food type, price range, and specific Regina subdivisions.	Users can filter by cuisine and price but lack subdivision-specific filtering.	More granular location filtering enhances user experience.

Customized Suggestion	Generates tailored restaurant suggestions based on user preferences.	Provides restaurant options but lacks personalized suggestion generation.	Offers more personalized dining options.
Random Restaurant Generator	Features a random generator to suggest restaurants, eliminating decision fatigue.	Does not offer a random suggestion feature.	Simplifies decision-making for indecisive users.
Restaurant Promotions	Displays current promotions directly to users.	Displays promotions but may not be as prominently featured.	Ensures users are aware of current deals, enhancing value.
Custom Dashboard	Provides a dashboard showing restaurants categorized by user preferences.	Lacks a personalized dashboard feature.	Offers a centralized view tailored to user interests.
Restaurant Owner Account Creation	Enables restaurant owners to create accounts to manage their listings.	Allows restaurant partners to manage their menus and orders.	Similar functionality.
Advertising and Promotion Tools	Allows owners to advertise and post promotions directly to users.	Offers advertising options but may not provide direct promotion posting.	More direct control over promotions to reach potential customers.
Detailed Restaurant Information	Owners can provide comprehensive details, including menus, hours, and subdivision locations.	Provides restaurant information but may lack detailed menu uploads and specific location filtering.	More detailed and accurate information for users.
Custom Dashboard for Owners	Offers a dashboard with customer insights and preference matching statistics.	Provides order analytics but lacks detailed customer preference insights.	Empowers owners with data to tailor offerings and marketing strategies.

4.0 Requirements Elicitation

4.1 Functional Requirements

The two types of user roles of YQR Plates include customer and restaurant owner. The role of the customer is to interact with the YQR Plates software application to access information pertaining to dining possibilities within the city of Regina to facilitate dining decisions. The role of the restaurant owner is to interact with the YQR Plates software application to input dining information pertaining to their establishment for customer consideration.

4.1.1 Functionality for Customer: The functional requirements of customers include

- *Create Account*: Customer enters personal credentials along with a username and password to obtain a unique identity on YQR Plates that is used for future log in purposes enabling access and interaction with YQR Plates as a recognized user.

- *Log In*: Customer enters the username and password selected during the creation of an account to access YQR Plates information.

- *Provide Preferences*: TO BE COMPLETED

- *Update Preferences*: Customer inputs criteria as to their preferred type of food, price range, and location within Regina.

- *View Restaurants*: Customer views the restaurant suggestions generated by the application.

- *Use Suggestion Generator*: Customer can choose to use a random generator to have YQR Plates select a restaurant thereby eliminating all decision making for the customer.

- *View Promotions*: TO BE COMPLETED

- *View Custom Dashboard*: TO BE COMPLETED

- *View Menu*: TO BE COMPLETED

- *Log Out*: After interacting with YQR Plates, the customer discontinues the session by selecting logout.

4.1.2 Functionality for Restaurant Owner: The functional requirements of restaurant owners include

- *Create Account*: Restaurant owner enters personal credentials along with a username and password to obtain a unique identity on YQR Plates that is used for future log in purposes enabling access and interaction with YQR Plates as a recognized user.

- *Log In*: Restaurant owner enters the username and password selected during the creation of an account to access YQR Plates to provide customers with information.

- *Add Restaurant*: Restaurant owner inputs the restaurant name into YQR Plates.

- *Provide Details*: Restaurant owner enters the details of the restaurant such as what type of food can be purchased, what type of restaurant it is, hours of the restaurant, and location of the restaurant (Regina subdivision).

- *Post Advertisements or Promotions*: Restaurant owner posts advertisements promoting their restaurant.

- *Upload Menu or Pictures*: Restaurant owner easily uploads the menu associated with their establishment and any accompanying pictures.

- *View Custom Dashboard:* Restaurant owner views dashboard with statistics demonstrating how customer preferences match with the restaurant.

- *Update Restaurant Details*: Restaurant owner inputs information necessitated by any changes, ie. price increases.

