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# **Software Requirements Specification**

**for**

## **Virtual Queue**

**Version 1.0 approved**

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# 1. Introduction

## 1.1 Purpose

*The purpose of this document is to build an open-source reusable system that can be applied to any physical real-life business with a queue of people waiting to be served.*

## 1.2 Intended Audience and Reading Suggestions

*This project is a prototype for any business with a queue and it is available to everyone to use, modify, and distribute. This project is useful for managing queues and saving time for business customers.*

## 1.3 Project Scope

*This system provides customers with a virtual queue that tells them how many people ahead of them and the approximate time to be served with other details that can be added by the owner or the admin for the system.*

## 1.4 References

IEEE. (1998). IEEE Recommended Practice for Software Requirements Specifications. 37.

# 2. Overall Description

## 2.1 Product Perspective

A centralized managing system stores the following information:

### 2.1.1 Booking details

It includes the location, number of available and unavailable reservations. In addition to the type of required service and price.

### 2.1.2 Staff description

It includes the staff salary ID, name, phone number, address, schedule, and break times.

### 2.1.3 Customer description

*It includes customer code, name, and phone number.*

### 2.1.4 Reservation description

*It includes customer details, date of booking.*

## 2.2 User Classes and Characteristics

The system will support three types of customer privileges, staff, and administrator. Customers will have access to customer functions, and the Staff will have access to both Customer and Staff functions. Where administrator will have access to all functions

- The customer should have the following functions:
  - View available reservation
  - Make a new reservation
    - I. Normal
    - II. VIP (If vendor chose to allow it)
  - Modify or cancel an existing reservation
  - View his booked reservation
  - Apply for a reserve spot
  - See how many people are ahead of them
- The staff should have the following functions:
  - Add/Delete an appointment
  - View working hours and breaks
  - Request for a day off
  - View customer reservations
- The administrator should have the following functions:
  - Update the prices
  - Add/Delete/Modify a service
  - Add/Delete staff members
  - Add/Delete/Modify staff member's permissions
  - Modify staff working hours and breaks

## 2.3 Operating Environment

*Operating environment for the virtual queue is as listed below.*

- Central database
- Client / Server system
- Operating system: Windows 7 or more
- Database: Oracle 19c
- Platform: Java

## 2.4 User Documentation

### 2.4.1 Customer Documentation

- 1- Sign up on the website.
- 2- Sign on the website, you will see a list of date and hours and the services that you can choose from.
- 3- Click on "Book" and choose a convenient appointment for you.
- 4- You can see the full details about your appointment from "My Reservations" tab.
- 5- Click on "Delete" to cancel an appointment, or "Reschedule" to modify an appointment.

### 2.4.2 Staff Documentation

- 1- Log in to the website.
- 2- You will see a schedule that shows your working hours and break time.
- 3- To ask for a day off go to vacations and choose the day.
- 4- Click on "Customer Reservations" to see the reservations classified by date.

### 2.4.3 Admin Documentation

- 1- Log in to the website.
- 2- On the left there is a "users" tab, you can add/remove users and edit the permissions for each one.
- 3- On the left there is a "staff" tab. There, you can *Modify staff working hours and breaks*.
- 4- Click on "Manage" to manage plans, prices, or to add/remove a service.

## 3. EXTERNAL INTERFACE REQUIREMENTS

### 3.1 USER INTERFACES

- *Front-end software: Vb.net version*
- *Back-end software: SQL+*

### 3.2 HARDWARE INTERFACES

- *Windows.*
- *A browser which supports CGI, HTML & JavaScript.*

### 3.3 COMMUNICATION INTERFACES

This project supports all types of web browsers.

