Match & Stir
2-1

SE 305 – Software Specification and Design
Term Project Design Document

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1. Introduction

Match & Stir is an application that suggests recipes according to the ingredients entered by the user.

According to the ingredients provided by the user, the system shows possible recipes that contain all or most of the ingredients. The system primarily searches for perfect matches containing only the ingredients the user entered but also considers recipes with additional materials that the user did not enter. The recipes that may require additional ingredients are listed according to the number of extra materials. This approach is followed to ensure that users can find a recipe that will require a minimum amount of extra things but are still able to find a recipe that may be suitable to their needs.

The main difference of this application is that the system is connected to an online market service. After selecting a recipe, the system checks the required materials for the recipe. Then, ingredients that were not entered but are needed for the recipe are detected and a shopping cart is filled in a way that can be quickly ordered from the market service. The automation of product selection is done according to the best deals and prices currently in the online market service. But the user may change the product by simply selecting the product and viewing the other options that can be switched. For instance, if you have oil, tomato and pepper and enter them into the app, it suggests you make menemen. But it also recommends eggs and cheese so you can add them as well. Then, the application forms a shopping cart with those additional ingredients from a connected shopping service like yemeksepeti.

Additionally, a filter system is to be implemented according to the recipes' difficulty, duration, cost, and material requirements. Similarly, a preference system should be implemented to achieve an easy search for recipes. These components are considered to fulfil user accessibility and faster, convenient application usage by the users.

2. Problem Definition

We, as a group, are aware that cooking is difficult and takes a lot of time. Most of the time, People can't decide or don't know which food to cook with the ingredients they have. We have developed an application as a solution to this. When you write down the materials you have using this application, it shows sample recipes and recipes you can make using extra materials.

3. Proposed System Design

3.1. Requirements

3.1.1 Non-Functional Requirements:

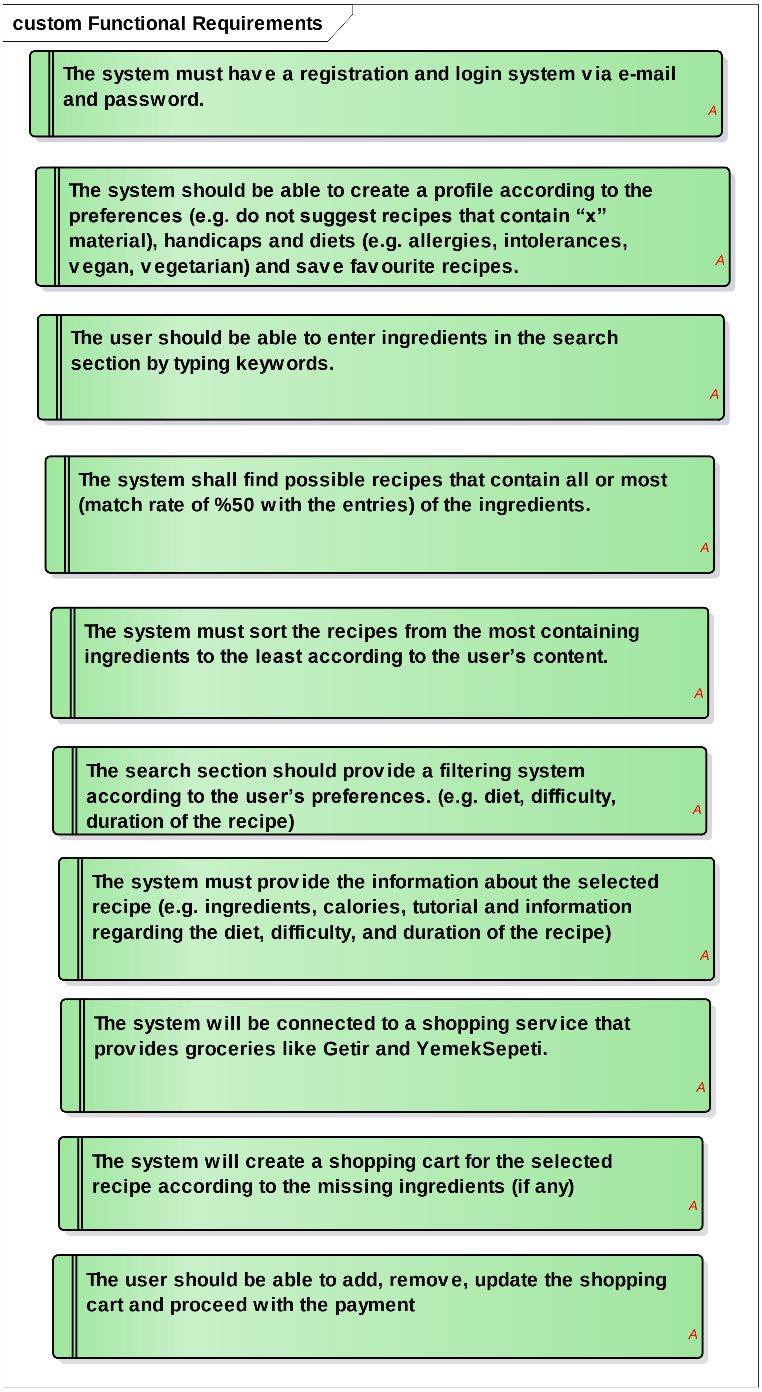
1. The system should include functions that ensure usability by all ages like instructions of operations within the system, navigation to the said operations along with simplistic design for clarity.
2. The system should be available to users 24/7 and usable from all over the world.
3. The system should run without errors that will cause the application to close, delete user information, and stop the operation of the functions that include entering ingredients, searching, and selecting recipes and manipulating the shopping cart.
4. The system should respond to commands within at most 1 second and execute within at most 3 second.
5. The system should protect user information with some cryptographic algorithms such as Caesar Cipher.

3.1.2 Functional Requirements:

1. The system must have a registration and login system via e-mail and a password.
2. The user should be able to create a profile according to the preferences (e.g. do not suggest recipes that contain “x” material), handicaps and diets (e.g. allergies, intolerance, vegan, vegetarian) and save favorite recipes.
3. The user should be able to enter ingredients in the search section.
4. The system shall find possible recipes that contain all or most (match rate of %50 with the ingredients) of the ingredients.
5. The system must sort the recipes from the most containing ingredients to the least according to the user’s content.
6. The search section should provide a filtering system according to the user’s preferences. (e.g. diet, difficulty, duration of the recipe)
7. The system must provide information about the selected recipe. (e.g. ingredients, calories, tutorial and information regarding the diet, difficulty, and duration of the recipe)
8. The system will be connected to a shopping service that provides groceries like Getir and YemekSepeti.
9. The system will create a shopping cart for the selected recipe according to the missing ingredients (if any).
10. The user should be able to add, remove, and update the shopping cart and proceed with the payment.

3.2. Activity Diagrams

Diagram 3.2.1: Functional Requirements



custom Functional Requirements

The system must have a registration and login system via e-mail and password.

The system should be able to create a profile according to the preferences (e.g. do not suggest recipes that contain “x” material), handicaps and diets (e.g. allergies, intolerances, vegan, vegetarian) and save favourite recipes.

The user should be able to enter ingredients in the search section by typing keywords.

The system shall find possible recipes that contain all or most (match rate of %50 with the entries) of the ingredients.

The system must sort the recipes from the most containing ingredients to the least according to the user’s content.

The search section should provide a filtering system according to the user’s preferences. (e.g. diet, difficulty, duration of the recipe)

The system must provide the information about the selected recipe (e.g. ingredients, calories, tutorial and information regarding the diet, difficulty, and duration of the recipe)

The system will be connected to a shopping service that provides groceries like Getir and YemekSepeti.

The system will create a shopping cart for the selected recipe according to the missing ingredients (if any)

The user should be able to add, remove, update the shopping cart and proceed with the payment

Diagram 3.2.2: The system must sort the recipes from the most containing ingredients to the least according to the user's content.

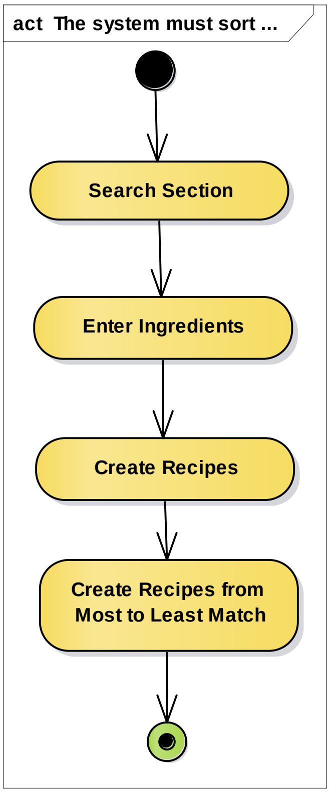

act The system must sort ...
Search Section
Enter Ingredients
Create Recipes
Create Recipes from Most to Least Match

Diagram 3.2.3: «Functional» The user should be able to add, remove, and update the shopping cart and proceed with the payment.

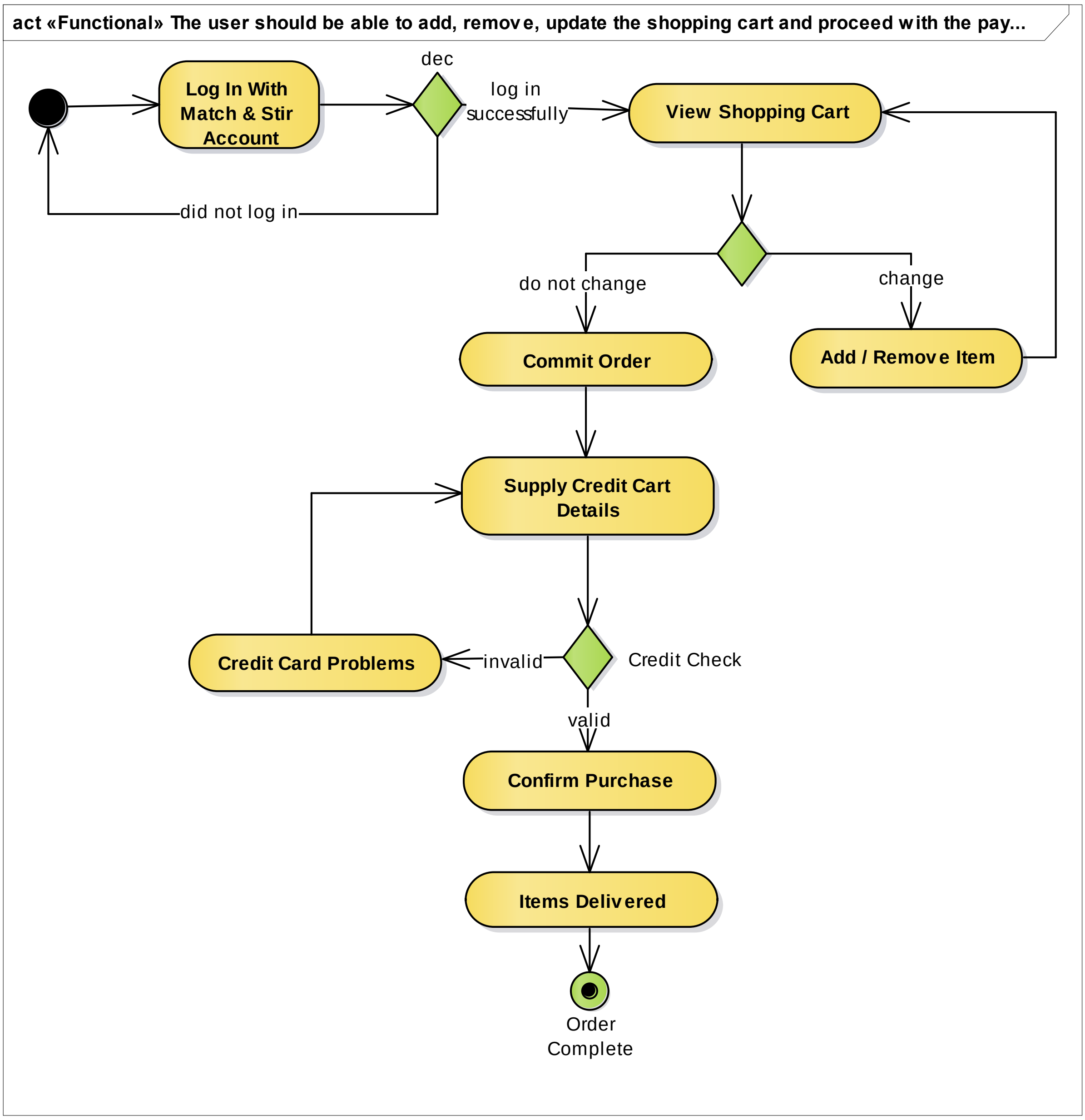


Diagram 3.2.4: The search section should provide a filtering system according to the user's preferences. (e.g. diet, difficulty, duration of the recipe)

