

1. Introduction

1.1. Purpose

Basketball players may look for and reserve courts using Basketball Playground, a software platform. Basketball players may select whatever court time they want throughout the day thanks to this method. Additionally, yard owners have the right to register their yards in the system by speaking and coordinating with the system administrator.

1.2. Project Vision

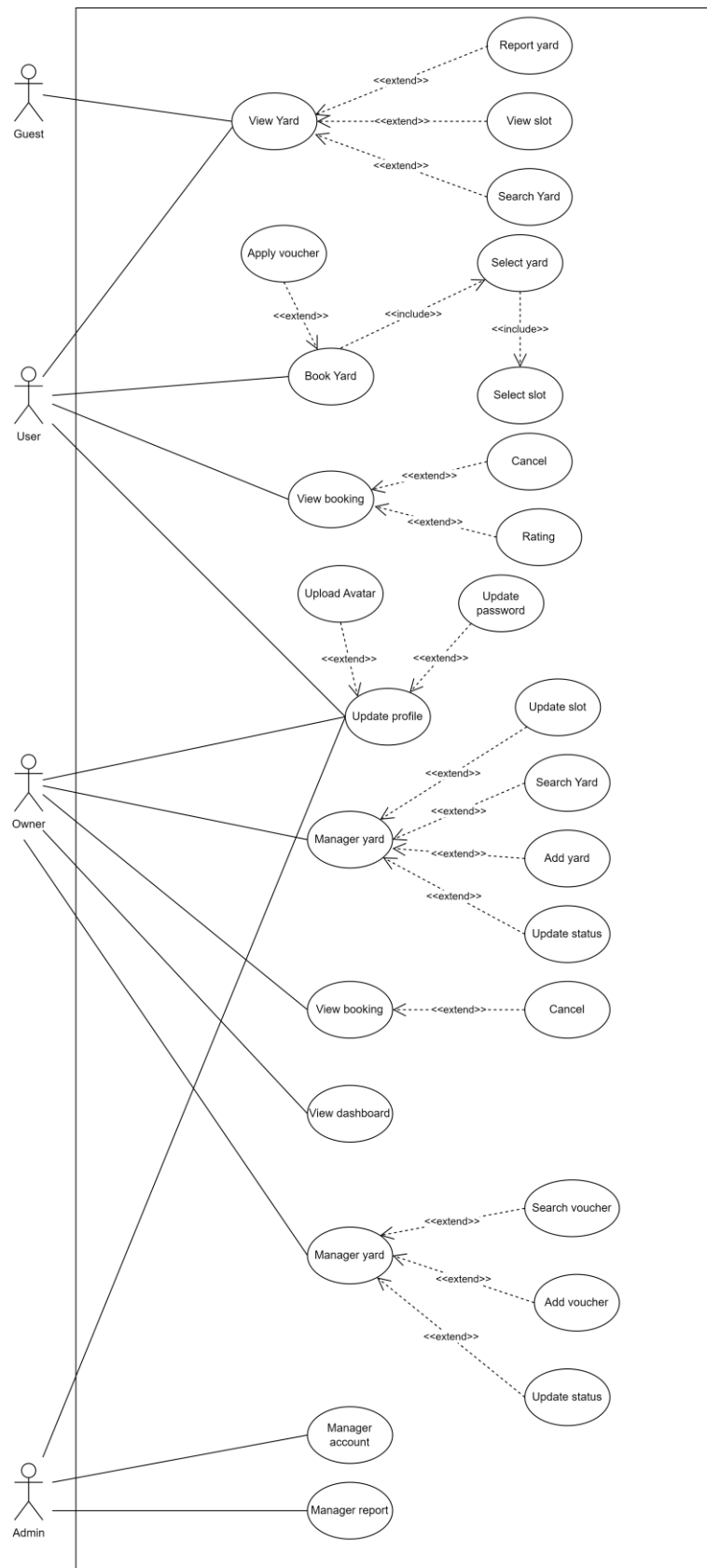
Customers who want to reserve a court to play basketball may get suggestions from courts that have received positive reviews from a large number of players and take the initiative to choose their playing time frame in accordance with the available slots in the system. system. An online application called Basketball Playground helps customers do activities including scheduling a basketball court reservation, seeing the court's details, viewing its history of reservations, and rating each service's performance.

Regarding yard administration, the program allows for the display, modification, and deletion of yard information as well as client information for booking the yard. Additionally, the owner has access to information on the level's growth and decline. making reservations, removing a customer's yard, and applying vouchers

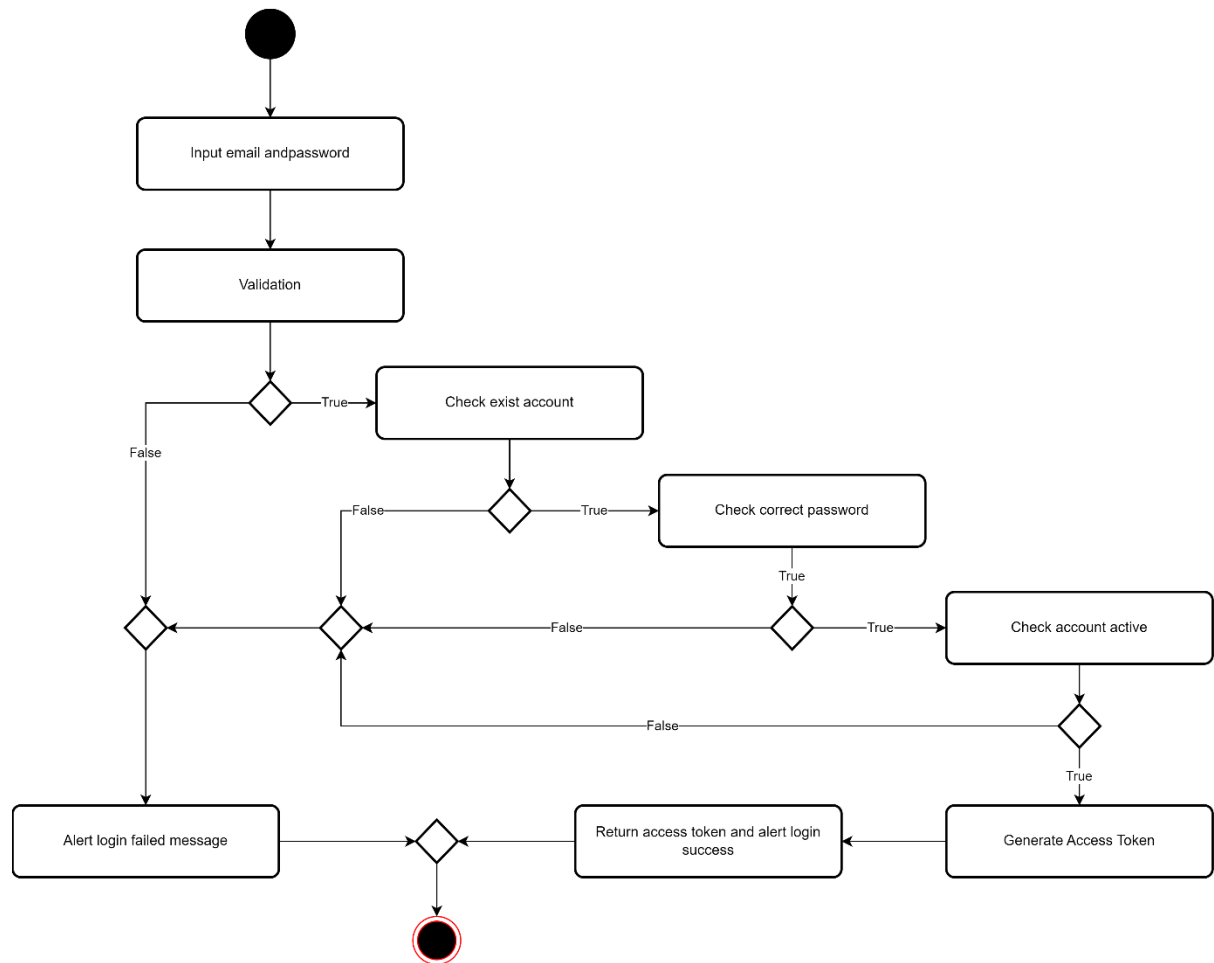
The system also allows for linking yards in different regions together, making it simple for yard owners to join their yards together while also becoming well-known to many people thanks to the system. We are expanding the options available to clients for where to play basketball in order to improve the user experience.

