MIDDLE EAST TECHNICAL UNIVERSITY

POLYHEDRA

SOFTWARE REQUIREMENTS SPECIFICATION

SE 560 SOFTWARE DEVELOPMENT STUDIO SPRING 2019-2020

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CHANGE HISTORY

Version	Date	Authors	Remark
SRS v0a	05.03.2020	İlkyaz Özer O. Özgün Çokgezen Sema Kamışlı Taha Yaycı	SRS First Draft
SRS v0b	04.06.2020	İlkyaz Özer O. Özgün Çokgezen Sema Kamışlı Taha Yaycı	SRS Final Bundle Release

PREFACE

This specification is prepared for SE560 Software Development Studio course.

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SOFTWARE REQUIREMENTS SPECIFICATION

1. System Purpose

In this project, a cocktail catalog and rating service will be developed and deployed on a public cloud platform. Cocktail enthusiasts will be informed regarding not only different cocktail recipes, ingredients and categories but also users' opinions on cost, taste and preparation difficulty through this application. Mainly, the application will be a guide for new taste seekers and an information center for people who are curious about what the bartenders are putting into their drinks. Furthermore, bartenders will be able to discover novel cocktails that they have never prepared or experienced before and offer distinctive tastes to their customers.

2. System Scope

The application is named as Polyhedra, where the users will be able to discover and define cocktail ingredients, recipes, categories and whether the cocktail is alcoholic. Cocktail categories include pre-dinner cocktail, after dinner cocktail, long drink cocktail and fancy drink cocktail. Furthermore, the users will be able to update or delete the entries they added to the system, which will be controlled using username and password.

In addition, users will be able to rate and review other users' cocktails according to three dimensions that are taste, cost, preparation difficulty while also being able to see the previous ratings and reviews.

Scope of the project can be listed as:

- Providing information to users about ingredients, recipes, whether the cocktail is alcoholic, cocktail group, taste, cost, preparation difficulty
- Stating public opinion about cocktails in the form of ratings or reviews
- Providing users, a platform to share the opinion with the public in the form of ratings and reviews

3. System Overview

System context, system functions and user characteristics is given as system overview.

3.1 System Context

Context diagram is given in Figure 1.