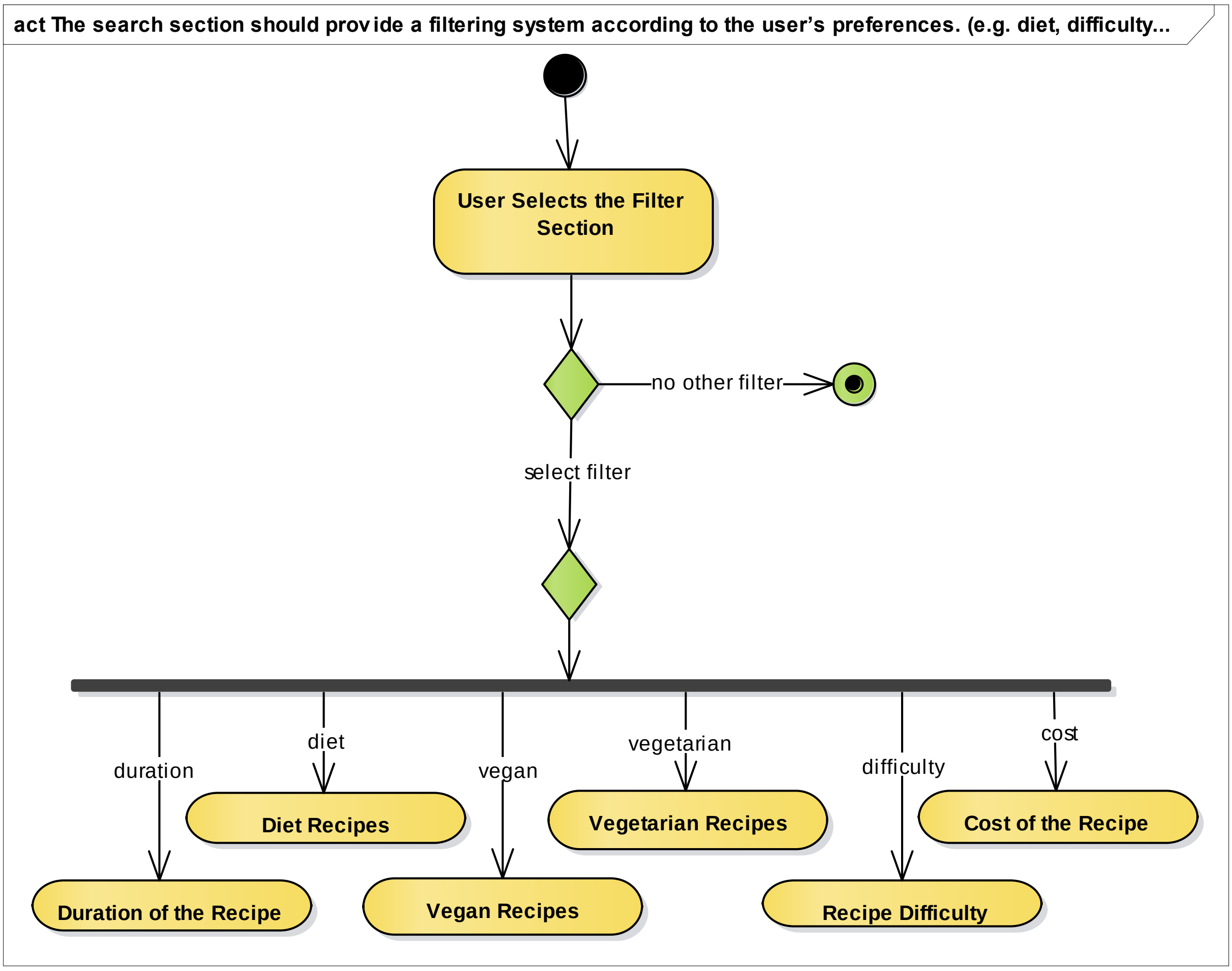


Diagram 3.2.5: The system must have a registration and login system via e-mail and password.

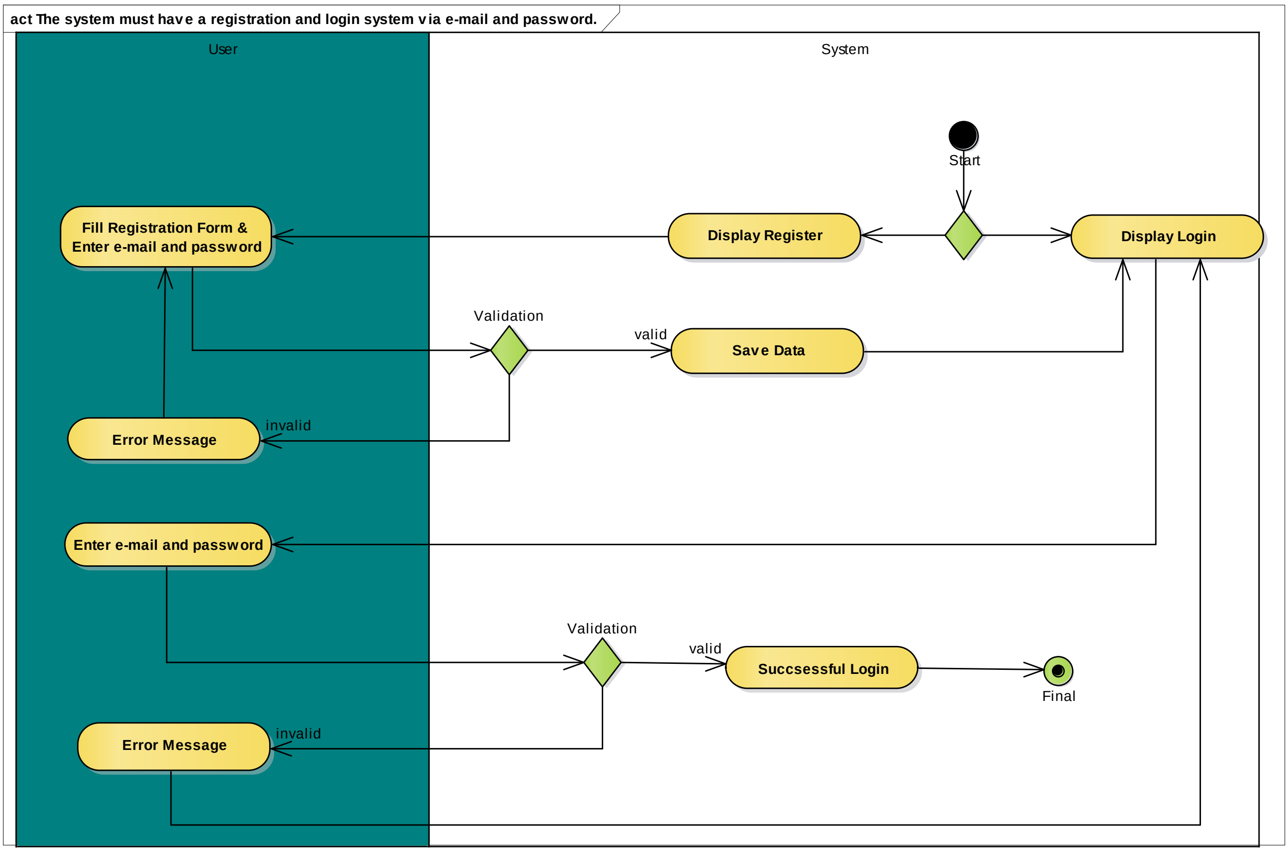

act The system must have a registration and login system via e-mail and password.
User
System
Start
Display Register
Display Login
Fill Registration Form & Enter e-mail and password
Validation
valid
Save Data
invalid
Error Message
Enter e-mail and password
Validation
valid
Succsessful Login
Final
invalid
Error Message

Diagram 3.2.6: The system must provide the information about the selected recipe. (e.g. ingridients, calories, tutorials)

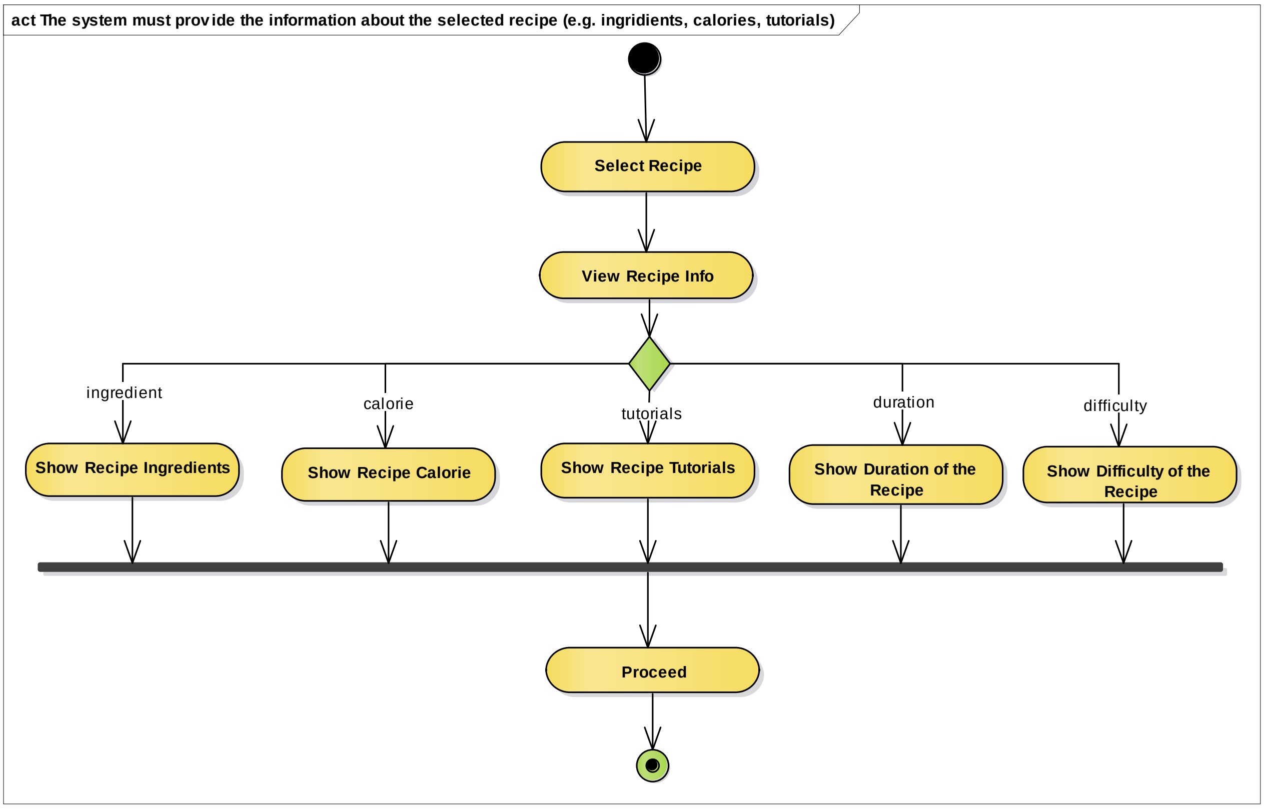

act The system must provide the information about the selected recipe (e.g. ingridients, calories, tutorials)
Select Recipe
View Recipe Info
ingredient
calorie
tutorials
duration
difficulty
Show Recipe Ingredients
Show Recipe Calorie
Show Recipe Tutorials
Show Duration of the Recipe
Show Difficulty of the Recipe
Proceed

Diagram 3.2.7: The system shall find possible recipes that contain all or most (match rate of %50 with the entries) of the ingredients.

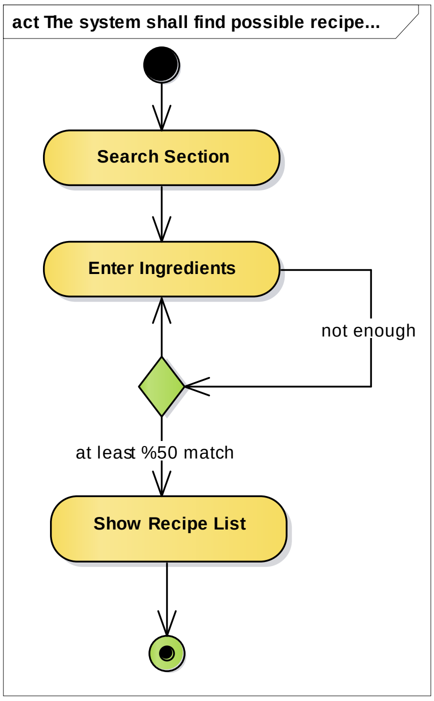


Diagram 3.2.8: The system should be able to create a profile according to the preferences (e.g. do not suggest recipes that contain "x" material), handicaps and diets (e.g. allergies, intolerances, vegan, vegetarian) and save favourite recipes.