2. Diagram

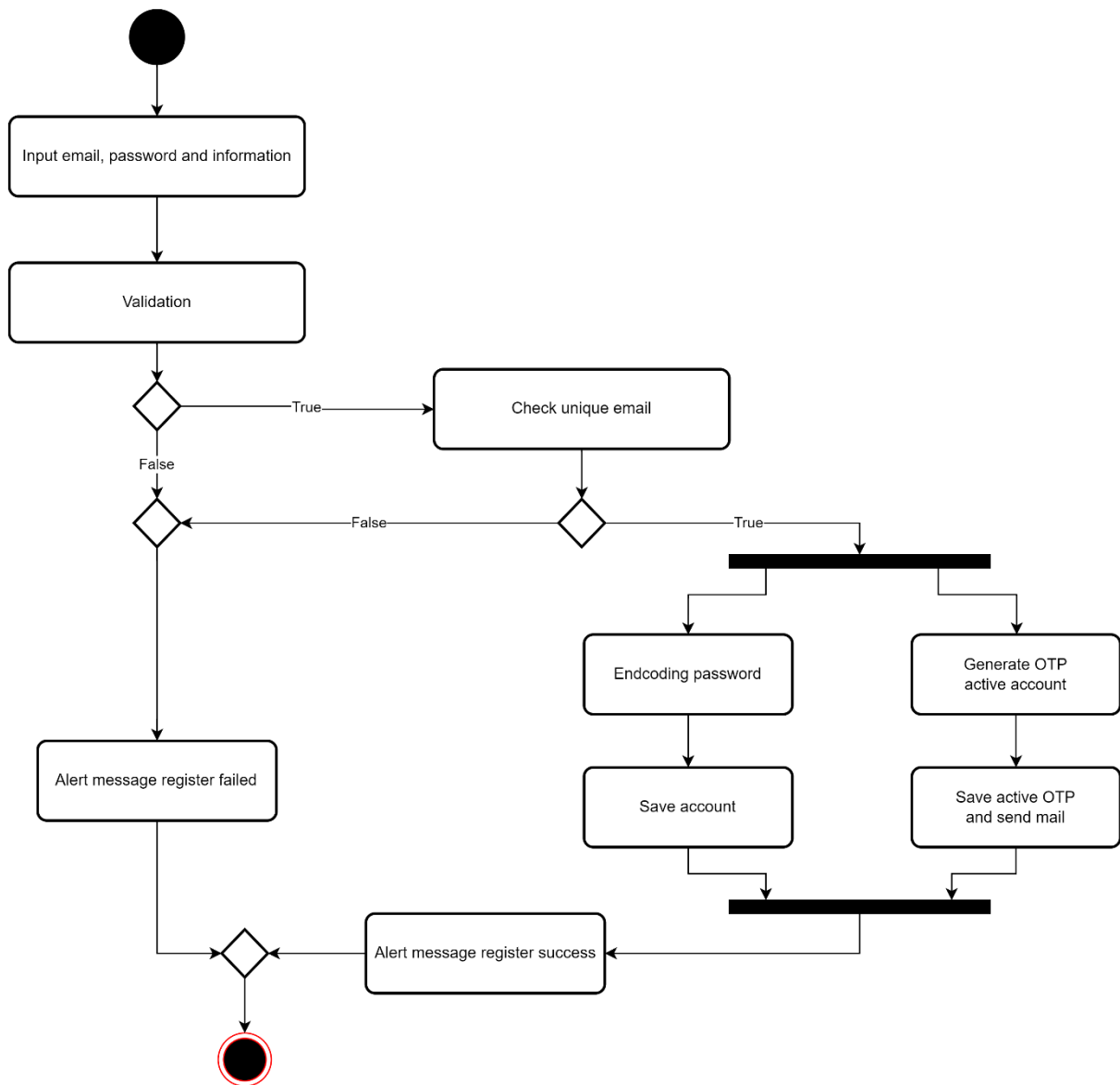
2.2. Usecase



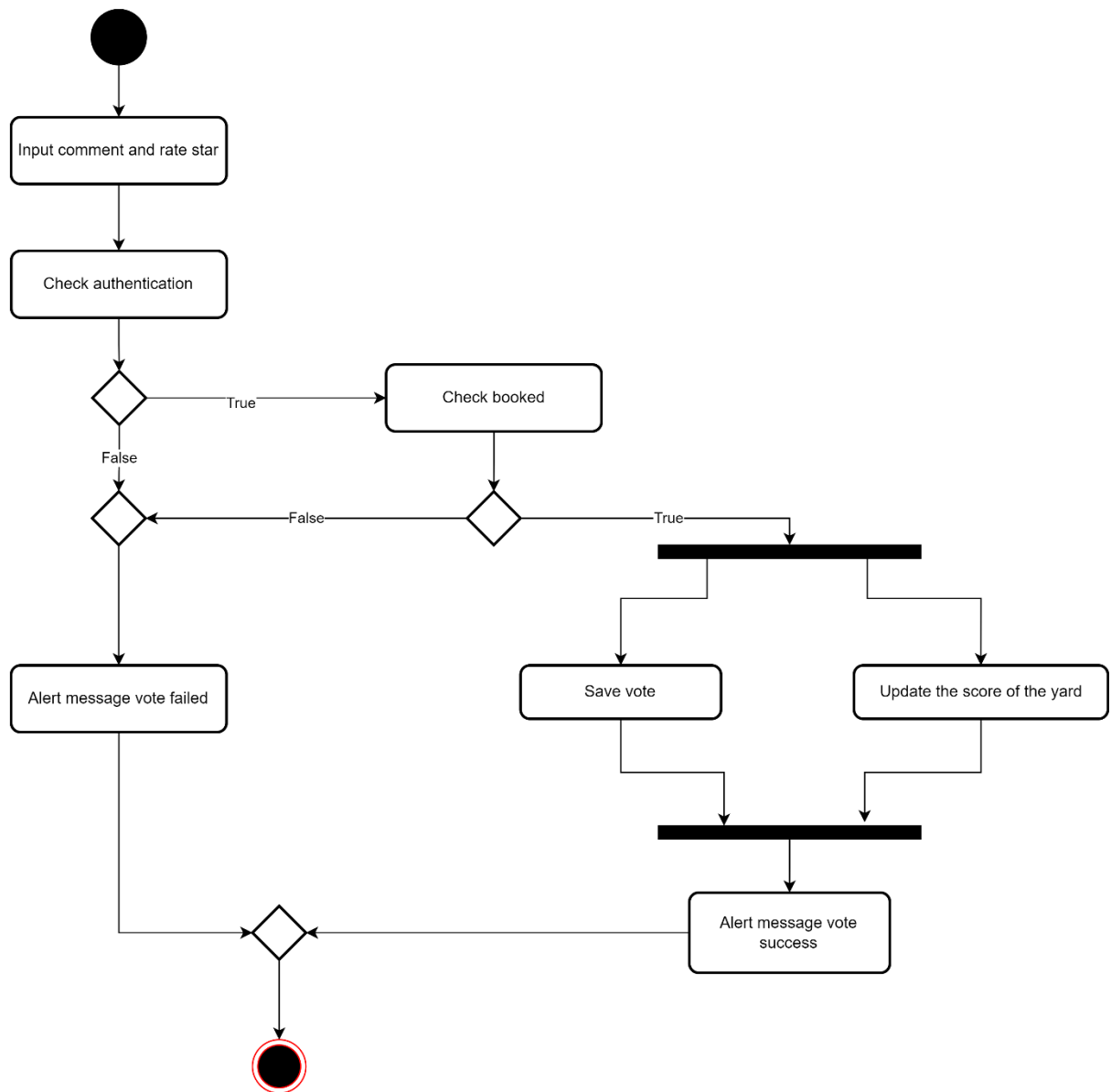
2.2. Activity diagram



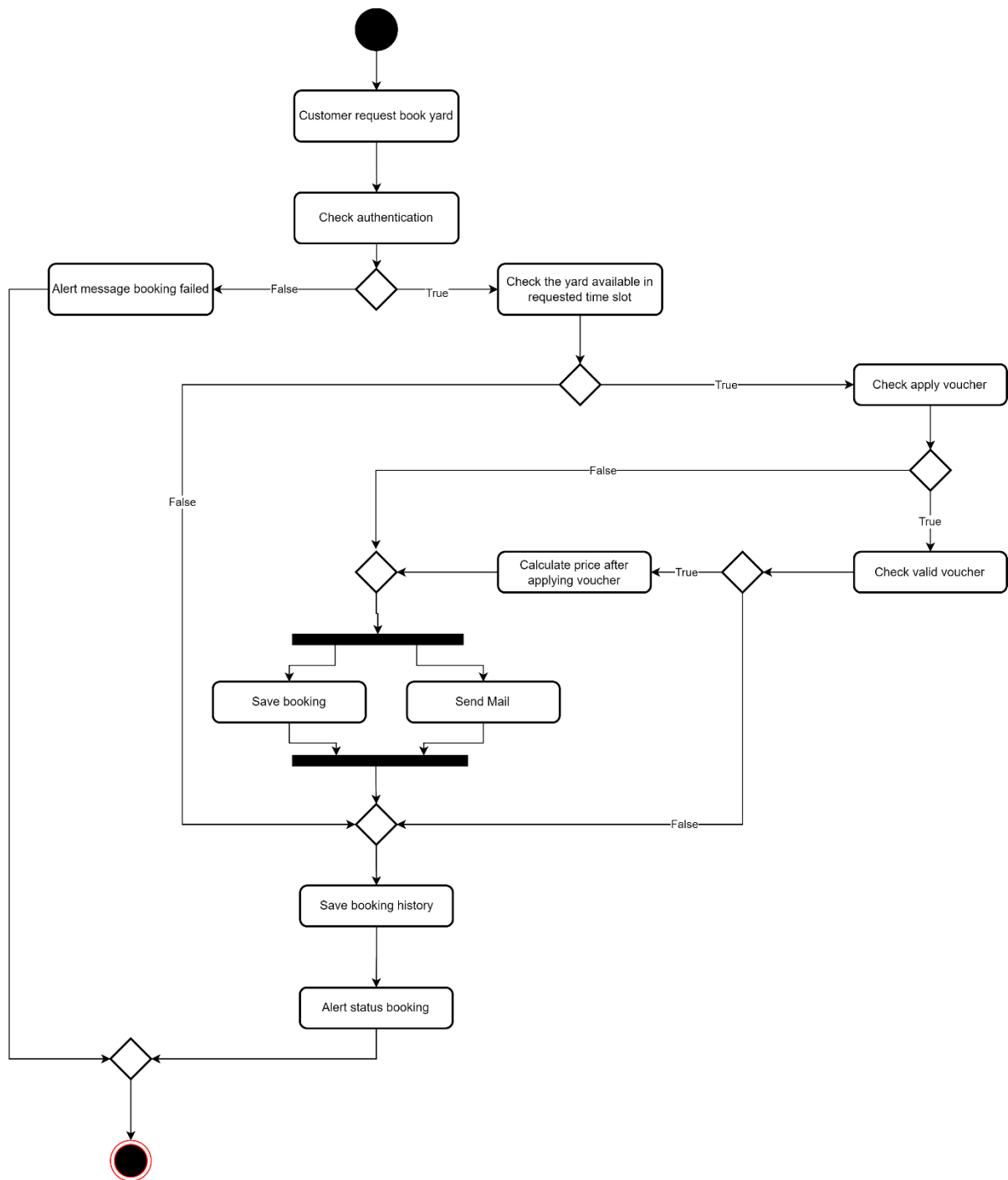
2.2.1 Login



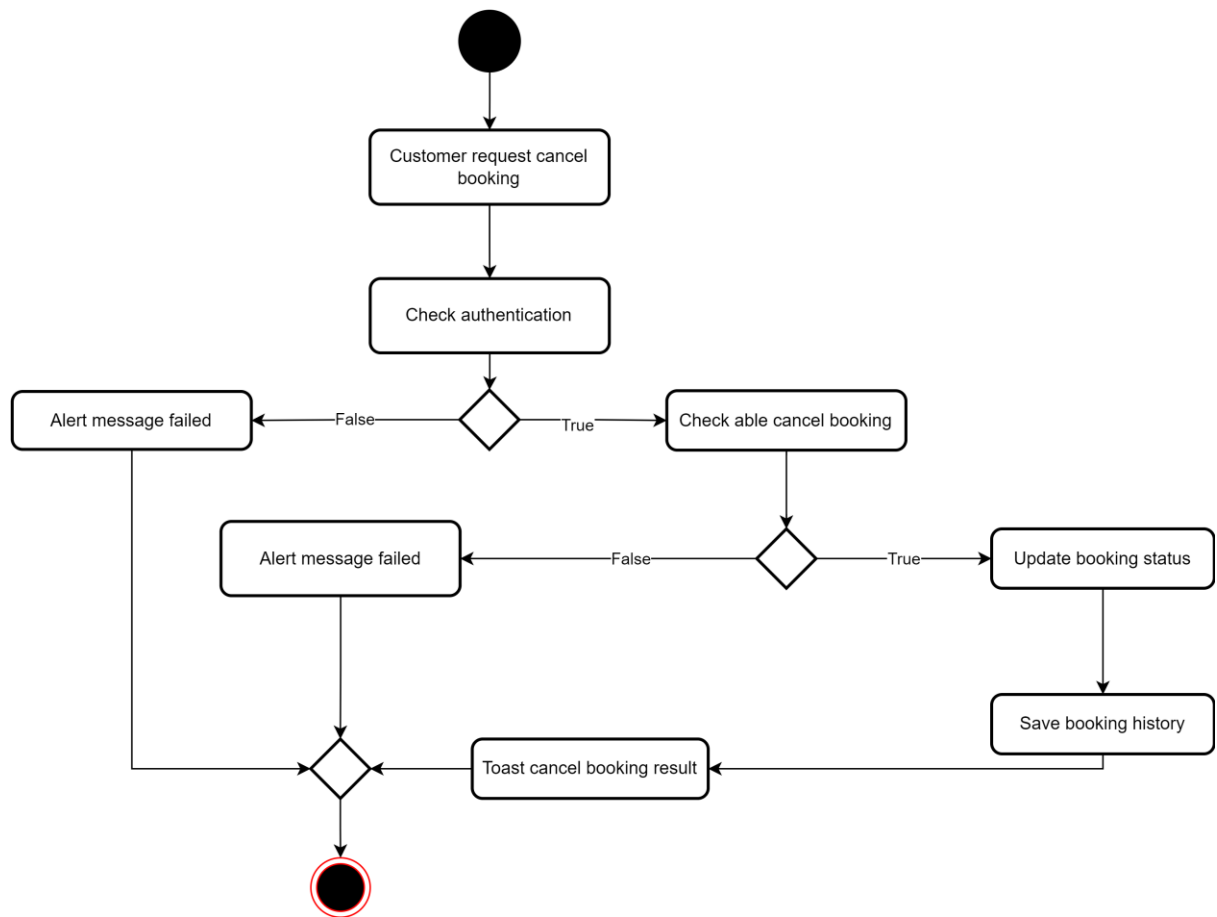
2.2.2 Register



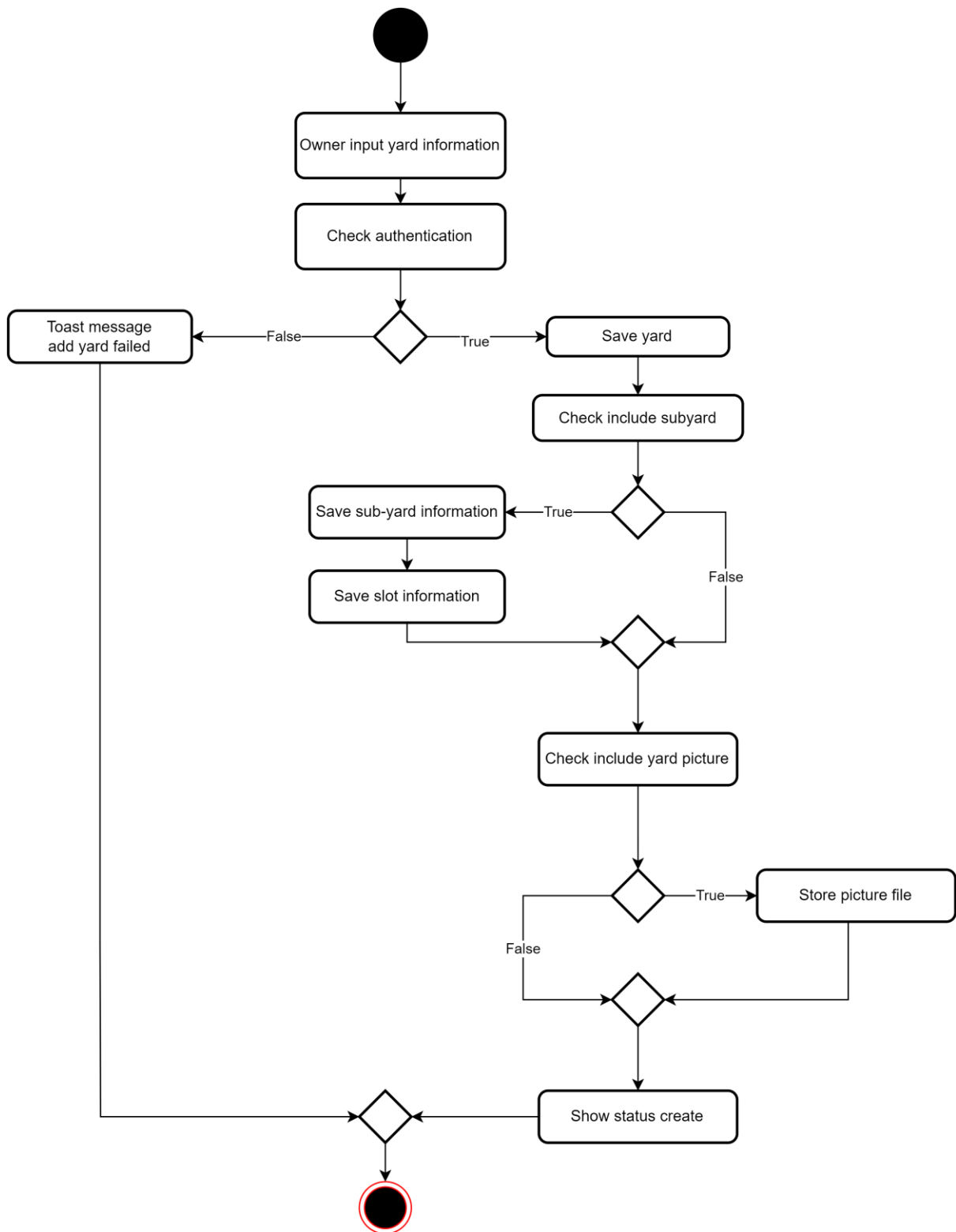
2.2.3 User vote yard



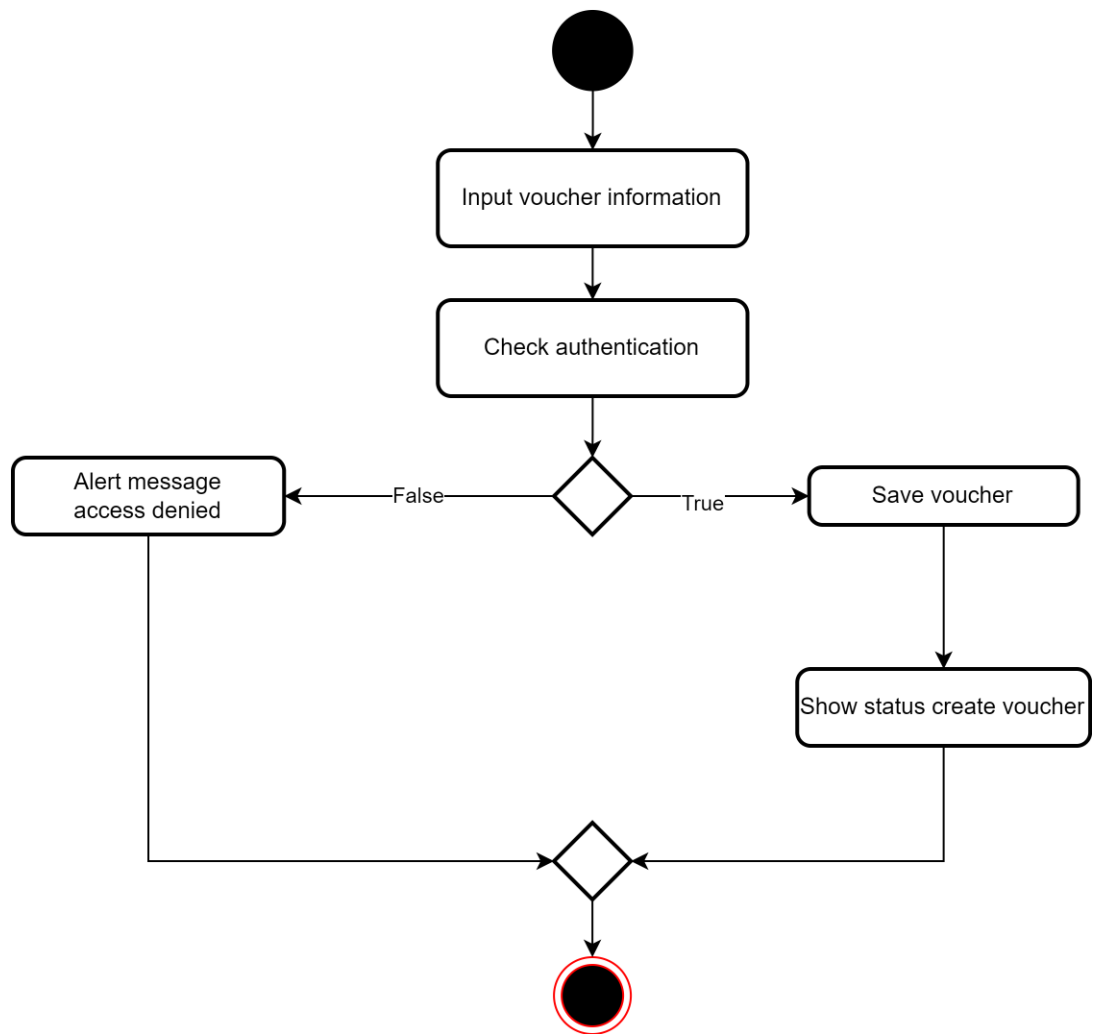
2.2.4 User booking yard



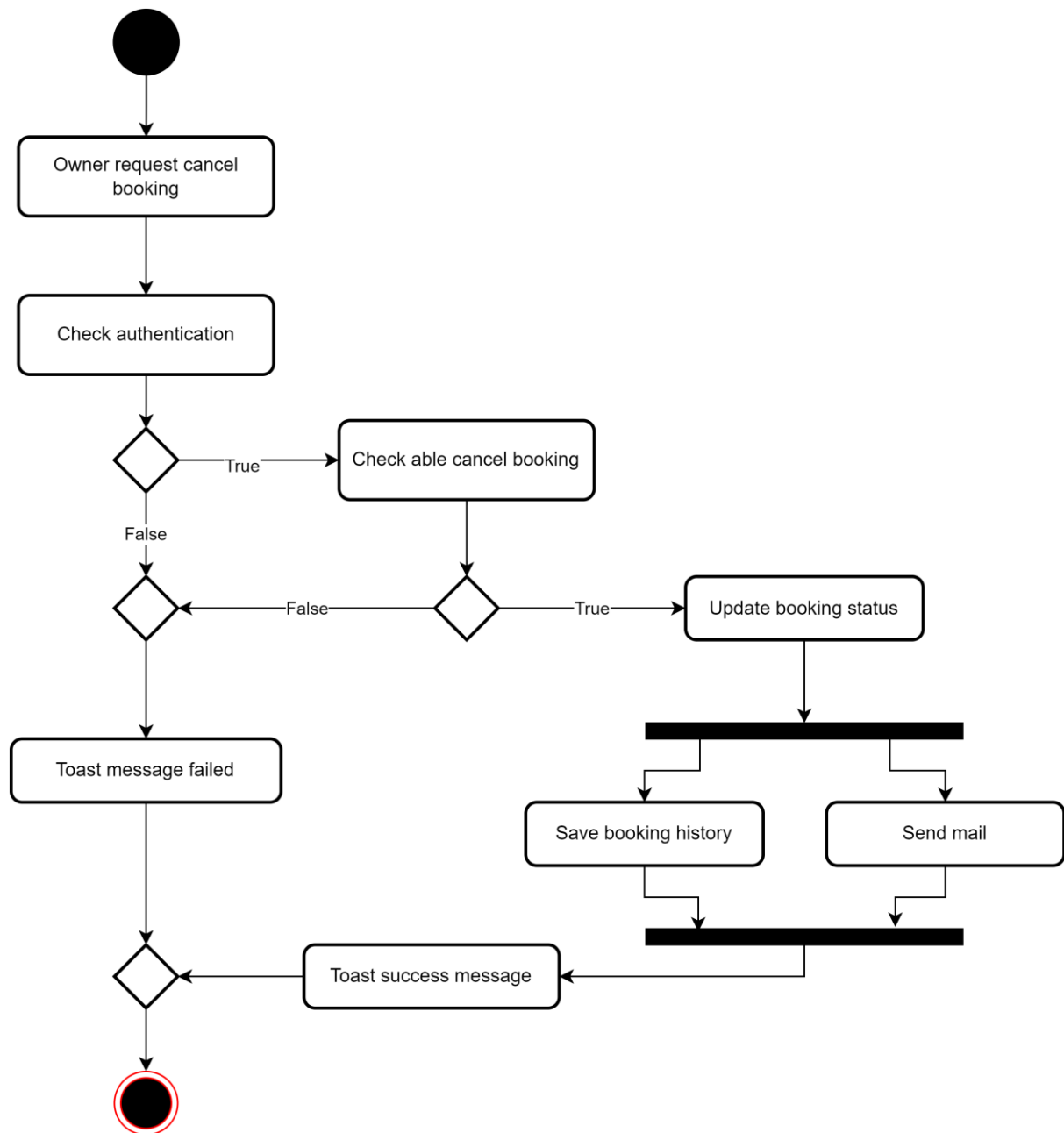
2.2.5 User cancel booking



2.2.6 Owner add yard

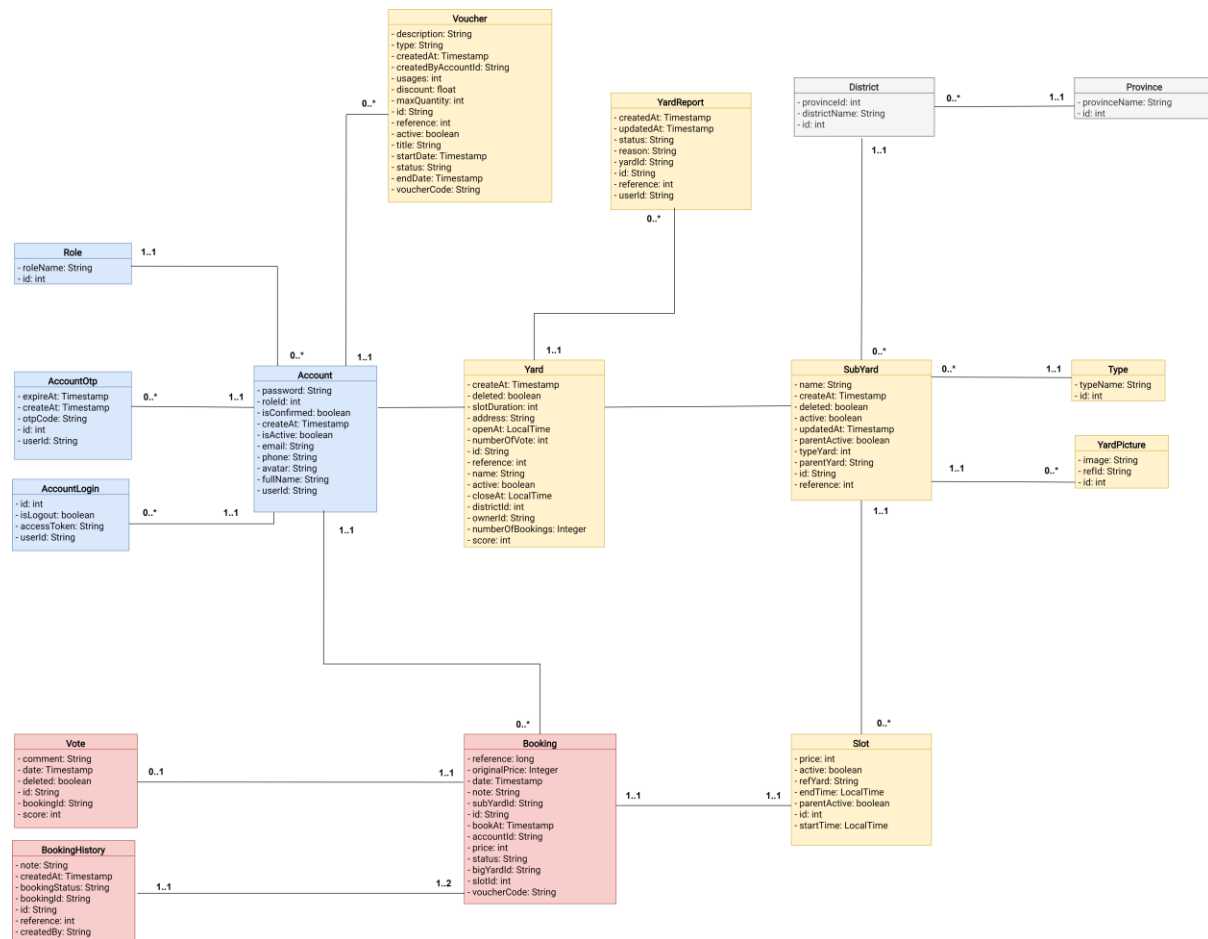


2.2.7 Owner add voucher



2.2.8 Owner cancel booking

2.3. Class diagram



1. Account_Login

Store the login information of login account.

#	Field name	Type	Size	Unique	Not Null	PK/FK	Notes
1	id	Int	4	x	x	PK	Identity Column