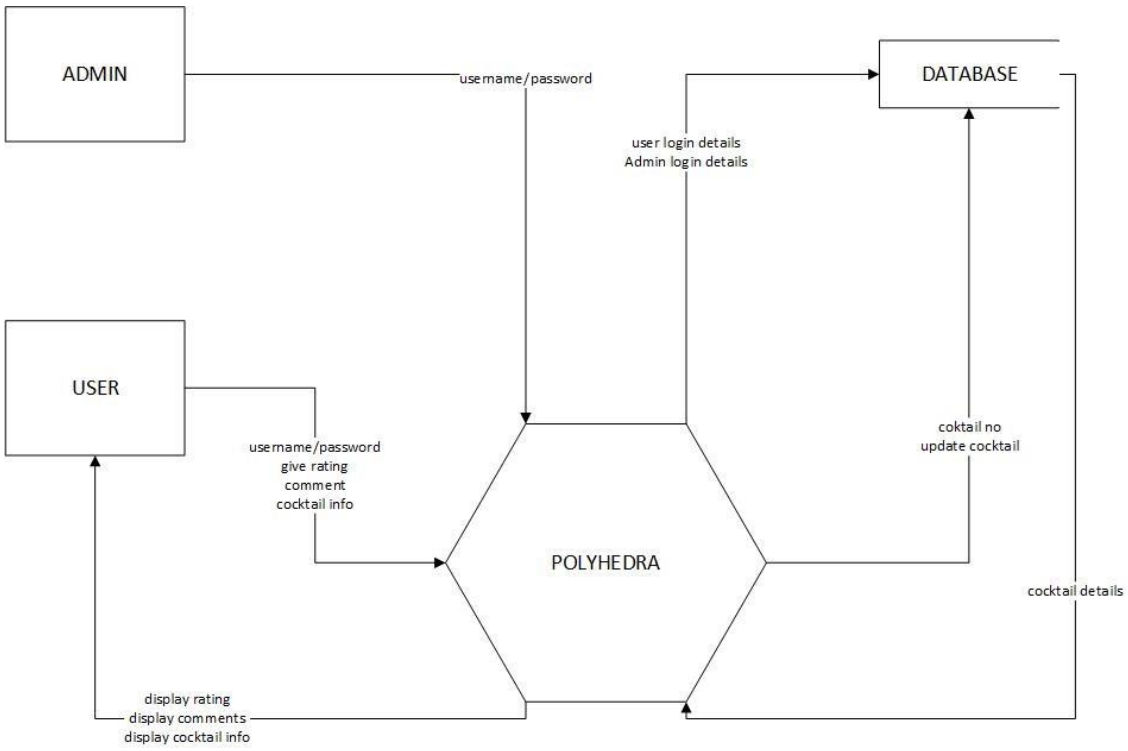

Figure 1: Context Diagram

3.2 System Functions

- The system shall authenticate user login information.
- The system shall take data (cocktail name, cocktail category, ingredients, recipe, whether cocktail is alcoholic) from the user.
- The system shall give permission to update and delete to users who have created their own records.
- The system shall save deleted cocktail records as passive.
- The system shall not give permission to see deleted records to other users.
- The system shall give permission to rate and review other users cocktails.
- The system shall give permission to delete review notes.
- The system shall provide three different rating dimensions that are taste, cost, and preparation difficulty.
- The system shall make cocktail reviews visible to all users.
- The system shall give permission to search to users older cocktail records by name, cocktail category, taste, cost, and preparation difficulty.

3.3 User Characteristics

The application will be used by web literate people who can access the Internet. Also, there is an 18 age limit to use the application.

4. Functional Requirements

Use Case Diagram of the system is given in Figure 2 and explanation of use cases are given in Table 2 to Table 8.