## 4. System Requirements

### Functional Requirements

ID	Requirement Definition
<b>REQ-1</b>	The system shall enable a user to sign up an account using Email, username, and password
<b>REQ-2</b>	The system requires to activate the account through the Email
<b>REQ-3</b>	The system shall enable a user to sign in through username and password
<b>REQ-4</b>	The system shall allow the customer to view available appointments
<b>REQ-5</b>	The system shall allow the customer to make a reservation of an available appointment
<b>REQ-6</b>	The system shall allow the customer to modify or cancel an existing reservation
<b>REQ-7</b>	The system shall allow the customer to see how many people are ahead of them
<b>REQ-8</b>	The system shall allow the customer to apply for reserve spots incase another customer does not show up
<b>REQ-9</b>	The system shall notify the reserved customer when the reservation is open
<b>REQ-10</b>	The system shall allow the staff member to view schedule of their working hours and break times
<b>REQ-11</b>	The system shall notify the staff when a customer makes a reservation, modify, or cancel
<b>REQ-12</b>	The system shall allow the administrator to add, remove, and edit permissions
<b>REQ-13</b>	The system shall allow the administrator to modify the staff working hours and breaks
<b>REQ-14</b>	The system shall allow the administrator to add, delete, or modify a service
<b>REQ-15</b>	The system shall allow the administrator to update prices

### 4.1 Nonfunctional Requirements

#### 4.1.1 Performance Requirements

- *The system shall have a response time within 5 seconds.*
- *Downtime during normal working hours shall not exceed 10 seconds.*

#### 4.1.2 Security Requirements

- *Users shall authenticate themselves using Username and 9-lengthed password.*
- *A CAPTCHA must be solved before logging.*
- *Data must be encrypted at transit using HTTPS.*
- *Data must be encrypted at rest using SHA256 encryption.*
- *using a firewall to avoid DDOS attacks is preferred.*
- *Implementing an Anti-CSRF Token is preferred.*

#### 4.1.3 Software Quality Attributes

- **AVAILABILITY:** The reservation should be available on a specific time as many customers are doing advance reservation.
- **MAINTAINABILITY:** The administrators and staff members are in charge and should maintain correct schedules of reservation.
- **USABILITY:** The reservations should satisfy a maximum number of customers' needs.