2	account_id	varchar(50)	50		x	FK	References account(id)
3	access_token	text					JWT token of the login of user
4	is_logout	boolean	2				

2. Account_Otp

Store the OTP information of accounts. Use when registering or forgot password.

#	Field name	Type	Size	Unique	Not Null	PK/FK	Notes
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1	id	Int	4	x	x	PK	Identity Column
2	account_id	varchar(50)	50		x	FK	References account(id)
3	otp_code	varchar(6)	6				OTP code for this account
4	expire_at	timestamp	32				The time the OTP expire
5	create_at	timestamp	32				The time the OTP was created

3. Accounts

Store the information of accounts.

#	Field name	Type	Size	Unique	Not Null	PK/FK	Notes
1	id	varchar(50)	50	x	x	PK	
2	role_id	int	4		x	FK	References roles(id)
3	email	varchar(50)	50	x	x		
4	phone	varchar(10)	10	x	x		
5	full_name	varchar(100)	100		x		
6	password	varchar(200)	200		x		
7	avatar_url	varchar(200)	200				The url of avatar storage in firebase.
8	is_confirmed	boolean	2				
9	is_active	boolean	2				The information that whether the account is active or be disabled by admin
10	create_at	timestamp	32				

4. Roles

Store the role information of account in application.

#	Field name	Type	Size	Unique	Not Null	PK/FK	Notes
1	id	Int	4	x	x	PK	Identity Column
2	role_name	varchar(50)	50		x		

5. Districts

Store the districts information in application.