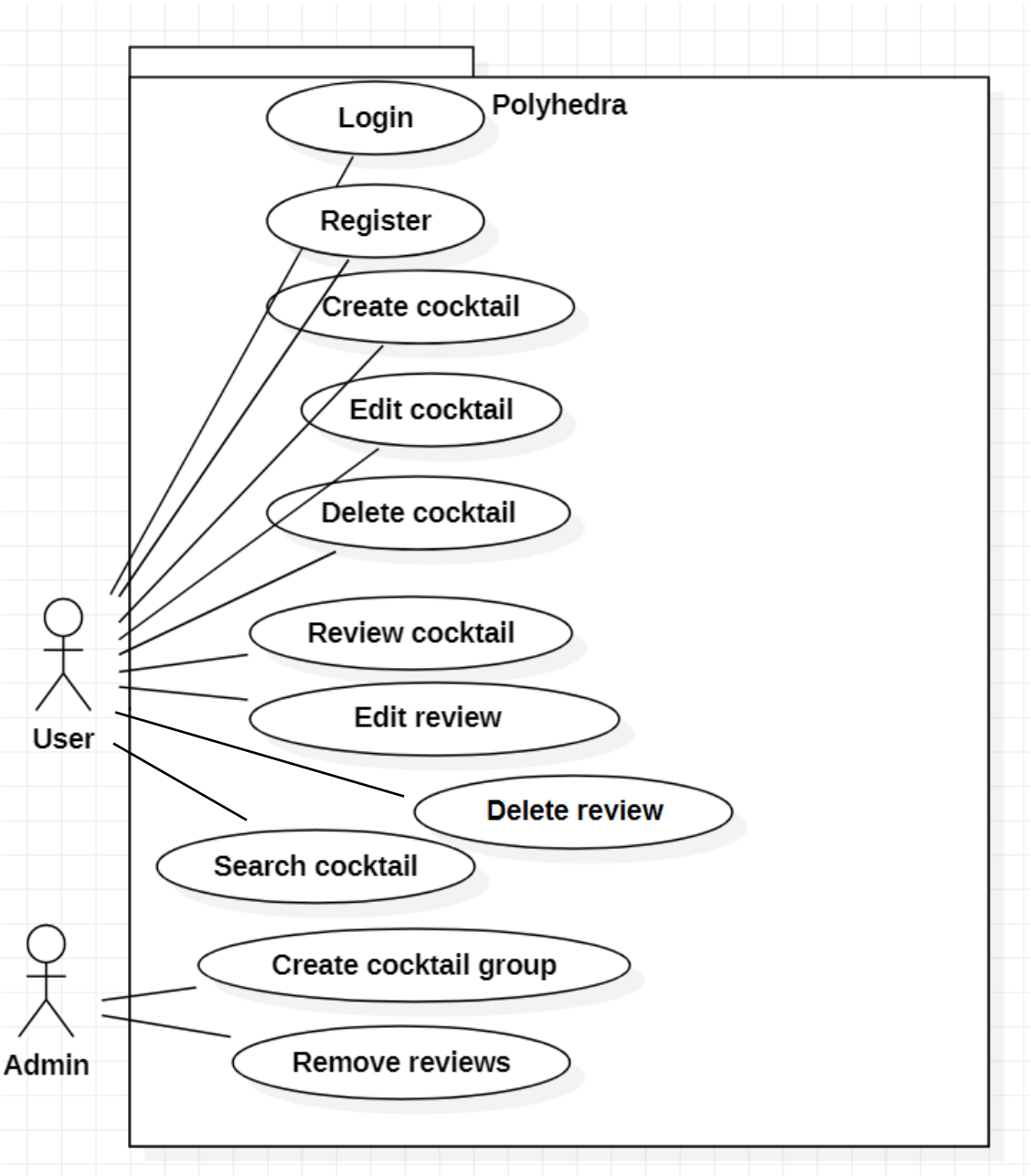

Figure 2: Use Case Diagram

Table 1: Use Case 1

Use Case ID	1
Use Case Name	Login
Actors	Polyhedra User
Description	Users log in to the Polyhedra to create and review cocktail
Preconditions	User enter valid e-mail, username and password information to the system. User confirm the account in e-mail. User is defined in Polyhedra: user exists in the system with a valid username and password.
Postconditions	User is successfully logged in to the Polyhedra.
Normal Flow	1. User requests to enter Polyhedra system. 2. System prompts user to log in. 3. User enters his/her username and password. 4. System verifies entered information. 5. System logs user into Polyhedra system.
Exceptions	3a. If the username and/or password entered by the user is/are not valid: 1. Polyhedra system displays “Invalid username and/or password” error message. 2. Use case resumes on Step 2 of Normal Flow.

Table 2: Use Case 2

Use Case ID	2
Use Case Name	Register
Actors	Polyhedra User
Description	Users register to Polyhedra
Preconditions	None
Postconditions	User is successfully registered to Polyhedra.
Normal Flow	1. User requests to register to Polyhedra system. 2. System prompts user to register. 3. User enters his/her username, first name, last name, password and password confirmation. 4. System verifies entered information. 5. System registers user to Polyhedra.
Exceptions	3a. If the username and/or password entered by the user is/are not valid: 1. Polyhedra system displays “Invalid username and/or password” error message. 2. Use case resumes on Step 2 of Normal Flow.

Table 3: Use Case 3

Use Case ID	3
Use Case Name	Create Cocktail
Actors	Polyhedra User
Description	User creates cocktail record on the cloud environment.
Preconditions	User is defined in Polyhedra : user exists in the system with a valid username and password.
Postconditions	A cocktail record is created on the cloud environment.
Normal Flow	1. User enters cocktail name, recipe, and ingredients information into the system. 2. User selects cocktail group name from checklist. 3. User fills checkbox whether cocktail is alcoholic.(if the cocktail does not contain alcohol, user will not fill the checkbox.) 4. User clicks Save button to create a new cocktail record.
Exceptions	2.a. If user wants to create new cocktail group, user will follow the number 3 use case (use case:Create Cocktail Group) instructions. 4.a. User clicks “Cancel” button to cancel for creating a cocktail record. 4.b. User clicks “Exit” button to leave application.

Table 4: Use Case 4

Use Case ID	4
Use Case Name	Edit Cocktail
Actors	Polyhedra User
Description	User edits cocktail record on the cloud environment.
Preconditions	User is defined in Polyhedra: user exists in the system with a valid username and password.
Postconditions	A cocktail record is edited on the cloud environment.
Normal Flow	1. User edits only own record. User edits cocktail name, recipe, and ingredients information. 2. User edits cocktail group name from checklist. 3. User changes checkbox whether cocktail is alcoholic.(if the cocktail does not contain alcohol, user will not fill the checkbox.) 4. User clicks Save button to update existing cocktail record.
Exceptions	4.a. User clicks “Cancel” button to cancel for updating a cocktail record. 4.b. User clicks “Exit” button to leave application.