- *Log Out*: After interacting with YQR Plates, the restaurant owner discontinues the session by selecting logout.

4.2 Software Qualities

4.2.1 Correctness

4.2.1.1 Customer. i) When using the suggestion generator, YQR Plates will suggest correct restaurants based on the customer's preferences. If the customer has not logged in and provided preferences, the software application will suggest any available restaurant at random. If the customer has logged in and provided preferences, YQR Plates will filter the list of available restaurants by comparing the user's preferences against restaurants' details. The suggestion generator will suggest a restaurant from the filtered list after the comparison is complete, ensuring the customer will get an appropriate suggestion that considers their preferences.

ii) Customers can view a custom dashboard that provides an accurate breakdown of how many available restaurants match customer's preferences. The dashboard will display a statistic for each preference category. The number displayed in these categories will be determined by comparing and matching the customer's preference selection from each category to the details of available restaurants.

4.2.1.2 Restaurant Owner. i) Restaurant owners have access to a custom dashboard that provides accurate customer statistics relating to their restaurant details. The dashboard allows owners to see how many customers' preferences align with their restaurant details. The preference categories that customers can use to filter their suggestions correspond to the categories of information restaurant owners provide about

their restaurants. The numbers displayed on the dashboard are produced by comparing how many customers' preferences match the restaurant owner's details for each category.

ii) When restaurant owners go to update their restaurant details, the software application will show the current information provided about the restaurant. The listed information will update accordingly if the owner changes any of the values from what is currently saved. Correctly displaying the information allows restaurant owners to see what is currently being shown to customers and updating the list to reflect any changes made lets owners know their changes have been saved and applied.

4.2.2 Time Efficiency

4.2.2.1 Customer. i) When using the suggestion generator, YQR Plates will provide restaurant suggestions to customers in a timely fashion after preferences are submitted. If no preferences are selected, the software application will promptly suggest a random suggestion from the list of restaurants. When preferences are selected, they will be efficiently compared with restaurant details and a random restaurant will be suggested from the list of matching restaurants. If customers are unhappy with the suggestion, they can continually use the generator in a rapid manner to receive multiple suggestions in a matter of minutes ==(seconds?? Update when we know the actual time it takes for the generator to work)==.

ii) Customers can view a list of all the available restaurants on YQR Plates. If customers utilize the available filters such as food type or location, the list will be filtered and updated in a timely manner. Customers can select restaurants from the list to view more detailed information about the restaurants. After selection, the restaurant's details including their menu and available promotions will be displayed without delay.

4.2.2.2 Restaurant Owner. i) If a restaurant owner needs to update the details of their restaurant, they can go to their profile to view and edit their current information. When selecting edit, a form will be made available to the owner, allowing them to edit as many details as needed at one time. Following submission the updated details will immediately be reflected under the restaurant owner's profile. The changes will also be promptly reflected in the restaurant listings for customers to view.

ii) When restaurant owners navigate to their custom dashboard, the categorical statistics for their restaurant will be available upon the initial page rendering. The statistics will update in real-time if customer's modify their preferences, resulting in a change to the restaurant owner's data. The continuous availability of the categorical statistics allows restaurant owners to maintain visibility into how their restaurant is meeting customers wants or needs.

4.2.3 Robustness

4.2.3.1 Customer. i) When creating an account and providing preferences, the YQR Plates software application will validate customers' input to ensure no mistakes are made. An error message informing the customer of the expected data format will be displayed if any invalid data is entered. If customers try to submit a form before correcting invalid inputs, the software application will provide a submission error message and ==maintain the users' inputs to avoid requiring the users to re-enter all the data (TAKE THIS OUT IF MAINTAINING THE INPUTS CANNOT ACTUALLY BE IMPLEMENTED SUCCESSFULLY)==.