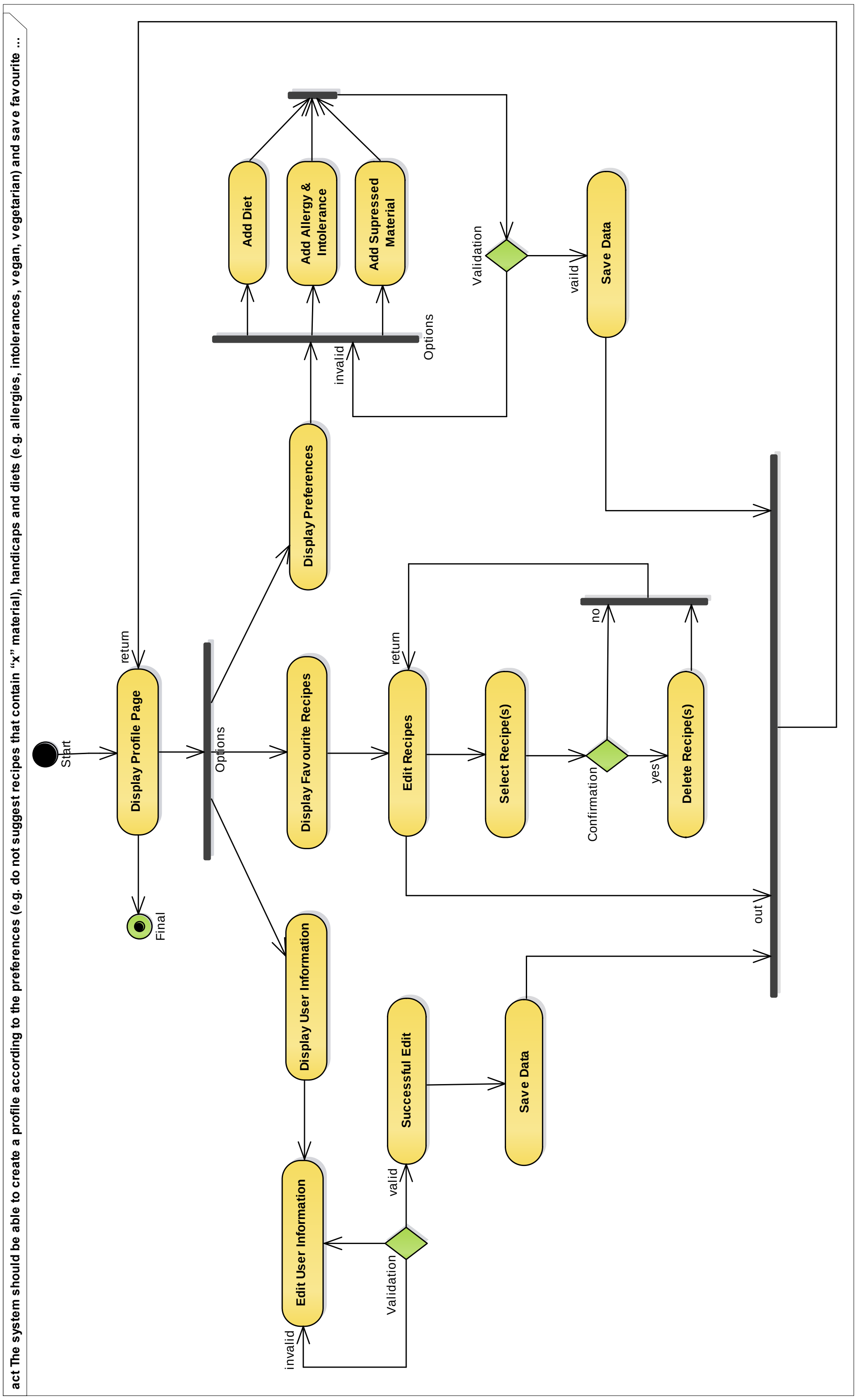
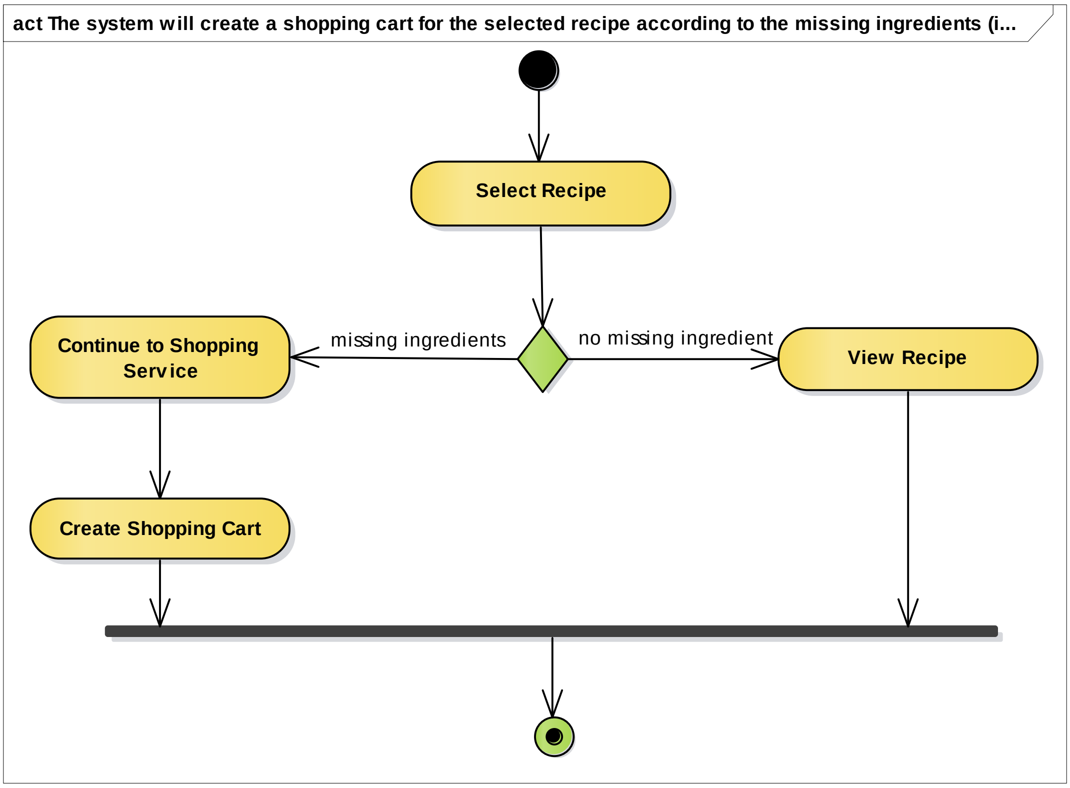
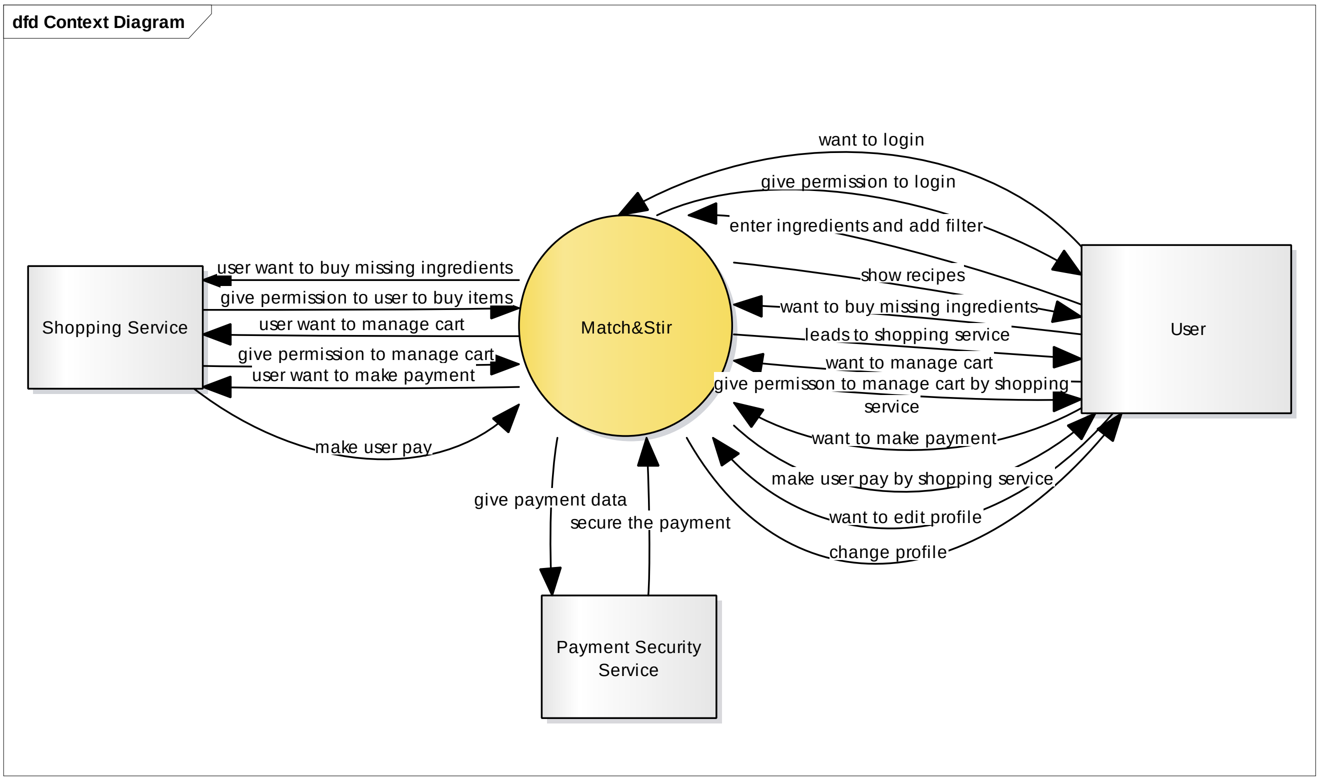


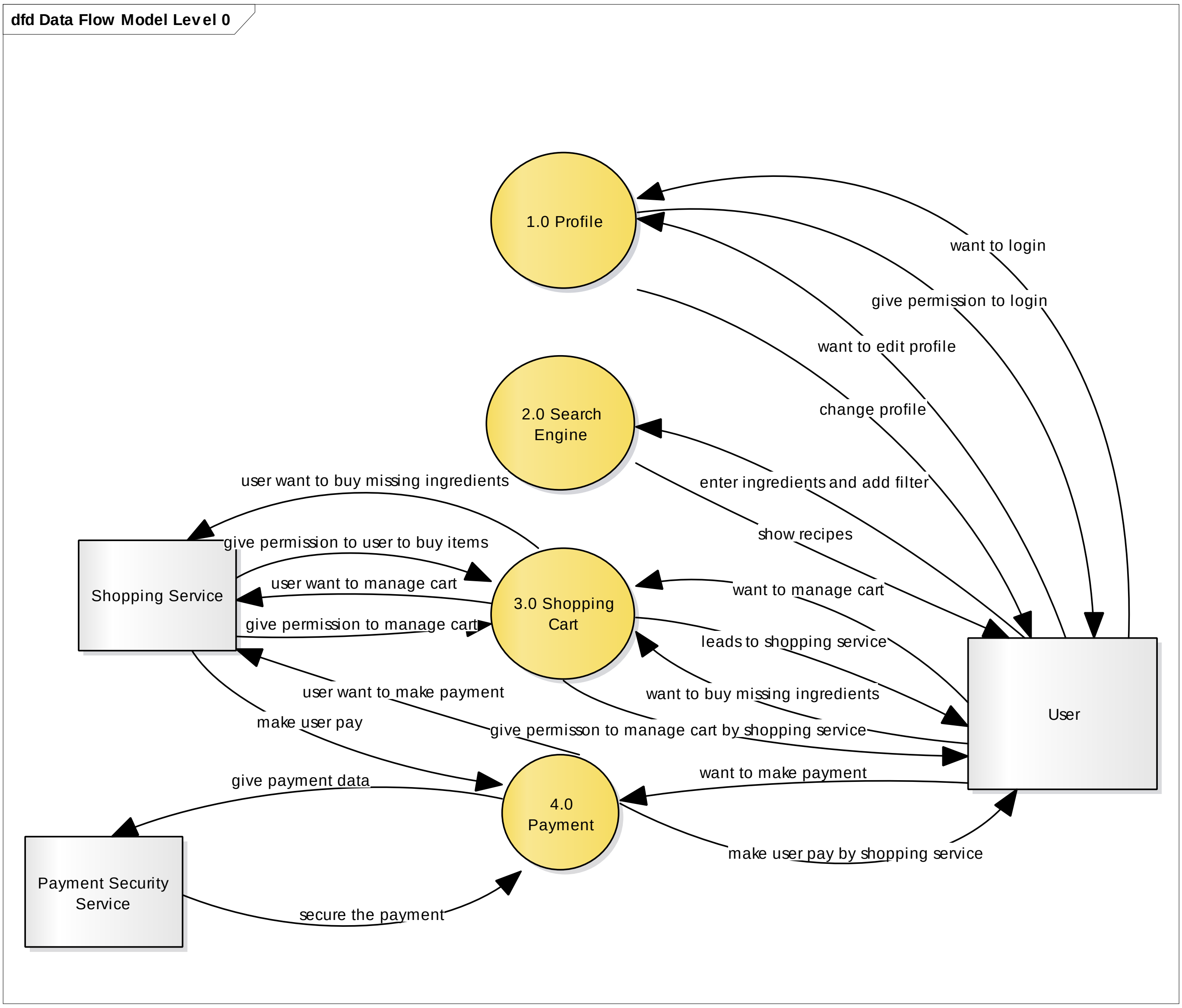
Diagram 3.2.9: The system will create a shopping cart for the selected recipe according to the missing ingredients (if any).