Table 5: Use Case 5

Use Case ID	5
Use Case Name	Delete Cocktail
Actors	Polyhedra User
Description	User deletes cocktail record on the cloud environment.
Preconditions	User is defined in Polyhedra : user exists in the system with a valid username and password. The cocktail record exists in the system.
Postconditions	A cocktail record is deleted on the cloud environment.
Normal Flow	1. User deletes only own record. User deletes existing cocktail record. 2. User clicks Delete button. 3. The system show the message “the record will be deleted. are you sure to continue?” to the user. 4. Users clicks “Continue” button. 5. Cocktail record is deleted. 6. Deleted cocktail record is saved in the system as passive record. Deleted records do not disappear from database.
Exceptions	3.a. User clicks “No” button to cancel deleting operation.

Table 6: Use Case 6

Use Case ID	6
Use Case Name	Review Cocktail
Actors	Polyhedra User
Description	User review cocktail record on the cloud environment.
Preconditions	User is defined in Polyhedra: user exists in the system with a valid username and password. The cocktail record exists in the system.
Postconditions	A cocktail record is reviewed on the cloud environment.
Normal Flow	1. User adds review note. 2. User gives score to taste of the drink. 3. User gives score to cost of the drink. 4. User gives score to preparation difficulty of the drink. 5. User clicks Save button.
Exceptions	4.a. User clicks “Cancel” button to cancel for reviewing a cocktail record. 4.b. User clicks “Exit” button to leave application.

Table 7: Use Case 7

Use Case ID	7
Use Case Name	Edit Cocktail Review
Actors	Polyhedra User
Description	User edits cocktail review record on the cloud environment.
Preconditions	User is defined in Polyhedra: user exists in the system with a valid username and password. The cocktail record exists in the system. The review record exists in the system.
Postconditions	A cocktail review record is edited on the cloud environment.
Normal Flow	1. User edits review note. 2. User edits score of taste of the drink. 3. User edits score of cost of the drink. 4. User edits score of preparation difficulty of the drink. 5. User clicks Save button.
Exceptions	4.a. User clicks “Cancel” button to cancel for reviewing a cocktail record. 4.b. User clicks “Exit” button to leave application.

Table 8: Use Case 8

Use Case ID	8
Use Case Name	Delete Cocktail Review
Actors	Polyhedra User
Description	User deletes cocktail review record on the cloud environment.
Preconditions	User is defined in Polyhedra: user exists in the system with a valid username and password. The cocktail record exists in the system. The review record exists in the system.
Postconditions	A cocktail review record is deleted on the cloud environment.
Normal Flow	1. User clicks “Delete My Review” button. 2. The system deletes review data from DB.
Exceptions	1.a. User clicks “Cancel” button to cancel for reviewing a cocktail record. 1.b. User clicks “Exit” button to leave application.

Table 9: Use Case 9

Use Case ID	9
Use Case Name	Search Cocktail
Actors	Polyhedra User
Description	User searches for cocktail in Polyhedra.
Preconditions	None
Postconditions	A cocktail is searched.
Normal Flow	1. User enters search query (at least 3 letters) 2. System receives search query 3. System shows cocktails matching search query
Exceptions	1.a. User enters null (less than 3 letters) search query. 1.b. System informs users to input at least 3 letters.

Table 10: Use Case 10

Use Case ID	10
Use Case Name	Create Cocktail Group
Actors	Polyhedra Admin
Description	User creates cocktail group record on the cloud environment.
Preconditions	User is defined in Polyhedra: user exists in the system with a valid username and password.
Postconditions	A cocktail group record is created on the cloud environment.
Normal Flow	1. User enters cocktail group name into the system. (for example pre dinner cocktail, after dinner cocktail, long drink cocktail etc.) 2. User clicks Save button to create a new cocktail category record.
Exceptions	2.a. User clicks “Cancel” button to cancel for creating a cocktail category record. 2.b. User clicks “Exit” button to leave application.

Table 11: Use Case 11

Use Case ID	11
Use Case Name	Remove Review
Actors	Polyhedra Admin
Description	User removes cocktail review record on the cloud environment.
Preconditions	User is defined in Polyhedra: user exists in the system with a valid username and password.
Postconditions	A cocktail review record is removed on the cloud environment.
Normal Flow	1. User clicks “Remove Review” button. 2. The system deletes review data from DB.
Exceptions	1.a. User clicks “Cancel” button to cancel for reviewing a cocktail record. 1.b. User clicks “Exit” button to leave application.