ii) If a customer tries to view the dashboard or use the suggestion generator with preferences before signing in, the software application will not freeze or display a blank

page. Instead, the customers will be prompted to log in or create an account. <mark>After logging in, the customers will be redirected back to the page they were attempting to view and the preferences from their account will be utilized when rendering the page (TAKE THIS OUT IF WE CAN"T HANDLE THE APPROPRIATE REDIRECT)</mark>.
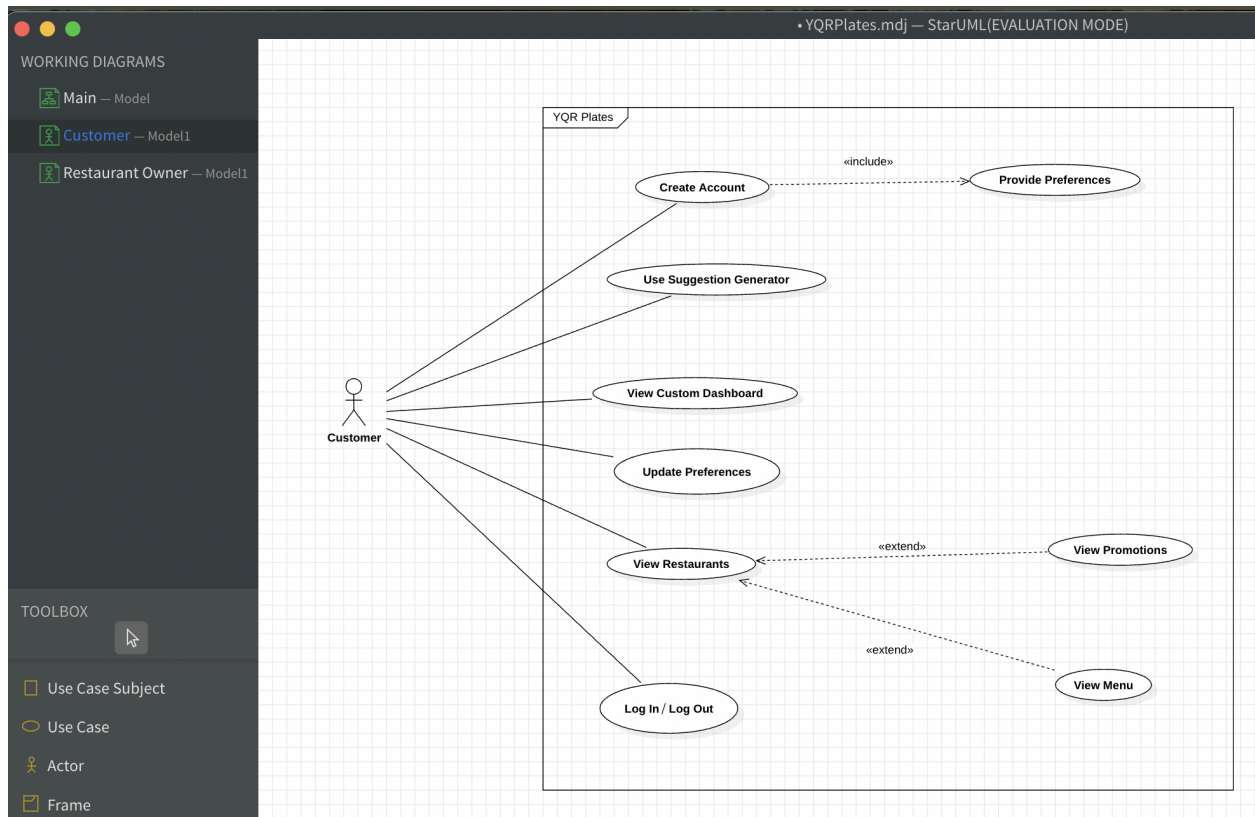
4.2.3.2 Restaurant Owner. **i**) When uploading a file, the website will provide a descriptive error message if a restaurant owner uploads a file that is too big or incompatible with the site. The website will not crash and will display an error message indicating the exact issue to the user. The message will also provide the correct file type and size, allowing them to correct their error on the next attempt.