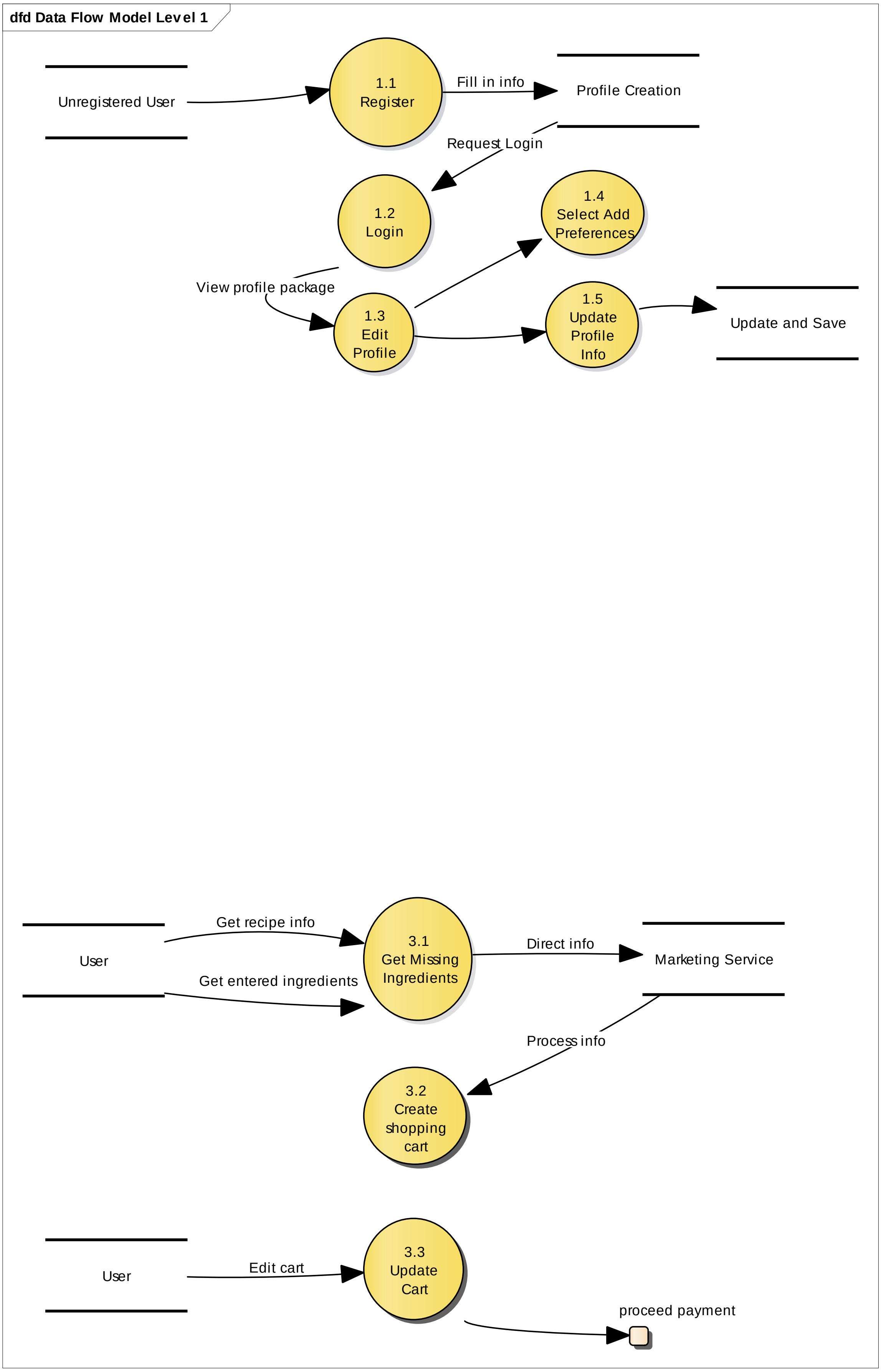

act The system will create a shopping cart for the selected recipe according to the missing ingredients (i...
Select Recipe
missing ingredients
no missing ingredient
Continue to Shopping Service
View Recipe
Create Shopping Cart

3.3. Context Model


dfd Context Diagram
want to login
give permission to login
enter ingredients and add filter
Shopping Service
user want to buy missing ingredients
give permission to user to buy items
user want to manage cart
give permission to manage cart
user want to make payment
make user pay
Match&Stir
show recipes
want to buy missing ingredients
leads to shopping service
want to manage cart
give permisson to manage cart by shopping service
want to make payment
make user pay by shopping service
want to edit profile
change profile
User
give payment data
secure the payment
Payment Security Service

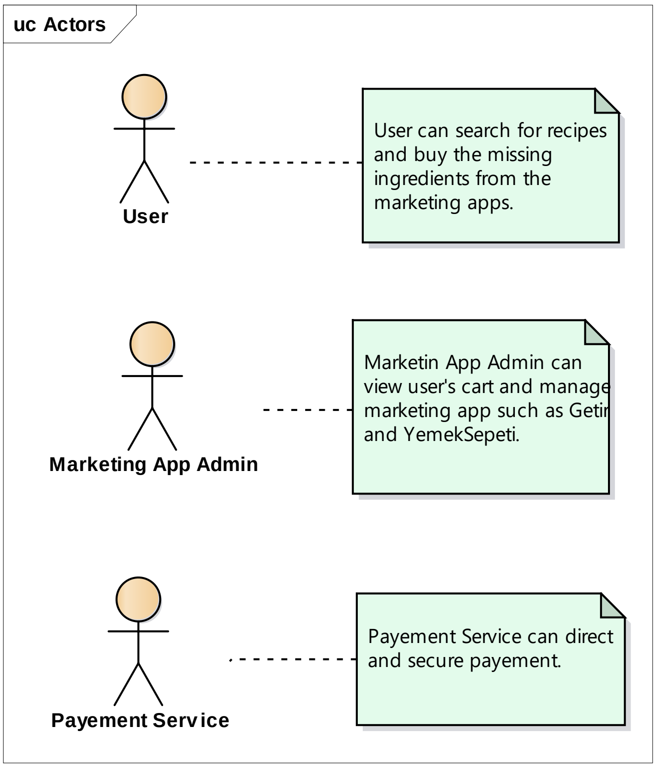
3.4. Data Flow Diagrams


dfd Data Flow Model Level 0
1.0 Profile
2.0 Search Engine
3.0 Shopping Cart
4.0 Payment
Shopping Service
Payment Security Service
User
want to login
give permission to login
want to edit profile
change profile
enter ingredients and add filter
show recipes
user want to buy missing ingredients
give permission to user to buy items
user want to manage cart
give permission to manage cart
want to manage cart
leads to shopping service
want to buy missing ingredients
user want to make payment
make user pay
give permisson to manage cart by shopping service
want to make payment
give payment data
make user pay by shopping service
secure the payment


dfd Data Flow Model Level 1
Unregistered User
1.1 Register
Fill in info
Profile Creation
Request Login
1.2 Login
1.4 Select Add Preferences
View profile package
1.3 Edit Profile
1.5 Update Profile Info
Update and Save
User
Get recipe info
Get entered ingredients
3.1 Get Missing Ingredients
Direct info
Marketing Service
Process info
3.2 Create shopping cart
User
Edit cart
3.3 Update Cart
proceed payment

3.5. Use Cases

3.5.1. Actors

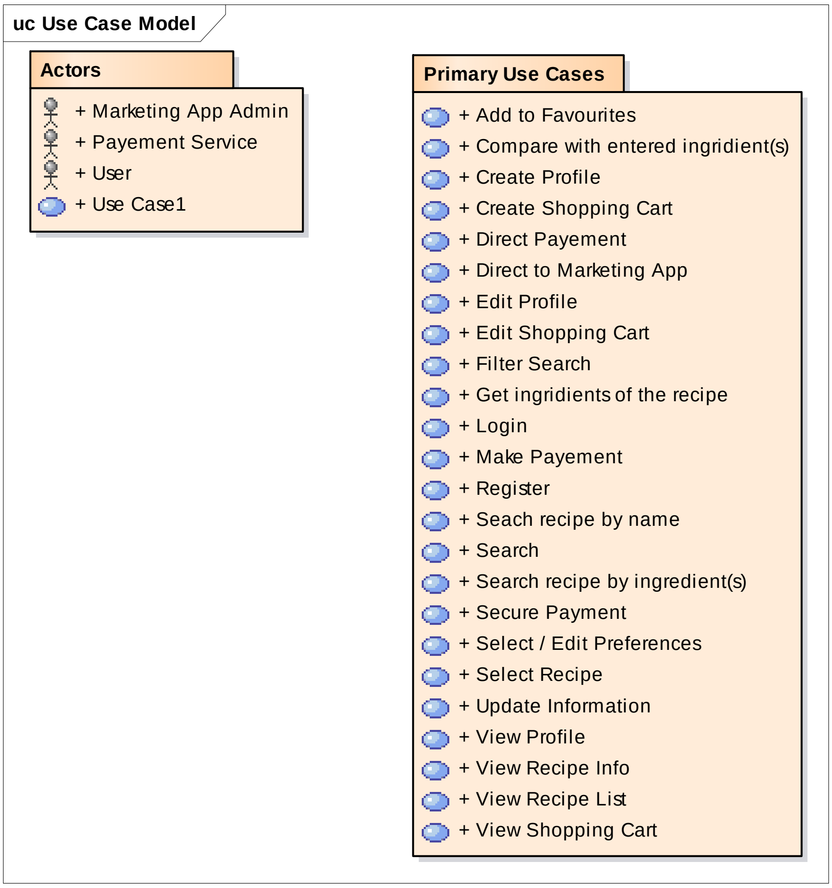


User can search for recipes and buy the missing ingredients from the marketing apps.

Marketin App Admin can view user's cart and manage marketing app such as Getir and YemekSepeti.

Payement Service can direct and secure payement.