5. Usability Requirements

Usability requirements which are designs and specifications that makes Polyhedra easy to use can be listed as:

- Performance: It can be measured by making users complete a task such as searching for a cocktail. In Polyhedra, at least 99.5% users will be able to successfully accomplish main functionalities easily. Moreover, while searching for a cocktail, it will take at most 3 seconds to query and get the results.
- Accessibility: It will be accessible to cocktail enthusiasts from all ages (except legal age limitation) who are able to read, use smart devices such as tablets, smartphones and computers.
- User-engagement: It is aimed that Polyhedra will have an appealing, fun, fast and easy to use interface. It will also include cocktail recipes, categories and ratings that everyone will benefit from in a quick and easy way. That is why Polyhedra will have a high user-engagement.
- Undo: In Polyhedra, users will use all functionalities, which are possible to undo. For instance, while adding, searching and reviewing cocktails, users will undo their actions via undo and edit buttons.

6. Performance Requirements

The response time shall be less than 5 seconds to keep the user focused. Average response time shall be less than or equal to 1 second for all user activities. The application shall consume no more than 5% CPU of a modern device (PC, smartphone etc.) to ensure that the application runs even on the old devices.

The application shall be scalable to handle at least 1000 users at any given time and scale up and down depending on the current number of users.

7. Logical Database Requirements

Logical database of the system is given in Figure 3.

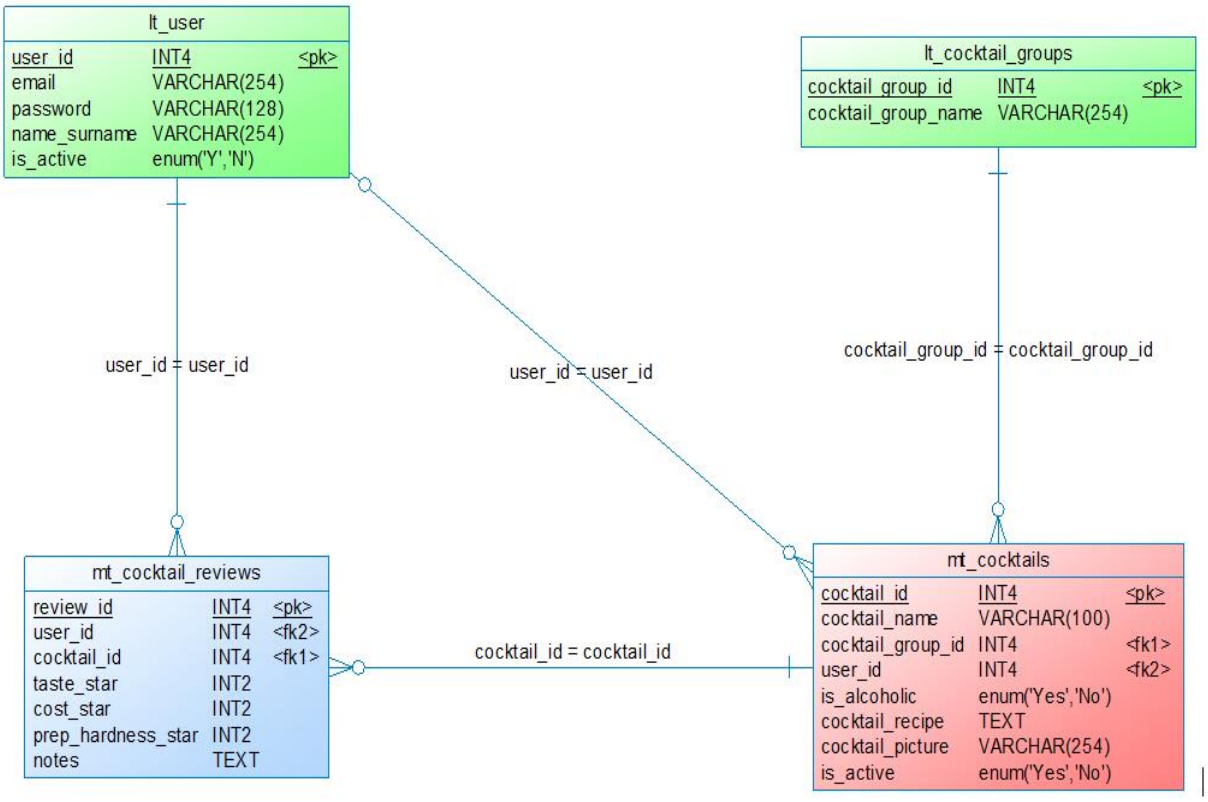

Figure 3: Polyhedra Logical Database

8. System Interfaces

Initially, the database is created using TheCocktailDB JSON API (available at https://www.thecocktaildb.com/api.php) which includes thumbnails, ingredients, recipes and categories of 592 cocktails. Then, database is enriched by users through user interfaces.