#	Field name	Type	Size	Unique	Not Null	PK/FK	Notes
1	id	Int	4	x	x	PK	Identity Column

2	province_id	Int	4		x	FK	References provinces(id)
3	district_name	varchar(50)	50				

6. Yards

Store the yards information in application.

#	Field name	Type	Size	Unique	Not Null	PK/FK	Notes
1	id	varchar(50)	50	x	x	PK	
2	name	varchar(45)	45				
3	create_at	timestamp	32				
4	address	varchar(100)	100				
5	district_id	int	4		x	FK	References districts(id)
6	is_active	Boolean	2				
7	is_deleted	Boolean	2				
8	owner_id	varchar(50)	50		x	FK	References accounts(id) The id of the owner of this yard
9	open_at	time					
10	close_at	time					
11	slot_duration	int	4				Store the minute of a slot
12	score	int	4				Store the average score after rating.
13	number_of_vote	int	4				
14	reference	int	4				Identity Column
15	created_at	timestamp	32				
16	number_of_bookings	int	4				

7. Sub_Yards

Store the sub-yards information in a yard.

#	Field name	Type	Size	Unique	Not Null	PK /FK	Notes
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1	id	varchar(50)	50	x	x	PK	
2	name	varchar(100)	100				
3	parent_yard	varchar(50)	50		x	FK	references yards(id)
4	type_yard	int	4		x	FK	references type_yards(id)
5	created_at	timestamp	32				
6	is_active	Boolean	2				
7	is_deleted	Boolean	2				
8	is_parent_active	Boolean	2				
9	reference	int	4				Identity Column
10	updated_at	timestamp	32				

8. Slots

Store the slots information in a sub_yard.