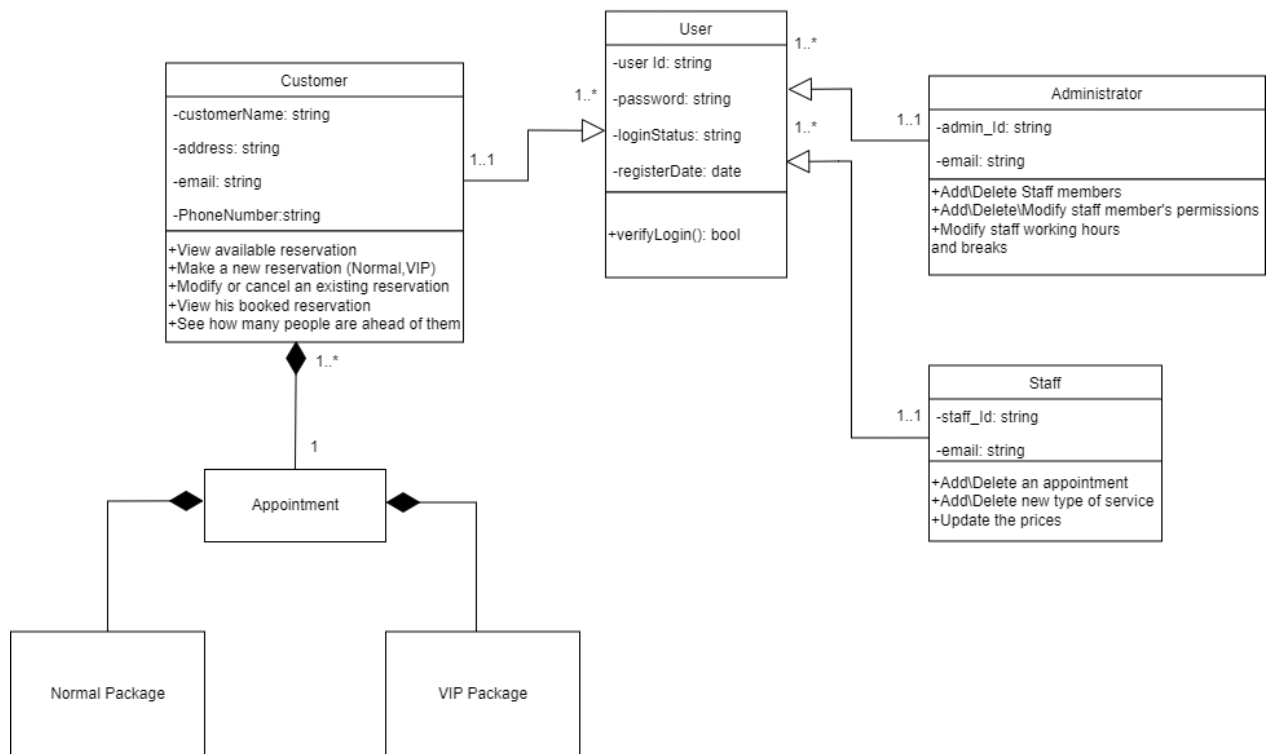
## 5. Product Features

### 5.1 Use Case diagram



## 5.2 UML