3.5.2. Use Case Diagrams

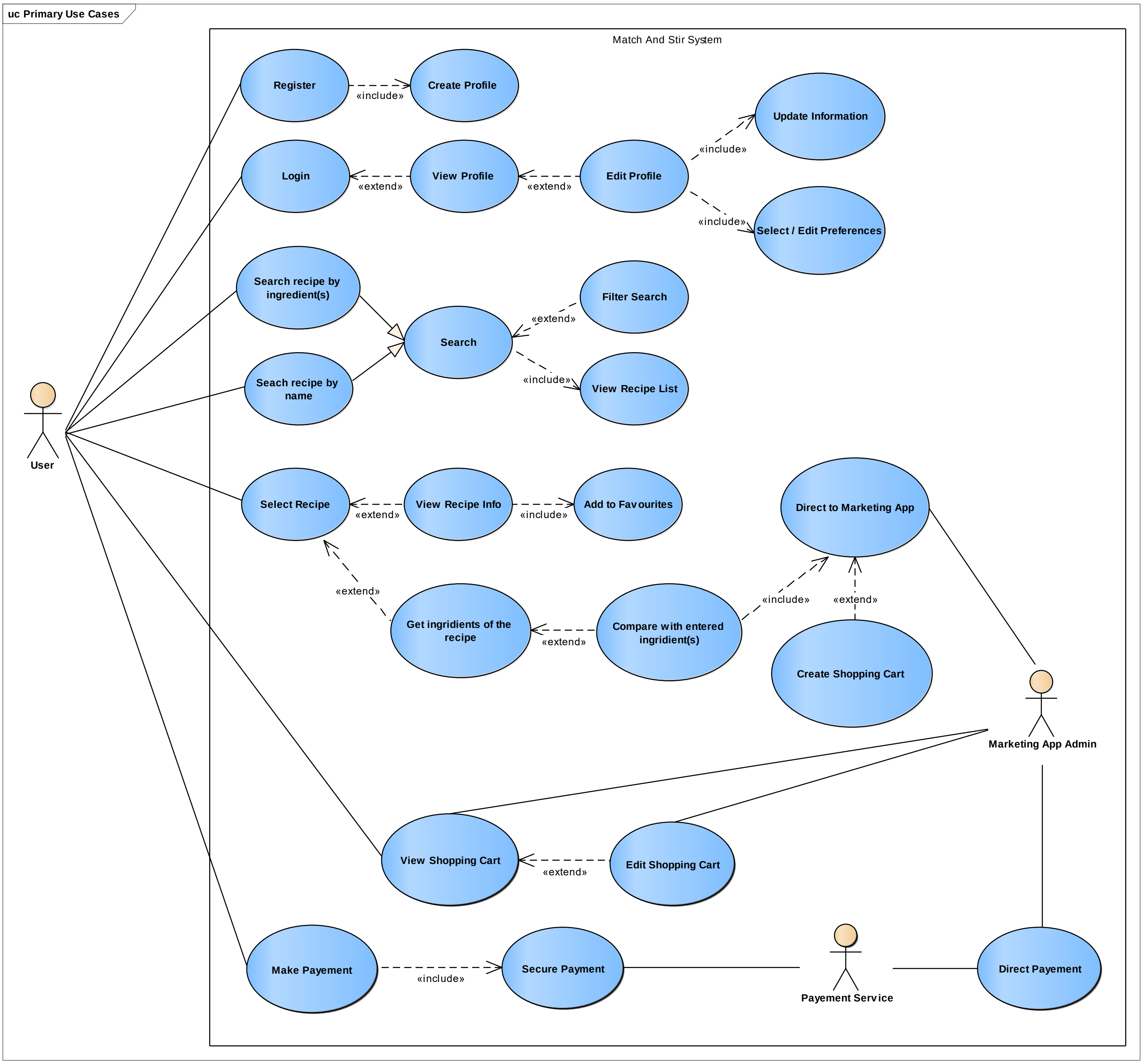


Actors

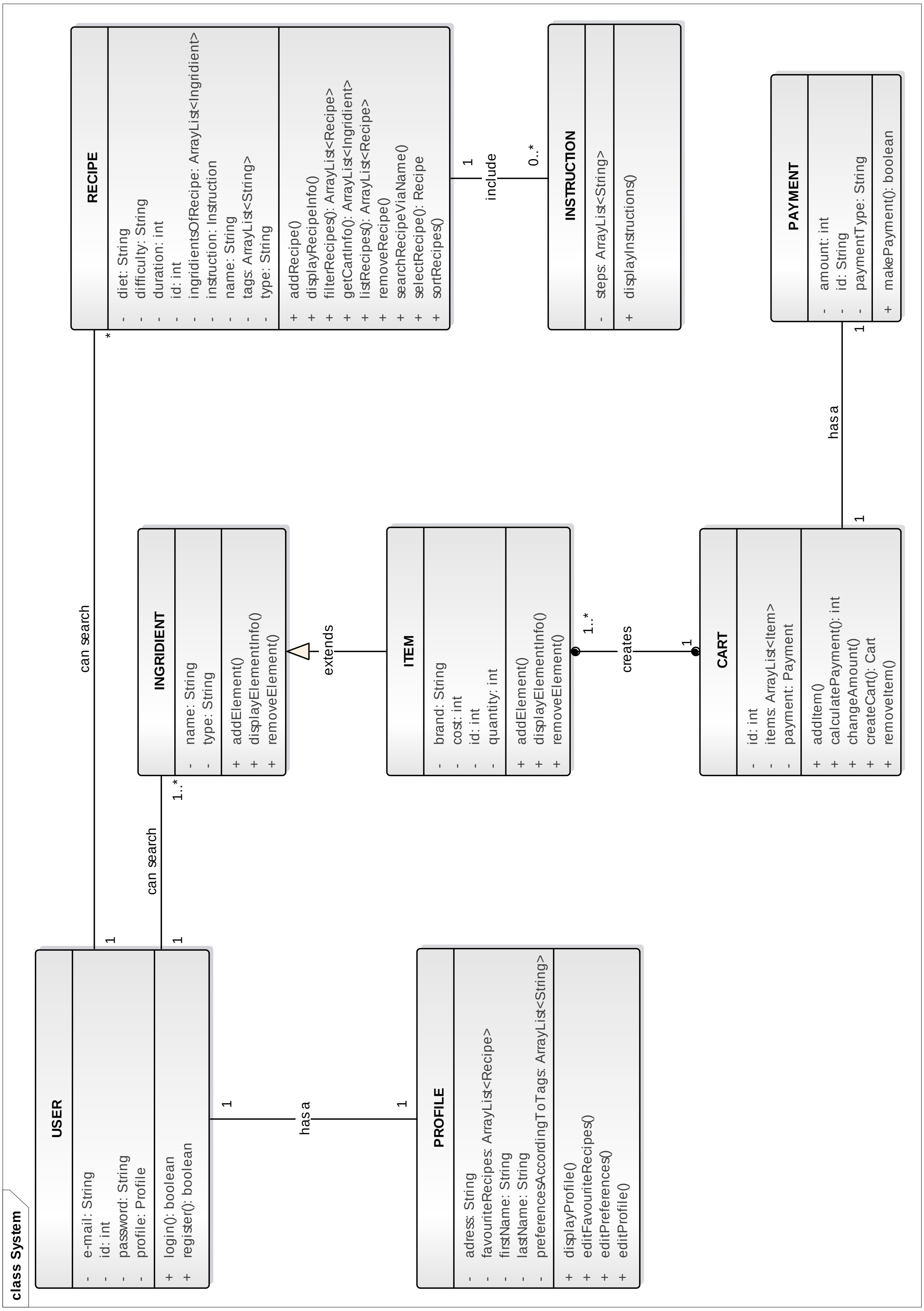
- + Marketing App Admin
- + Payement Service
- + User
- + Use Case1

Primary Use Cases

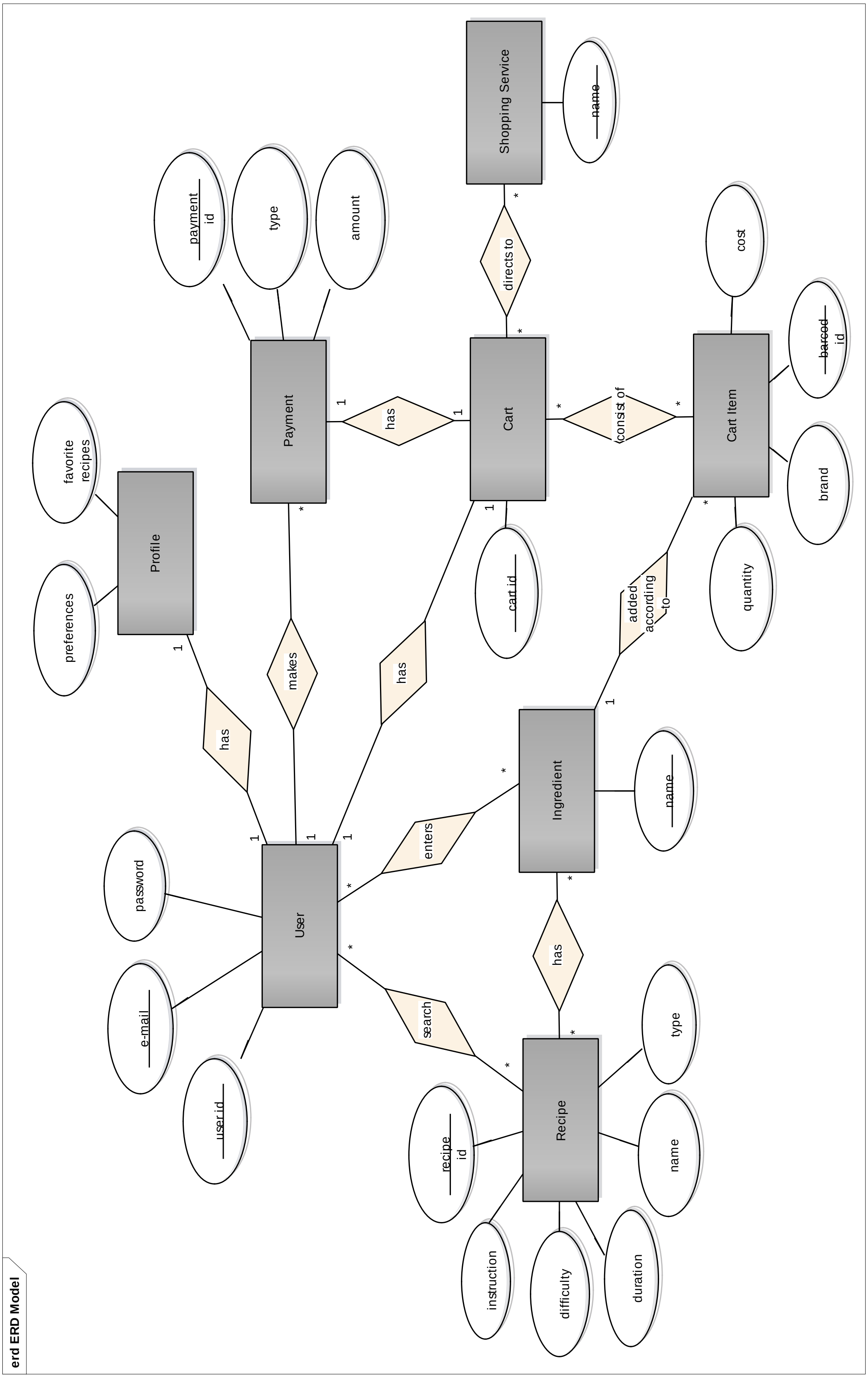
- + Add to Favourites
- + Compare with entered ingridient(s)
- + Create Profile
- + Create Shopping Cart
- + Direct Payement
- + Direct to Marketing App
- + Edit Profile
- + Edit Shopping Cart
- + Filter Search
- + Get ingridients of the recipe
- + Login
- + Make Payement
- + Register
- + Seach recipe by name
- + Search
- + Search recipe by ingredient(s)
- + Secure Payment
- + Select / Edit Preferences
- + Select Recipe
- + Update Information
- + View Profile
- + View Recipe Info
- + View Recipe List
- + View Shopping Cart


uc Primary Use Cases
Match And Stir System
Register
«include»
Create Profile
Update Information
«include»
Login
«extend»
View Profile
«extend»
Edit Profile
«include»
Select / Edit Preferences
Search recipe by ingridient(s)
Filter Search
«extend»
Search
«include»
View Recipe List
Seach recipe by name
User
Select Recipe
«extend»
View Recipe Info
«include»
Add to Favourites
Direct to Marketing App
«extend»
Get ingridients of the recipe
«extend»
Compare with entered ingridient(s)
«include»
«extend»
Create Shopping Cart
Marketing App Admin
View Shopping Cart
«extend»
Edit Shopping Cart
Make Payement
«include»
Secure Payment
Payement Service
Direct Payement