#	Field name	Type	Size	Unique	Not Null	PK / FK	Notes
1	id	int	4	x	x	PK	
2	price	int	4				
3	ref_yard	varchar(50)	50		x	FK	references yards(id)
4	start_time	timestamp	32				
5	end_time	timestamp	32				
6	is_active	Boolean	2				
7	is_parent_active	Boolean	2				

9. Type_Yards

Store the type information of yard in application.

#	Field name	Type	Size	Unique	Not Null	PK/FK	Notes
1	id	Int	4	x	x	PK	Identity Column
2	type_name	varchar(10)	10		x		

10. Bookings

Store the bookings information.

#	Field name	Type	Size	Unique	Not Null	PK / FK	Notes
1	id	varchar(50)	50	x	x	PK	
2	slot_id	int	4			FK	references slots(id) Specify the slot of this booking.

3	account_id	varchar(50)	50		x	FK	references accounts(id) The user booked.
4	status	varchar(20)	20				
5	date	timestamp	32				
6	note	varchar(200)	200				
7	price	int	4				
8	book_at	timestamp	32				
9	reference	int	4				Identity Column
10	sub_yard_id	varchar(50)	50		x		Specify the subyard of this booking. Added for optimize query.
11	big_yard_id	varchar(50)	50		x		Specify the yard of this booking. Added for optimize query.
12	original_price	int	4				
13	voucher_code	varchar(20)	20				

11. Booking_History

Store the history of bookings information.

#	Field name	Type	Size	Unique	Not Null	PK /FK	Notes
1	id	varchar(50)	50	x	x	PK	
2	booking_id	varchar(50)	50		x	FK	references booking(id)
3	created_by	varchar(50)	50		x	FK	references accounts(id) The user modify this booking.
4	booking_status	varchar(20)	20				The status of booking in this time.
5	created_at	timestamp	32				
6	note	varchar(200)	200				
7	reference	int	4				Identity Column

12. Votes

Store the votes information of users.

#	Field name	Type	Size	Unique	Not Null	PK/FK	Notes
1	id	varchar(50)	50	x	x	PK	
2	booking_id	varchar(50)	50		x	FK	references booking(id)
3	score	int	4				
4	comment	varchar(200)	200				

5	date	timestamp	32				
6	is_deleted	Boolean	2				

13. Vouchers

Store the vouchers information of owners.

#	Field name	Type	Size	Unique	Not Null	PK /F K	Notes
1	id	varchar(50)	50	x	x	PK	
2	type	varchar(20)	20				
3	title	varchar(200)	200				
4	description	text					
5	is_active	Boolean	2				
6	max_quantity	int	4				
7	usages	int	4				
8	voucher_code	varchar(20)	20				
9	percent_discount	int	4				
10	amount_discount	int	4				
11	start_date	timestamp	32				
12	end_date	timestamp	32				
13	status	varchar(20)	20				
14	created_by	varchar(50)	50		x	FK	references accounts(id)
15	created_at	timestamp	32				
16	reference	int	4				identity column

14. Yard_Picture

Store the picture url of yards.

#	Field name	Type	Size	Unique	Not Null	PK /F K	Notes
1	id	int	4	x	x	PK	identity column
2	ref_id	varchar(50)	50		x	FK	references yards(id)
3	image	varchar(200)	200		x		

15. Yard_Report

Store the report information of yards.

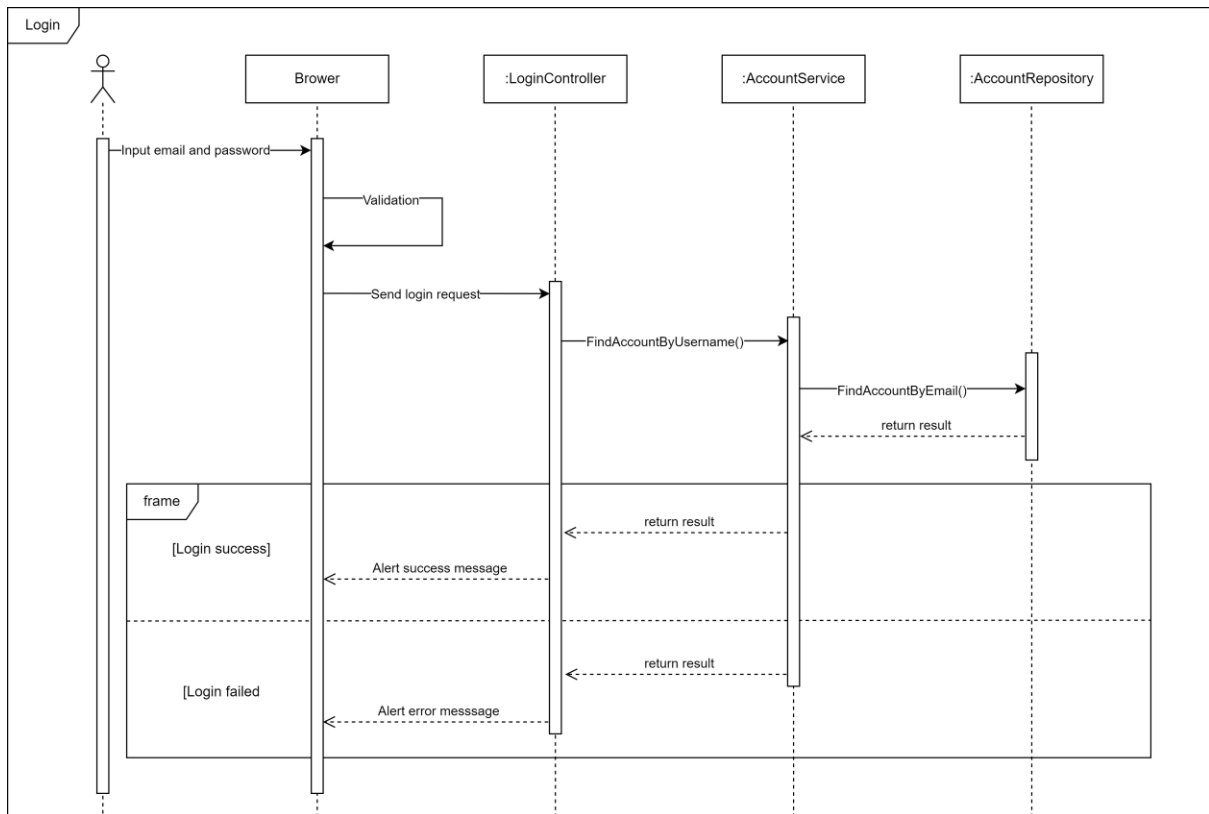
#	Field name	Type	Size	Unique	Not Null	PK /F K	Notes
1	id	varchar(50)	50	x	x	PK	
2	user_id	varchar(50)	50		x	FK	references accounts(id) The user reported.
3	yard_id	varchar(50)	50		x	FK	references yards(id) The yard to be reported.
4	reason	varchar(300)	300				
5	created_at	timestamp	32				
6	updated_at	timestamp	32				
7	status	varchar(50)	50				
8	reference	int	4				identity column