Class diagram

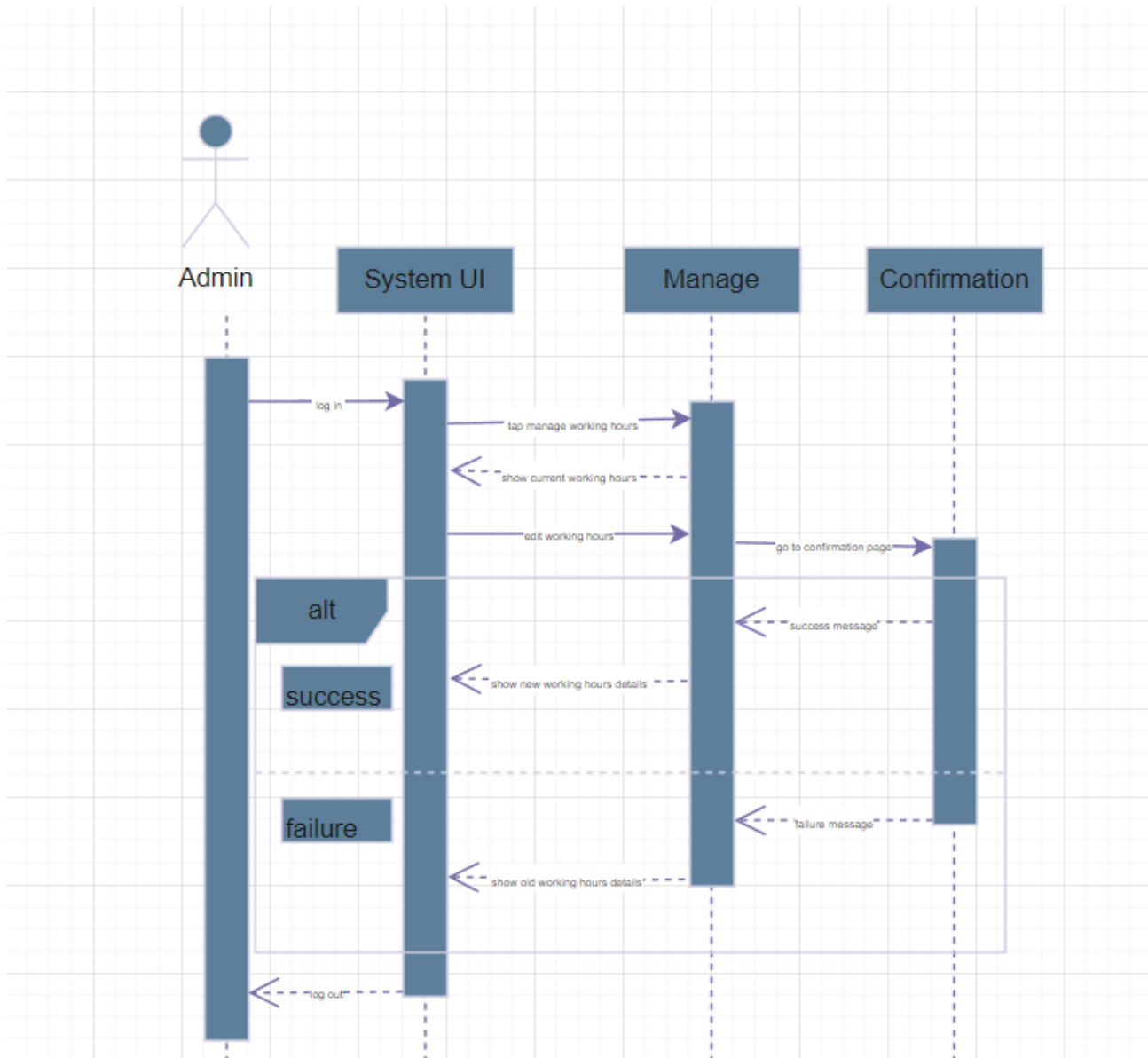
Virsual Queue UML Class



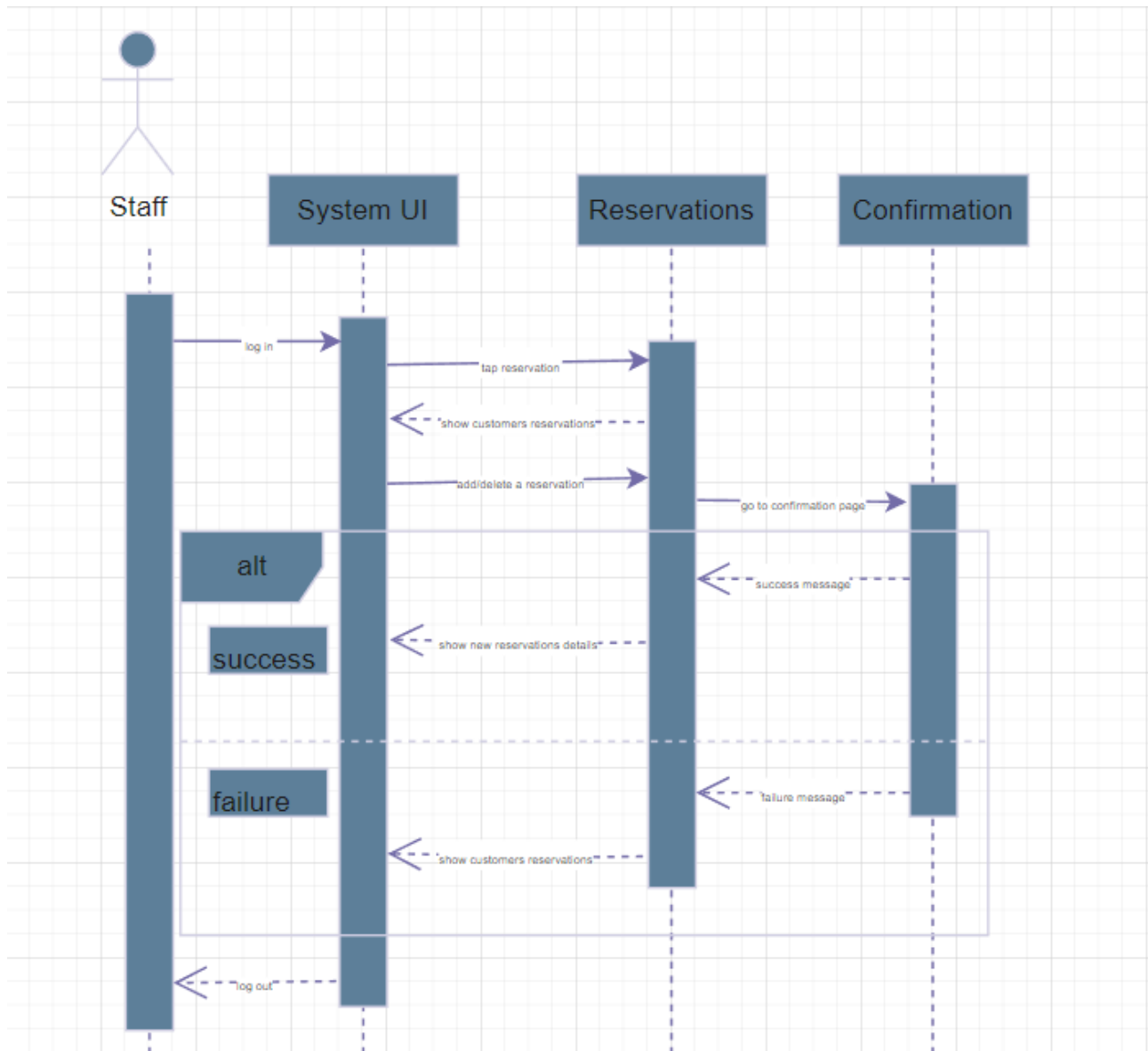