3.6. Class Diagrams

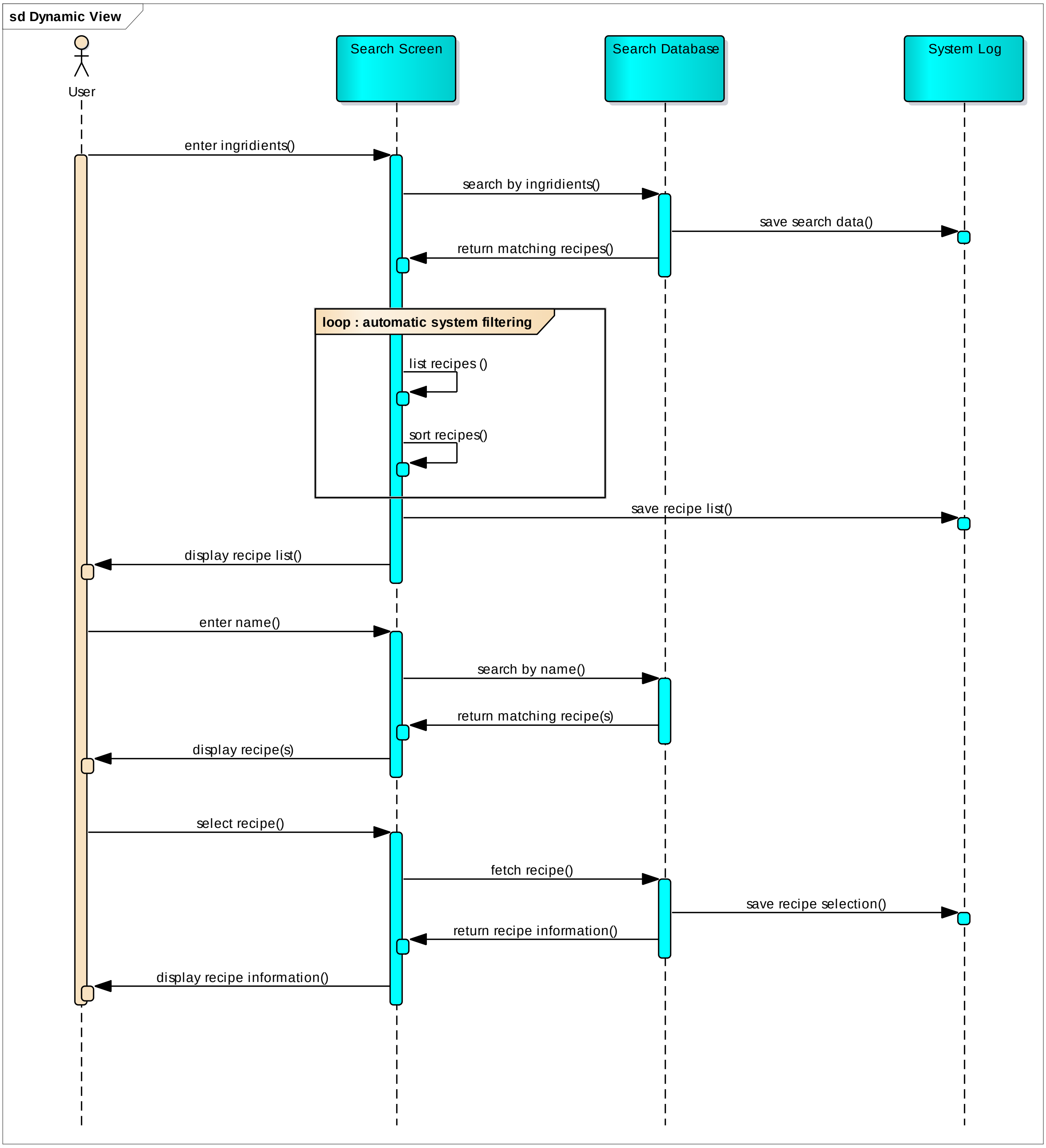


3.7. E/R Diagrams

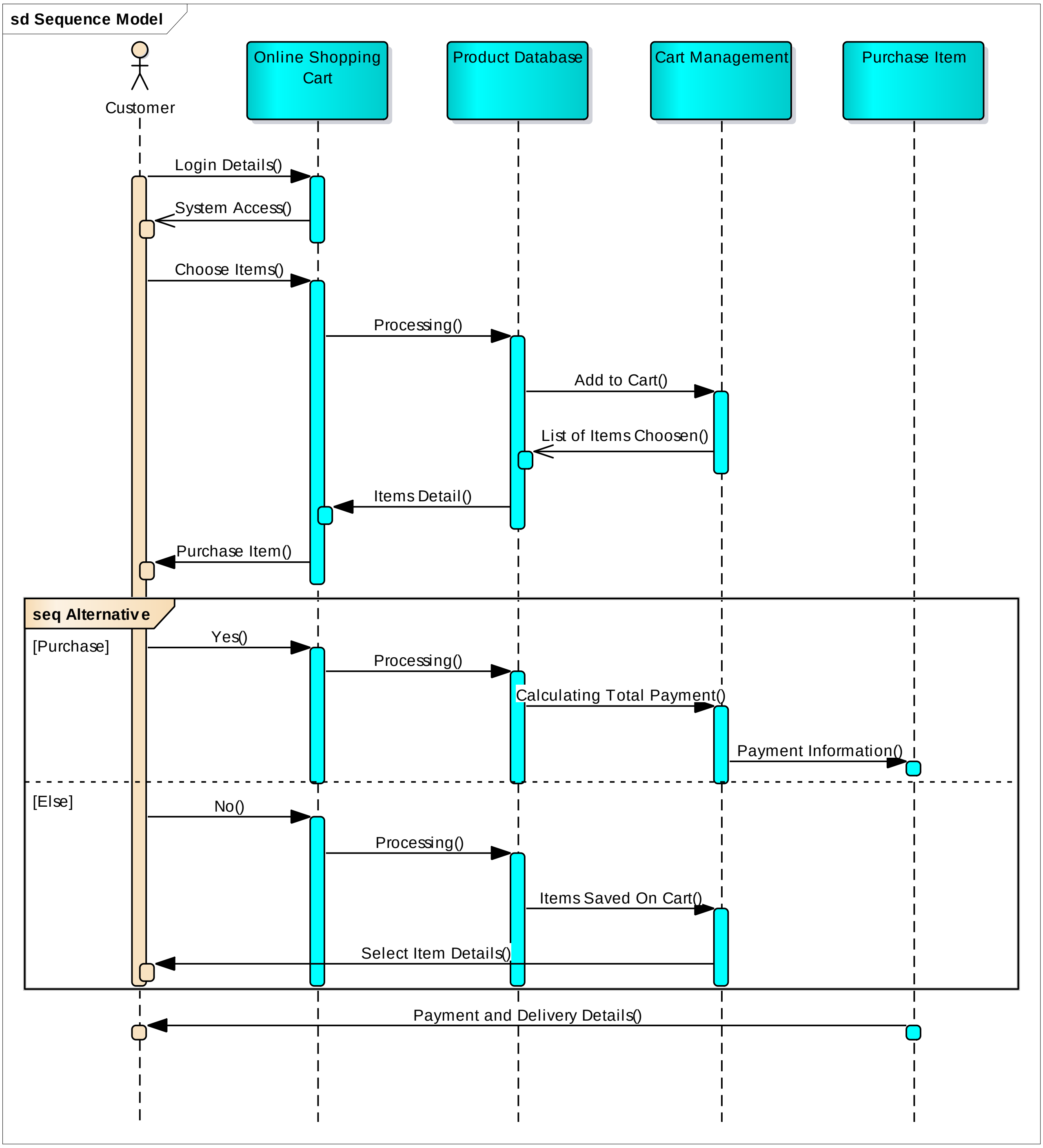


3.8. Sequence Diagrams

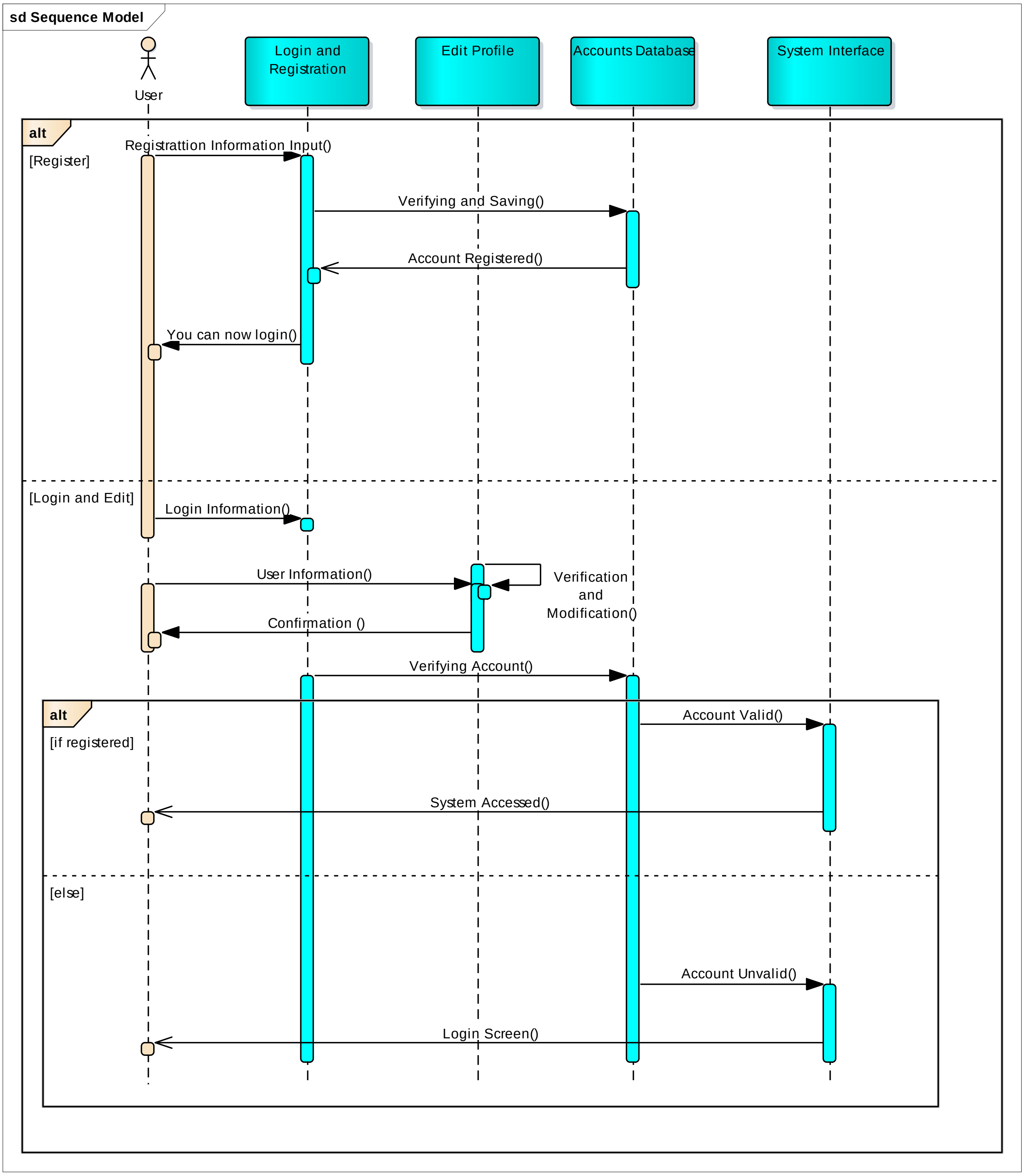
3.8.1. Sequence Diagram 1: *SEARCH*



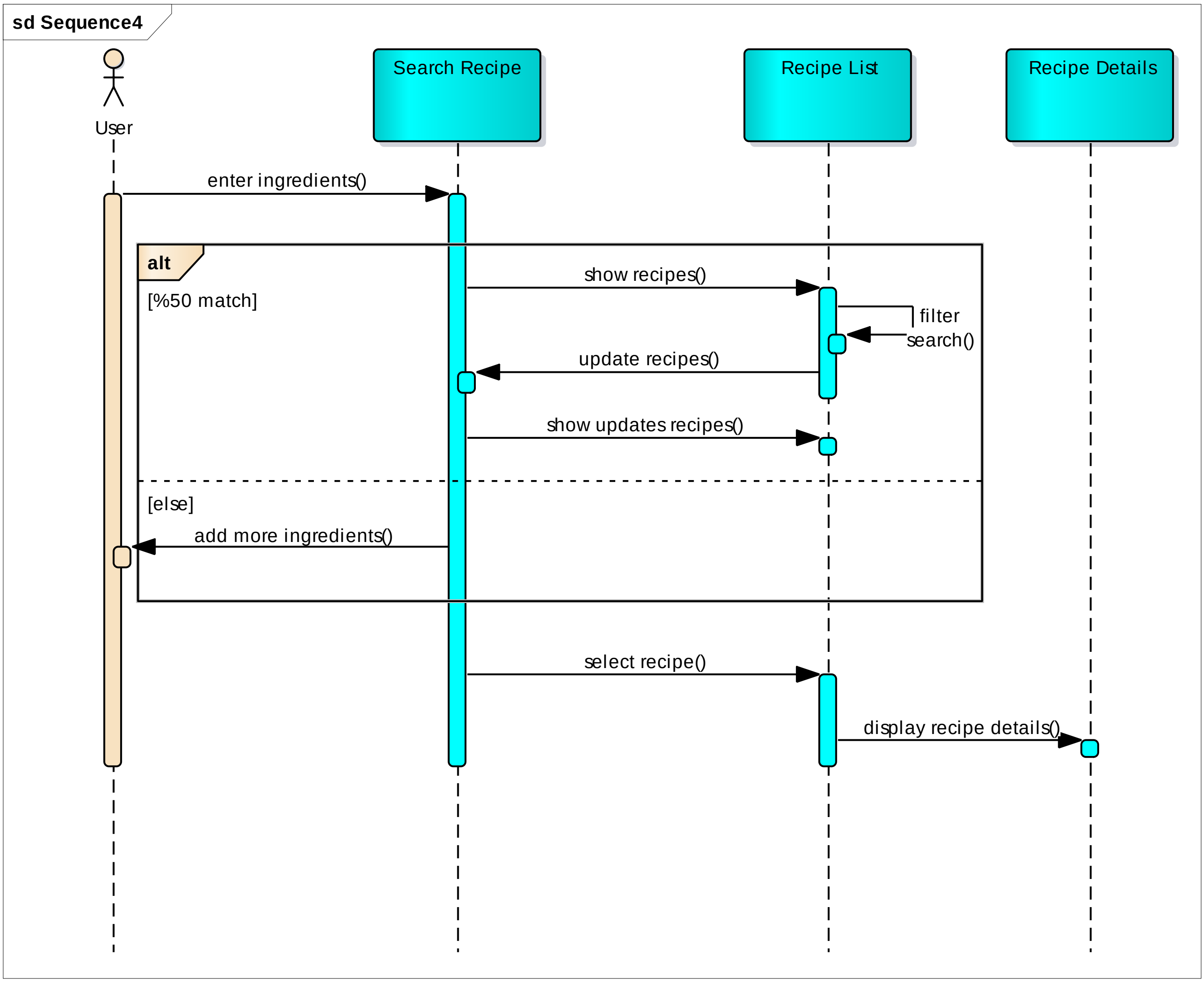
3.8.2. Sequence Diagram 2: *SHOPPING CART EDIT*



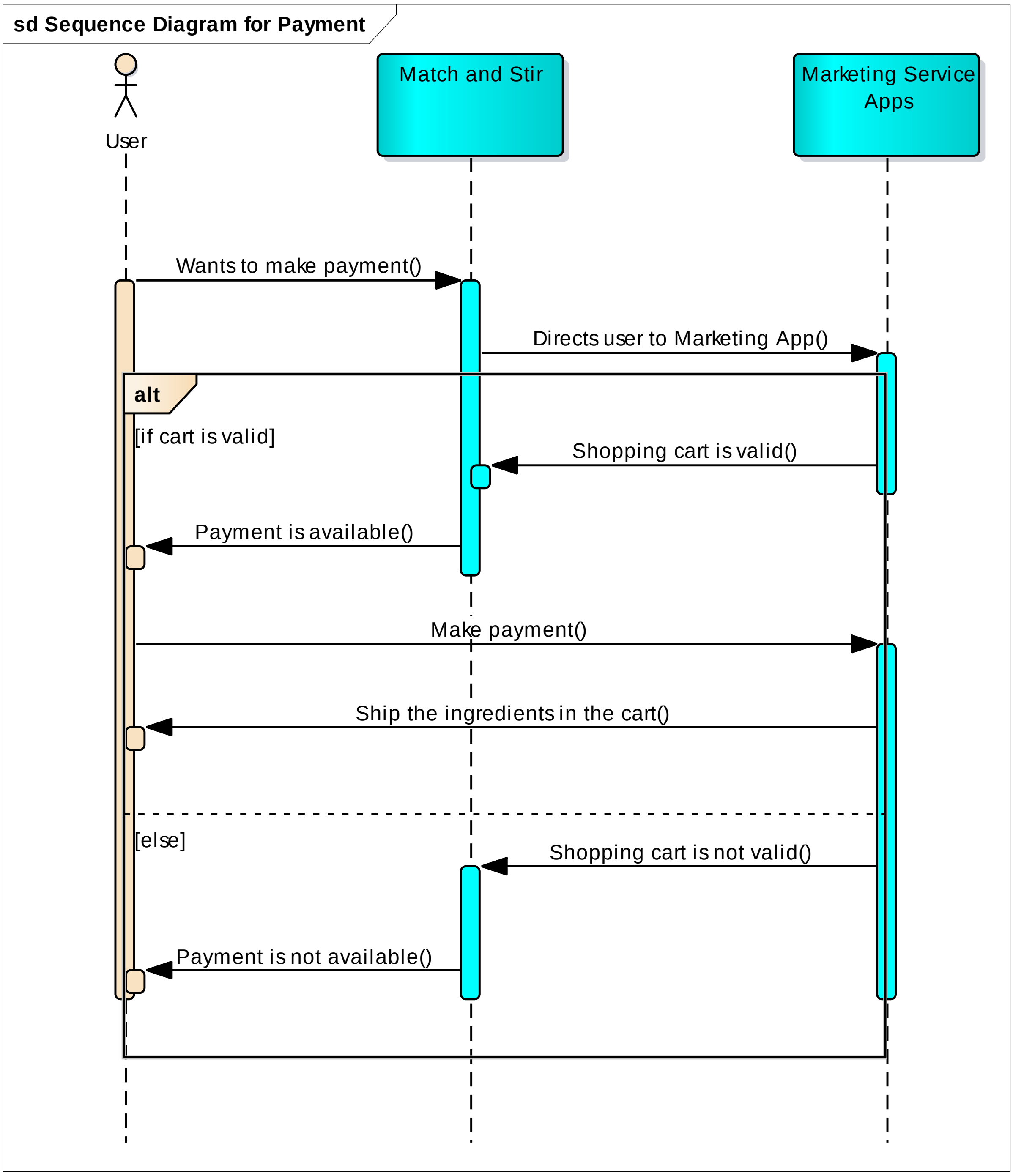
3.8.3. Sequence Diagram 3: *LOGIN REGISTER AND EDIT*



3.8.4. Sequence Diagram 4: *RECIPE*