8.1 User Interfaces

Since the crucial functionalities are searching for cocktail recipes, adding cocktail recipes and adding and/or reading reviews, the interfaces that provide them are depicted in the following, one by one. They are obtained via Balsamiq Wireframes and also aimed to give the general idea about user interface design of Polyhedra.

8.1.1 Search Cocktail Interface

Not only users can search for cocktail recipes by using the search box on the top at this page, but also they can take a look at mostly viewed cocktail recipes and their ratings at the rest of the page.

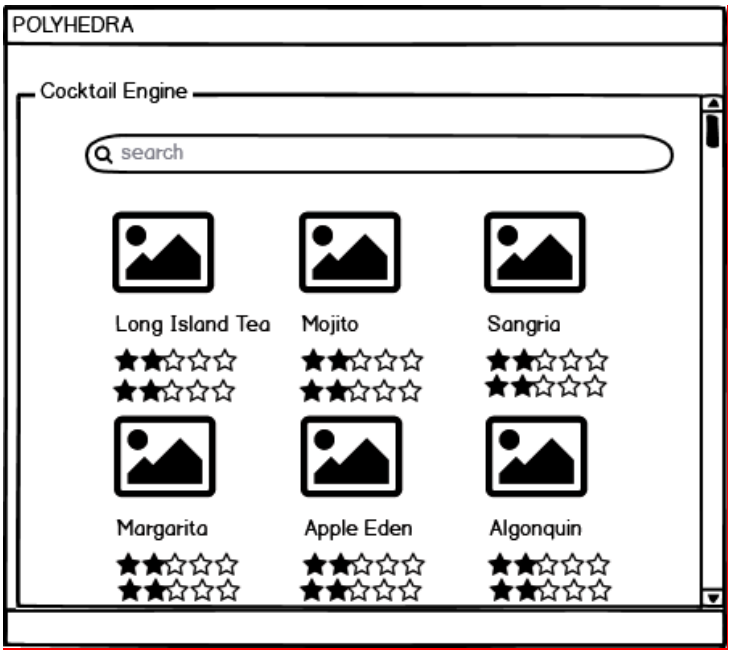

Figure 4: Search Cocktail Interface

8.1.2 Add Cocktail Interface

By using this interface, users can add new recipes so that other users can benefit from them. Users can add ingredients in the first tab, category such as dinner in the second tab. Additionally, they can attach the photographs of the current recipe in the third tab, and lastly in the fourth tab, special notes that are specific to this recipe can be included.

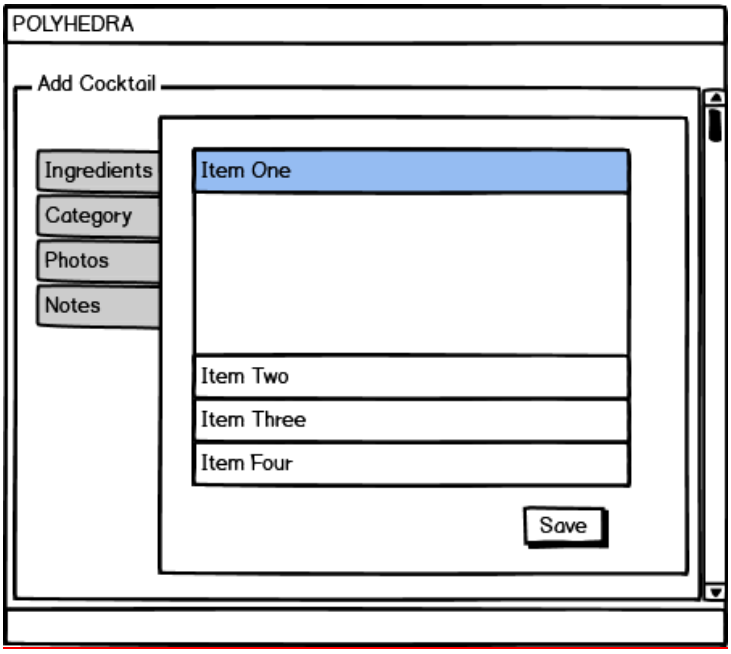

Figure 5: Add Cocktail Interface

8.1.3 Review Cocktail Interface

In this user interface, users can read the reviews and see the ratings of other users who had been prepared and consumed this cocktail at the right side of it, while they can both check over the overall rating of the recipe and rate in order to express their own ideas.