## 5.3 Sequence diagram

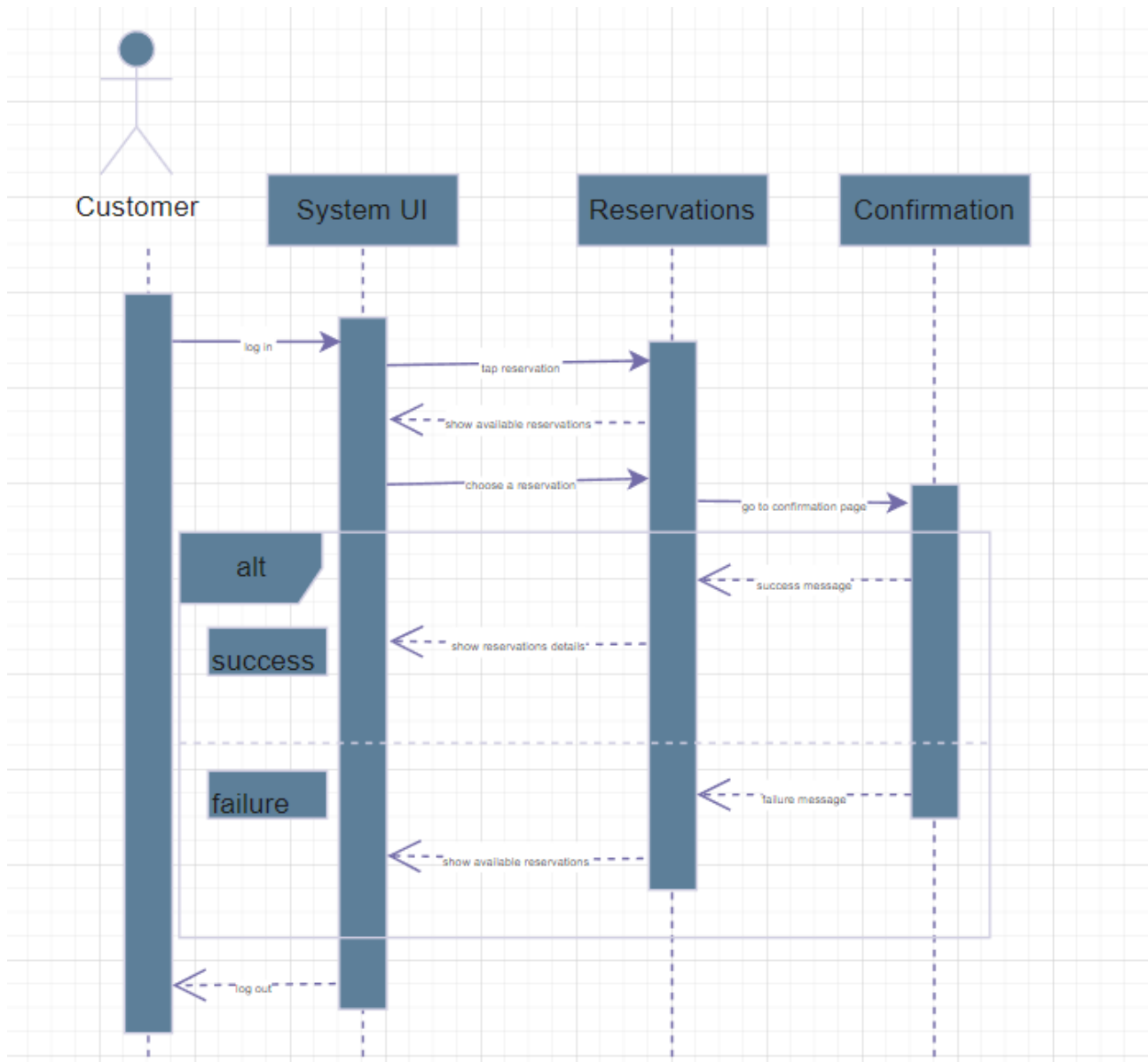
### 5.3.1 Admin



## 