ii) As restaurant owners create an account and provide their restaurants details, the form will perform data validation on all user input. Logical checks will be used to enforce certain data restrictions such as appropriate email formatting and dollar values in the price range fields. Similar validation will also be performed on the form for adding promotions to ensure start and end dates are valid. An error message will be displayed if any data entered is incorrect, allowing the user to fix any mistakes.
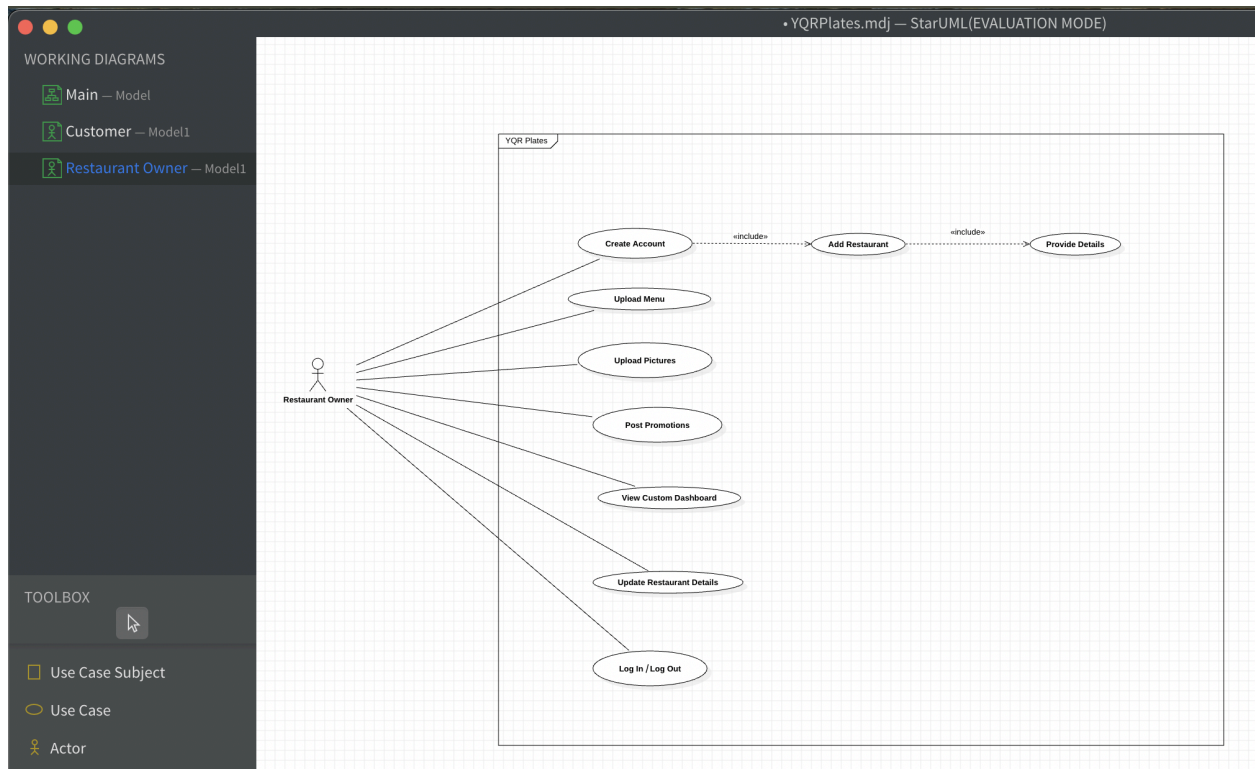
<div align="center">

5.0 Functional Requirements Specification

</div>

5.1 User Use Case Diagrams

5.1.1 Customer

5.1.2 Restaurant Owner

5.2 Use Case Activity Diagrams

5.2.1 Use Case Activity Diagram #1 (Dharma - Customer) Update preferences

Inter ▾   8pt ▾   **B**   *I*   U̲   A̲   ☰   T▾   ○ ● ⊞ 🗹

```
                            ●

                    ┌─────────────────┐
                    │  Select Update  │
                    │   preferences   │
                    └─────────────────┘
                             │
                    ┌─────────────────┐
                    │  Displays all   │
                    │   preferences   │
                    └─────────────────┘
                             │
  Select one of the                    No
  preferences          ◇ ──────────────→ ◉
                             │ Yes
                    ┌─────────────────┐
                    │ Display the update │
                    │ options for the  │
                    │   preferences    │
                    └─────────────────┘
                             │
                    Select one of the options
                             │
                         ◇ ──────────────→ ◉
                    Save       Cancel
                             │
                    ┌─────────────────┐
                    │  Display all    │
                    │ preferences for │
                    │    the User     │
                    └─────────────────┘
```