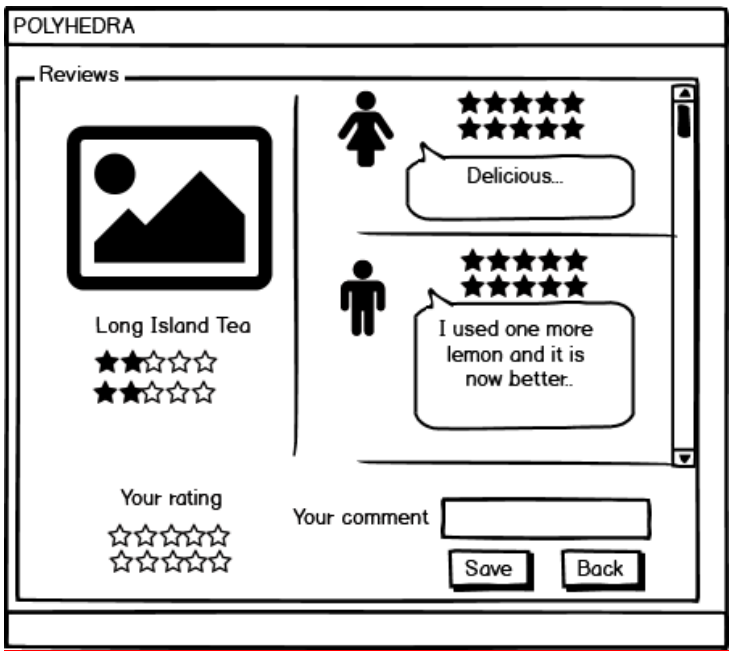

Figure 6: Review Cocktail Interface

8.2 Communication Interfaces

In order to utilize the main functionalities of Polyhedra, such as creating, searching and reviewing cocktails, Internet connection is required. Since it is a regular website, it can be accessible from laptops, tablets, and smart phones with Android OS and iOS. In addition, Polyhedra will support all web browsers due to being an easy-to-use website.

9. System Modes and States

System modes depend on the capabilities of different types of users in the system. In Polyhedra, there are three types of users and -for this very reason- system modes which are regular user mode, registered user mode and admin mode, as well. These users and system modes are briefly explained in the following:

- Regular users who are meant unregistered users in Polyhedra, are only allowed to search for cocktail recipes and take a look at the rating of these recipes in this mode.

- On the other hand, in registered user mode, users are able to add new recipes to the system, rate the recipes in terms of cost, taste and preparation difficulty and make a remark related to the recipe in addition to the rights of regular users. Thus, other users can pay regard to them in advance.
- Admin user is most authorized one among them which means that in addition to the capabilities of other types of users, in this mode admin user has the capability of removing reviews and comments which are not suitable for the purpose of Polyhedra.

10. Standards Compliance

ISO 9001:2008 : Quality Management Systems

ISO/IEC/IEEE 29148:2018 : Software Requirements Specification (SRS)

11. Verification

Test plan and test steps will be prepared until the 14th week. Each use cases and all functions will have a scenario and they will be tested with test scenarios. In addition, unit tests will be conducted while developing the application.

After each deliverables such as PMP, SRS, and SDD, review of the instructors, feedback will indicate our project's deficits. These drawbacks will be corrected.

12. Assumptions and Dependencies

Assumptions can be listed as:

- Users have basic computer and web skills

Constraints can be listed as:

- Backend components of the project services and databases will be deployed on the PaaS services provided by public cloud platforms such as Amazon Web Services, Google Cloud, Heroku, mLab, MongoDB Atlas, Microsoft Azure and IBM Clouds.
- Free account options provided by public cloud platforms will be used for the project.
- The project will be completed within schedule provided in the lecture.