5.3.2 Staff

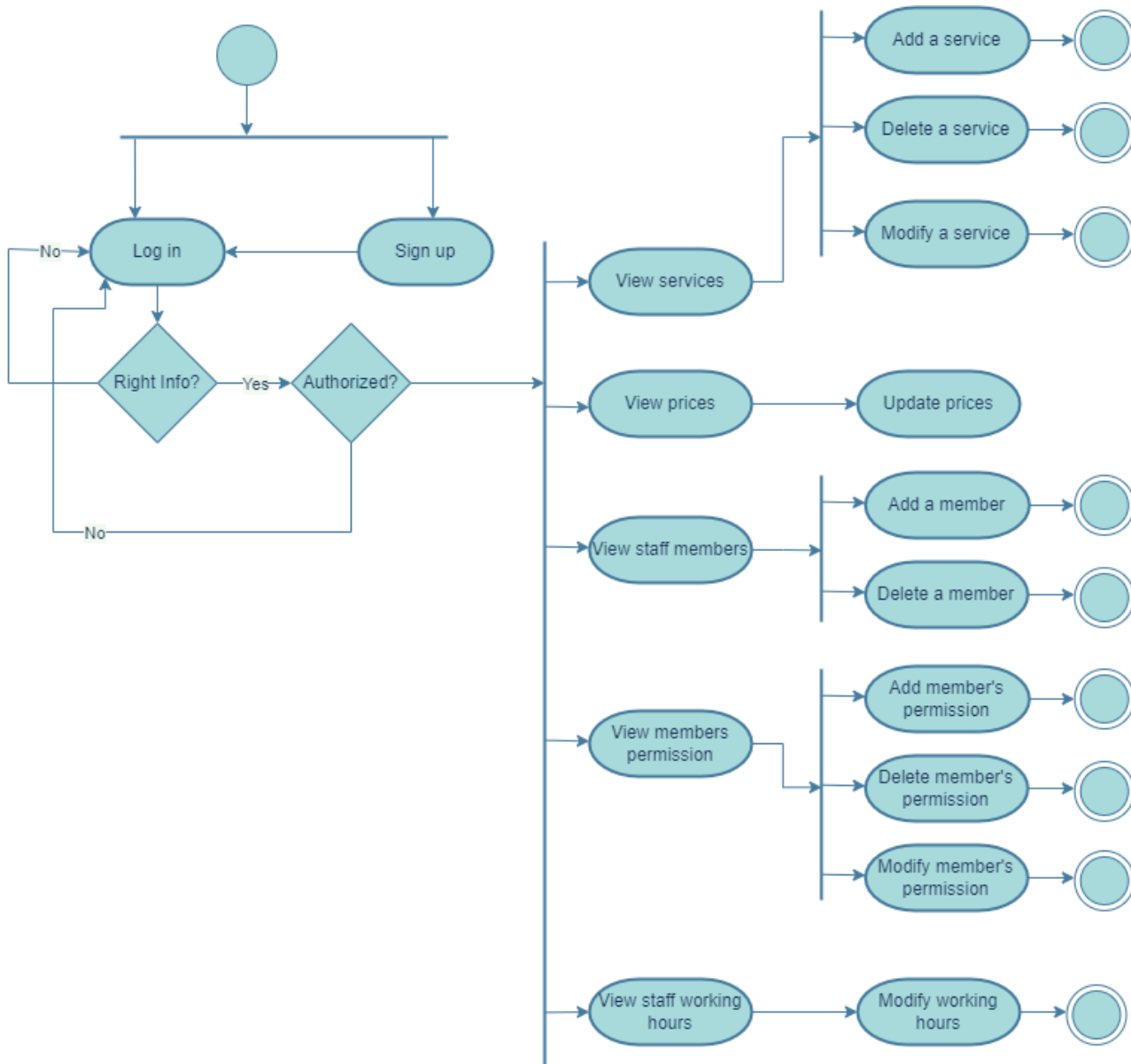


### 5.3.3 Customer

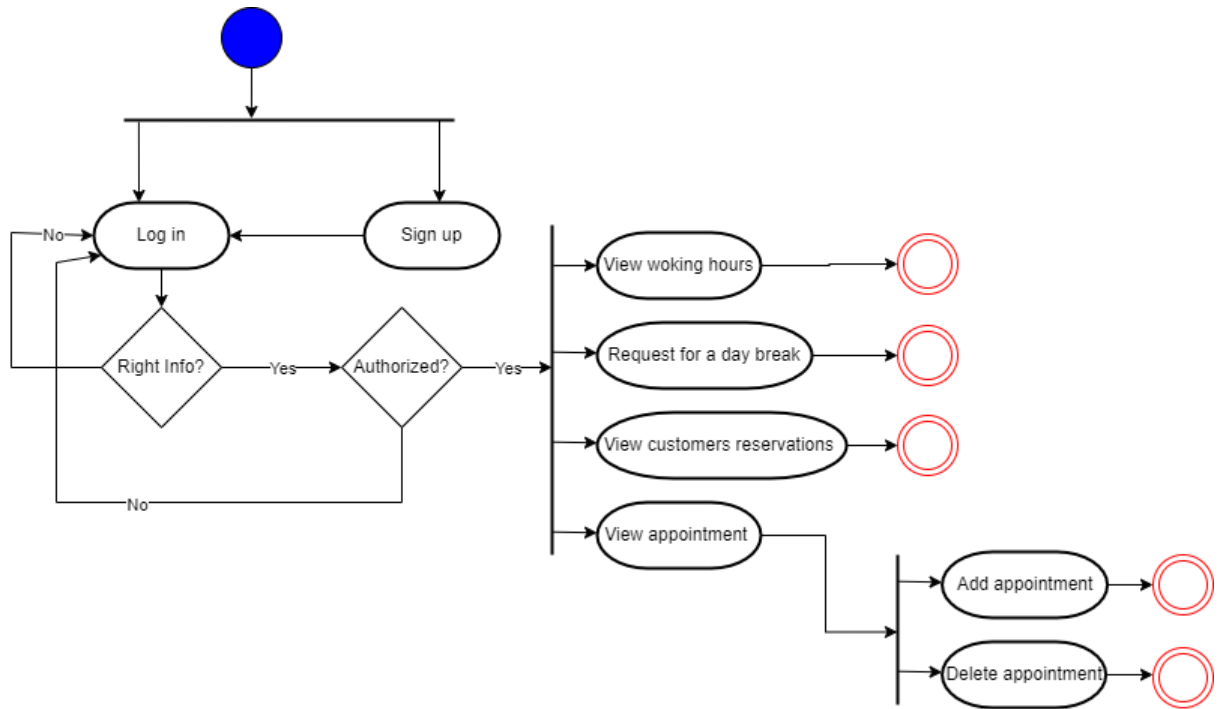


## 5.4 Activity Diagrams:

### 5.4.1 Administrator



## 5.4.2 Staff



### 5.4.3 Customer