Page 1 ▾   ⊕

Signup Activity diagram ● Draft ▼

Inter ▼   8pt ▼   **B** *I* U A ≡ T▾   ◯ C

```
            ●
            │
            ▼
    ┌───────────────┐
    │ Signup Forms  │
    └───────────────┘
            │
            ▼
    ┌───────────────┐
    │ Input all values │ ◄──────────┐
    └───────────────┘              │
            │                      │
            ▼              ┌──────────────────┐
            ◇ ──────────► │  Error Message    │
                  Error    │ and display error │
                           └──────────────────┘
    Success
            │
            ▼
    ┌───────────────┐
    │ Account Created│
    │  Successfully  │
    └───────────────┘
            │
            ▼
    ┌───────────────┐
    │   Provide     │
    │  Perfernces   │
    └───────────────┘
            │
            ▼
    ┌───────────────┐
    │  Input all    │
    │  preferences  │
    └───────────────┘
            │
            ▼
            ◉
```
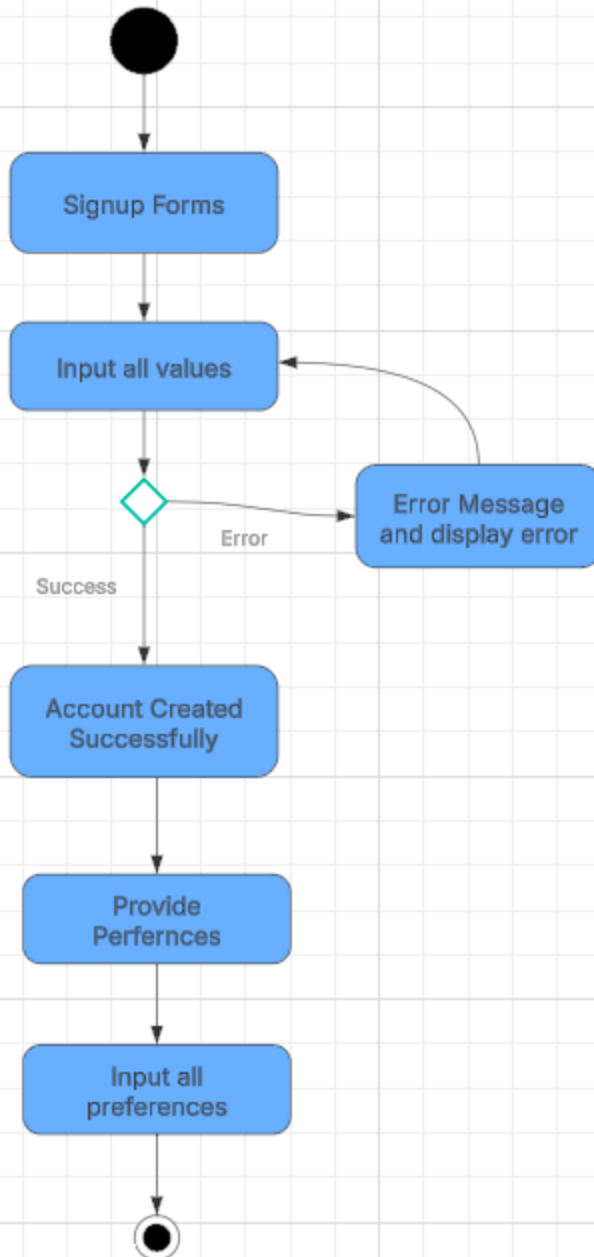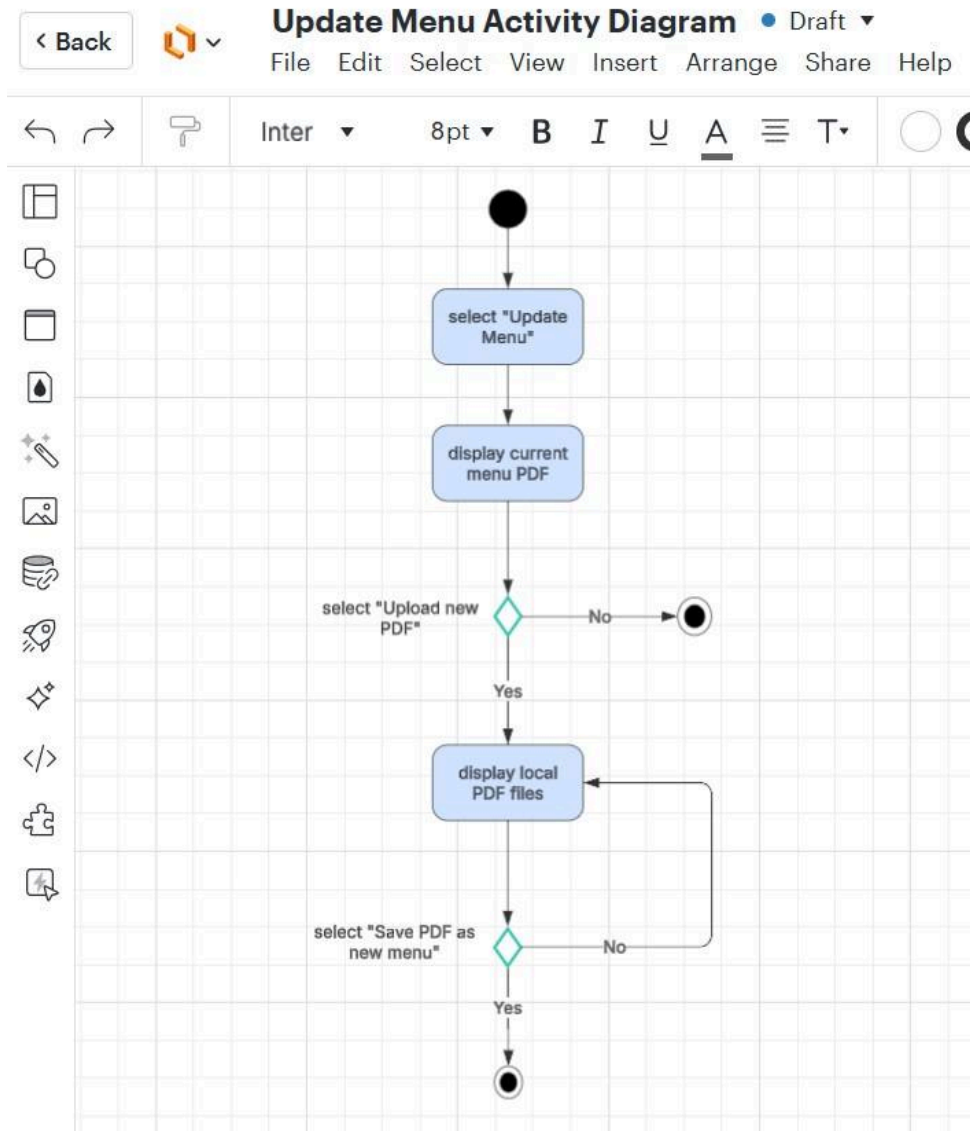
5.2.2 Use Case Activity Diagram #2

6.0 Software Design

6.1 MVC Architecture

6.2 Observer and Simple Factory Design Patterns

7.3 Github URL

https://github.com/PatrickFidek/YQRPlates

7.4 Web-base Application URL

www.yqrplates.com

8.1

C++, PHP, SQL, JavaScript, HTML, CSS.

8.3 <mark>need to provide benefits of these tools to our app</mark>

VS Code, Git, GitHub, GitLens, Laravel, PhpMyAdmin, FileZilla, Apache, A2 Hosting,

MySQL/MariaDB, cPanel, SSH.