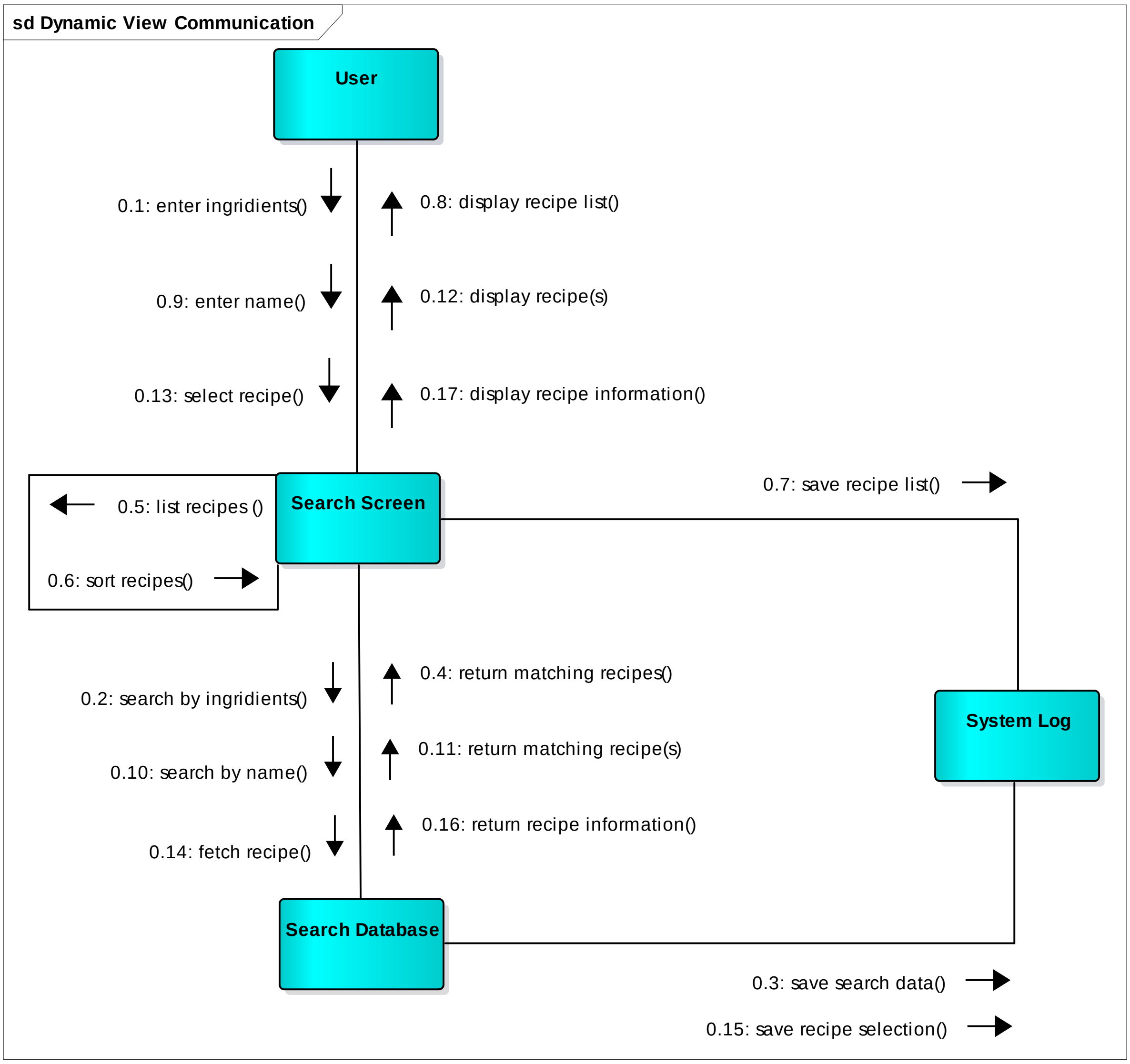


3.8.5. Sequence Diagram 5: *PAYMENT*

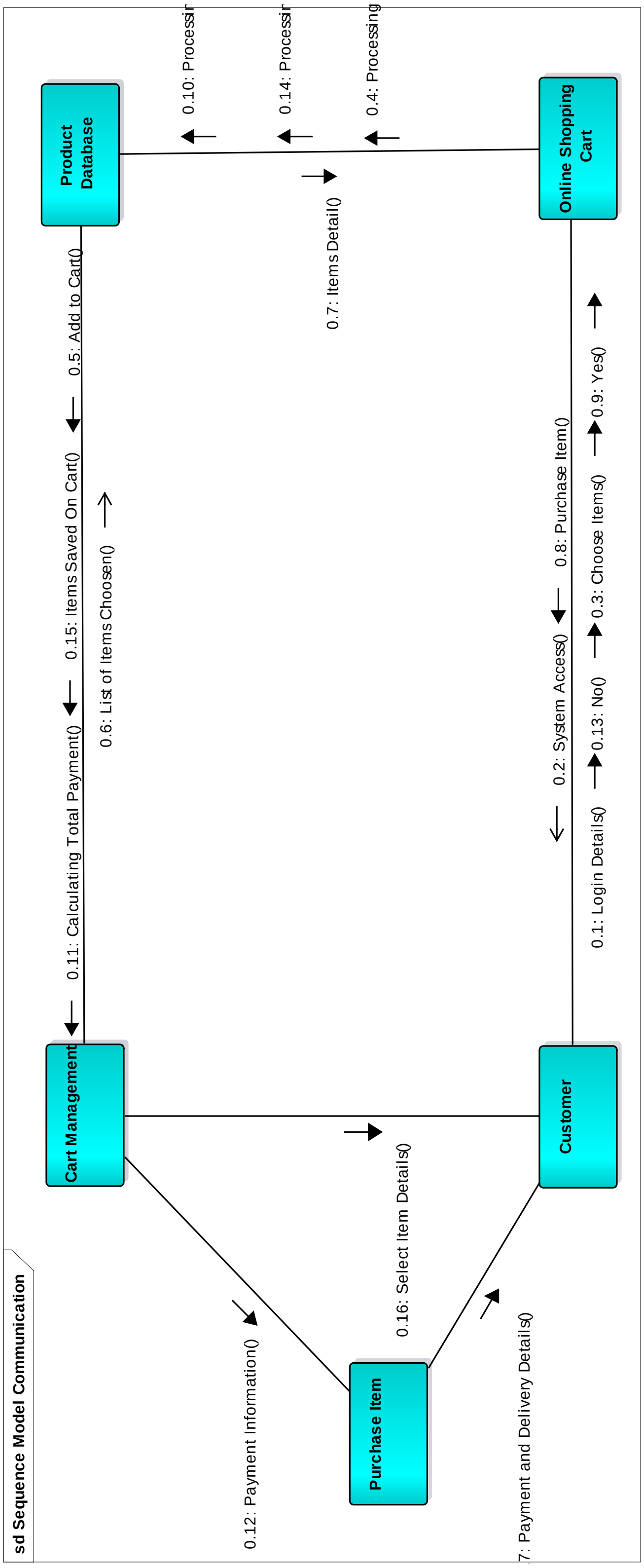

sd Sequence Diagram for Payment
User
Match and Stir
Marketing Service Apps
Wants to make payment()
Directs user to Marketing App()
alt
[if cart is valid]
Shopping cart is valid()
Payment is available()
Make payment()
Ship the ingredients in the cart()
[else]
Shopping cart is not valid()
Payment is not available()

3.9. Communication Diagrams

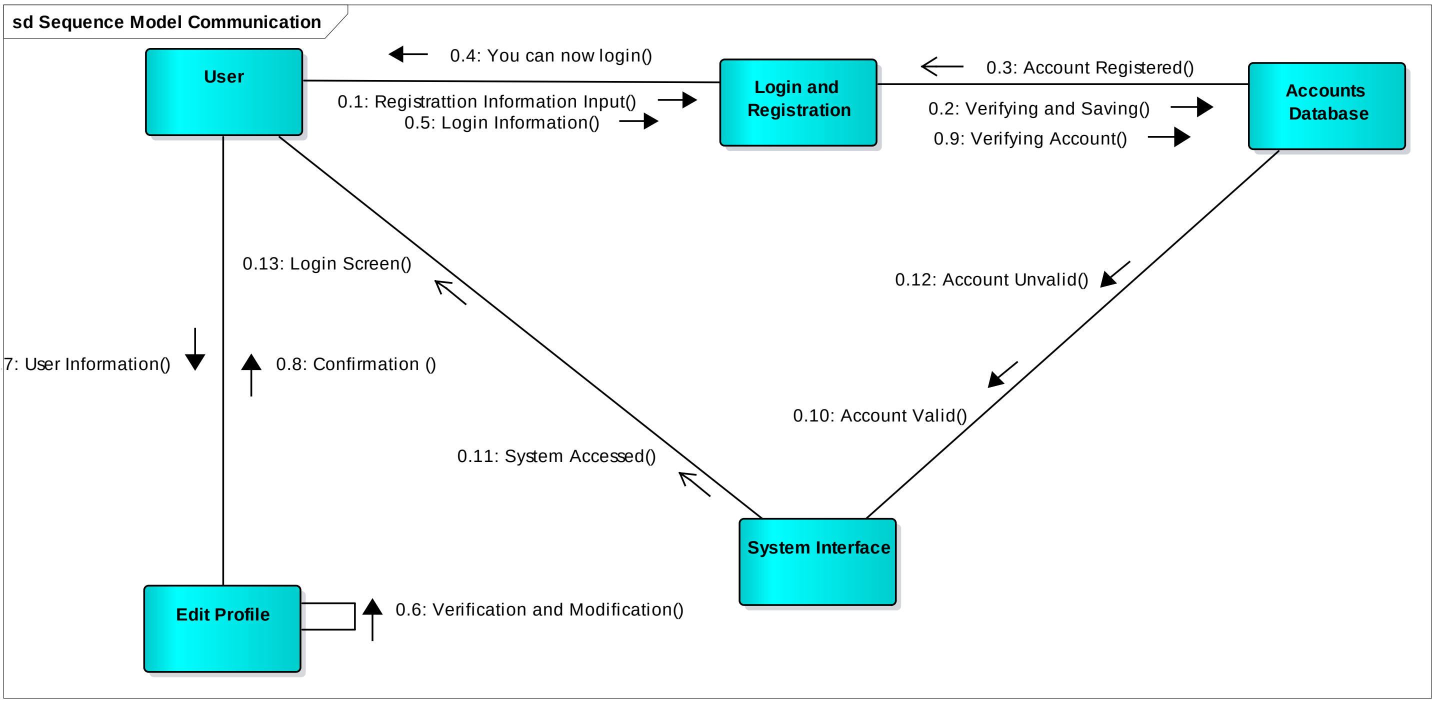
3.9.1. Communication Diagram 1: *SEARCH*



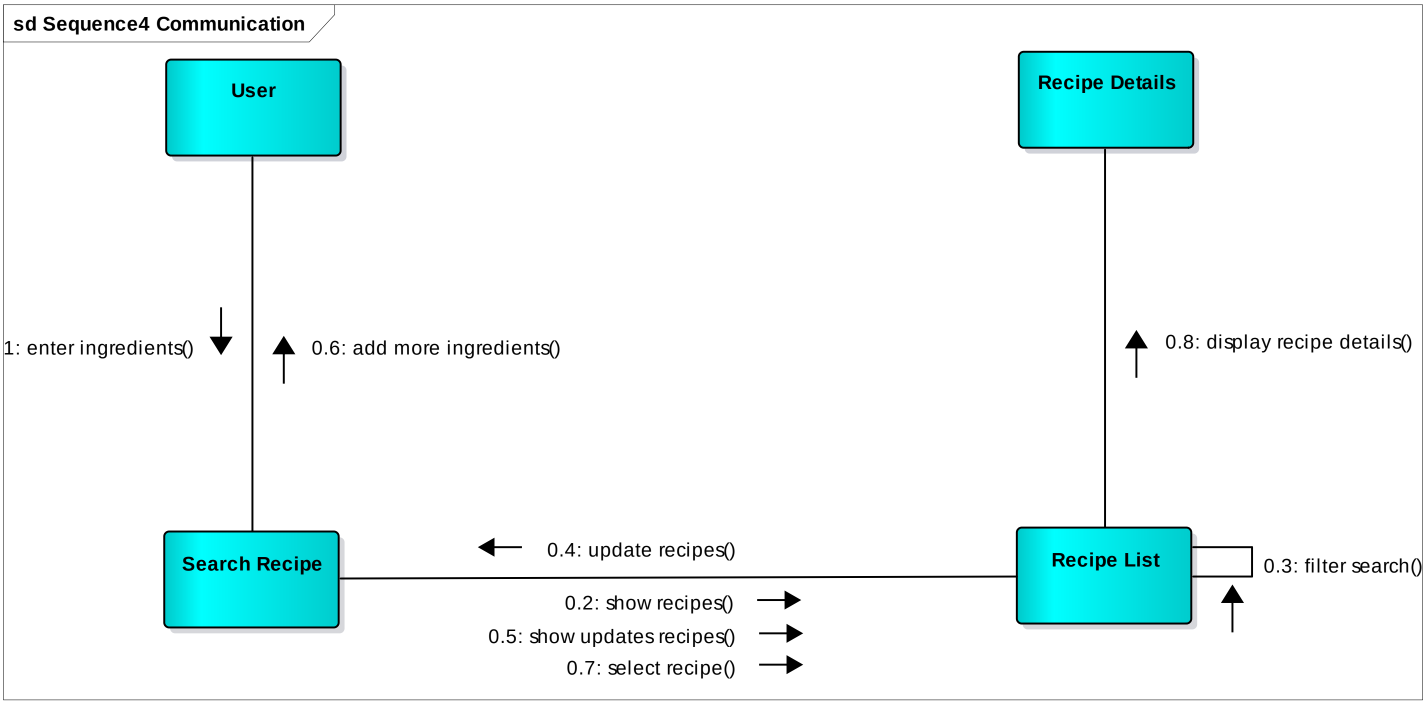
3.9.2. Communication Diagram 2: *SHOPPING CART EDIT*



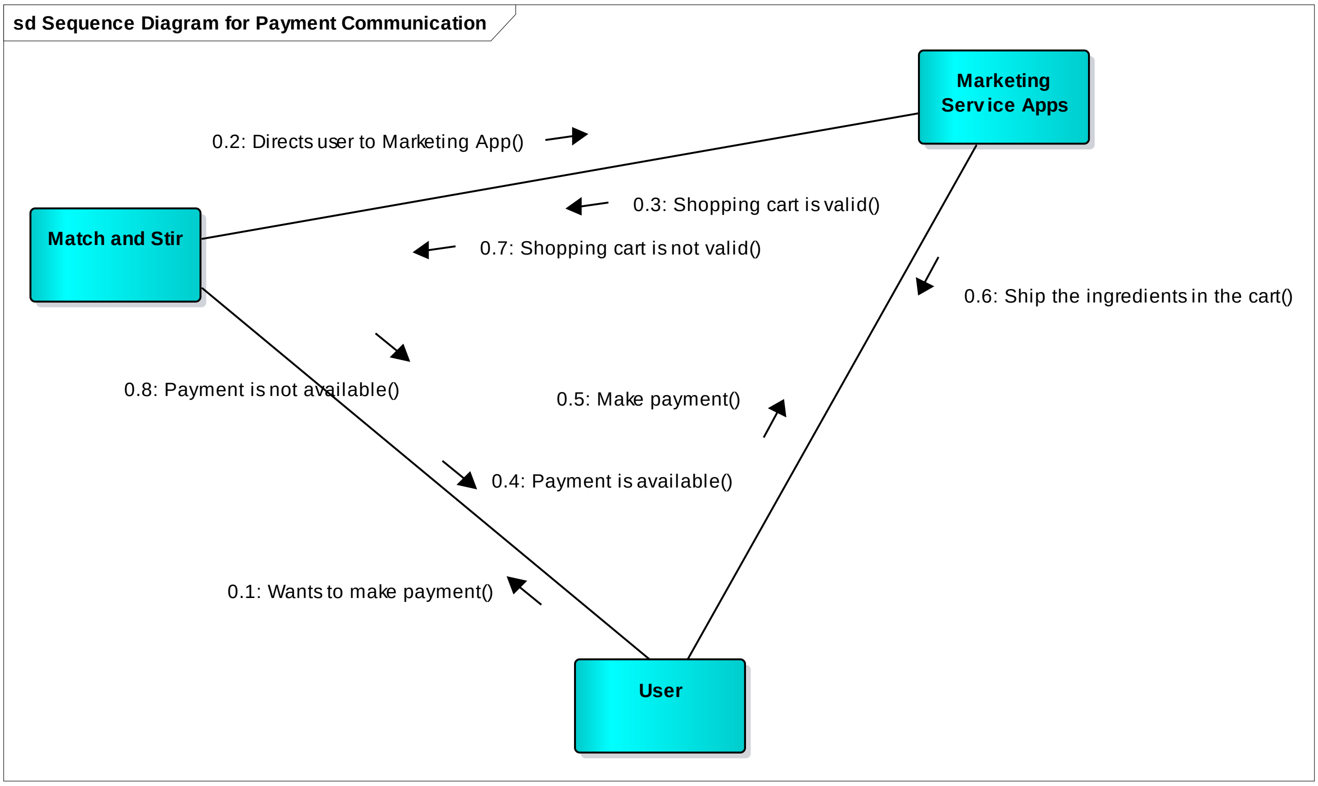
3.9.3. Communication Diagram 3: *LOGIN REGISTER AND EDIT*



3.9.4. Communication Diagram 4: *RECIPE*



3.9.5. Communication Diagram 5: *PAYMENT*


sd Sequence Diagram for Payment Communication
Marketing Service Apps
0.2: Directs user to Marketing App()
0.3: Shopping cart is valid()
Match and Stir
0.7: Shopping cart is not valid()
0.6: Ship the ingredients in the cart()
0.8: Payment is not available()
0.5: Make payment()
0.4: Payment is available()
0.1: Wants to make payment()
User

4. Conclusion

As a group, we are aware that cooking is difficult and takes a lot of time, so we created this app for chefs, single livings, moms or who wants to cook with the ingredients they have at home. Our application first asks user to register or login. After login, the user writes the ingredients which he/she has or wants to use for cooking. Then the system shows user the options for to cook and the system shows extra options with extra ingredients (which user can buy from marketing apps). The user needs to choose one of the recipes and then he/she can start to cook. If the user chooses a recipe with extra ingredients, he/she can buy it from a marketing app that our app has been connected earlier. The app is surely useful and helpful for everybody at every age.