16. Provinces

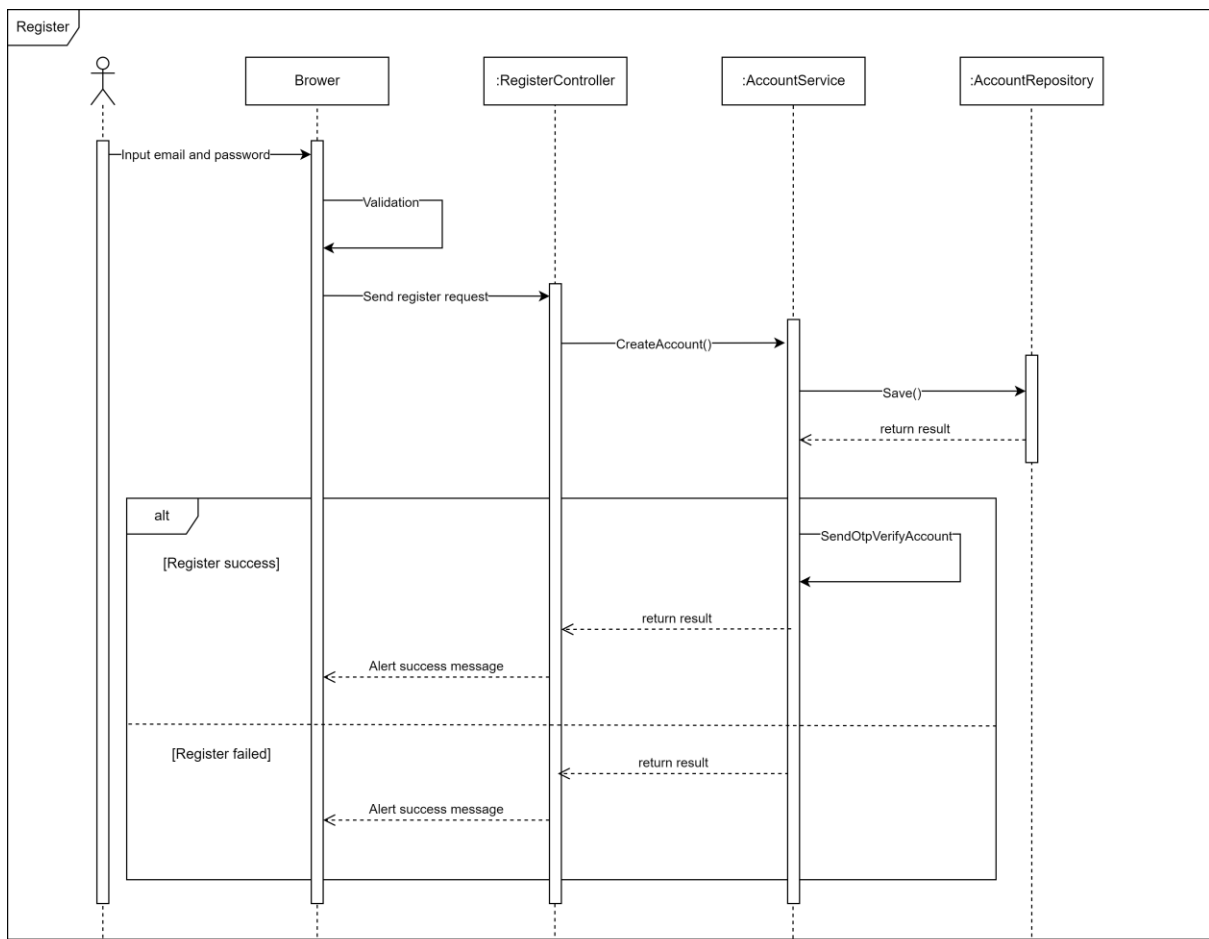
Store the role information of account in application.

#	Field name	Type	Size	Unique	Not Null	PK/FK	Notes
1	id	Int	4	x	x	PK	Identity Column
2	province_name	varchar(50)	50		x		

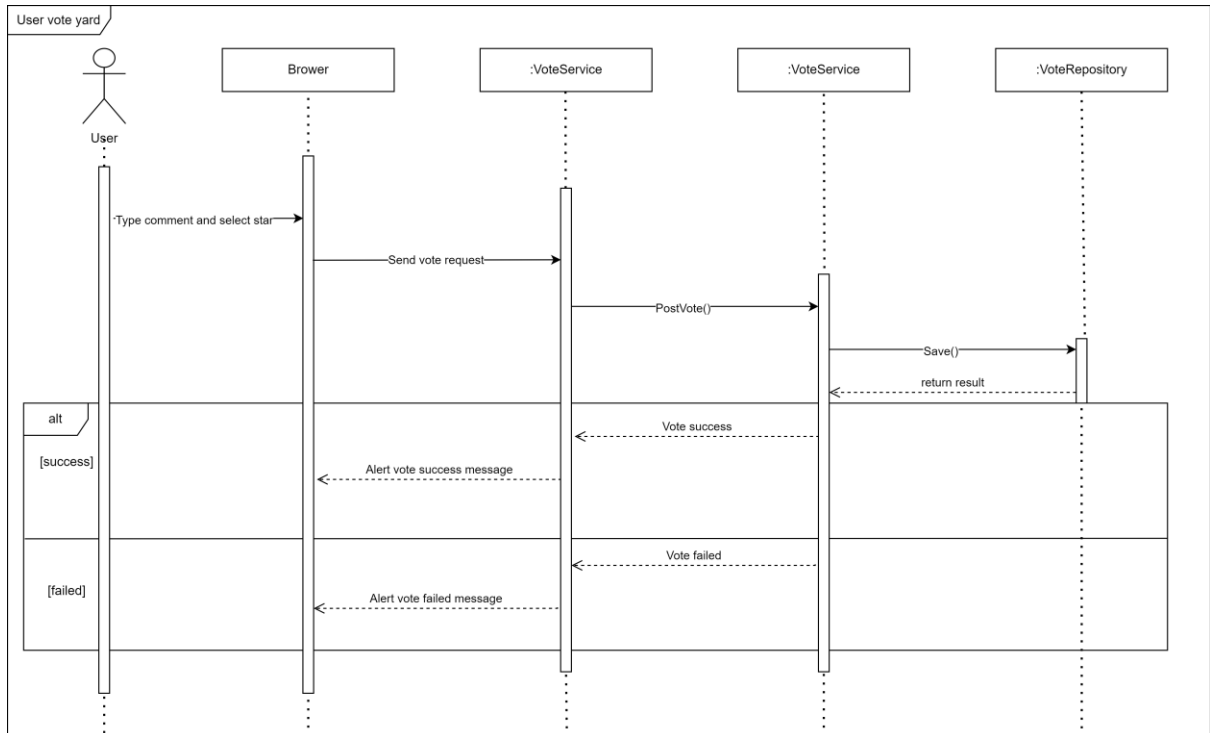
2.4. Sequence diagram



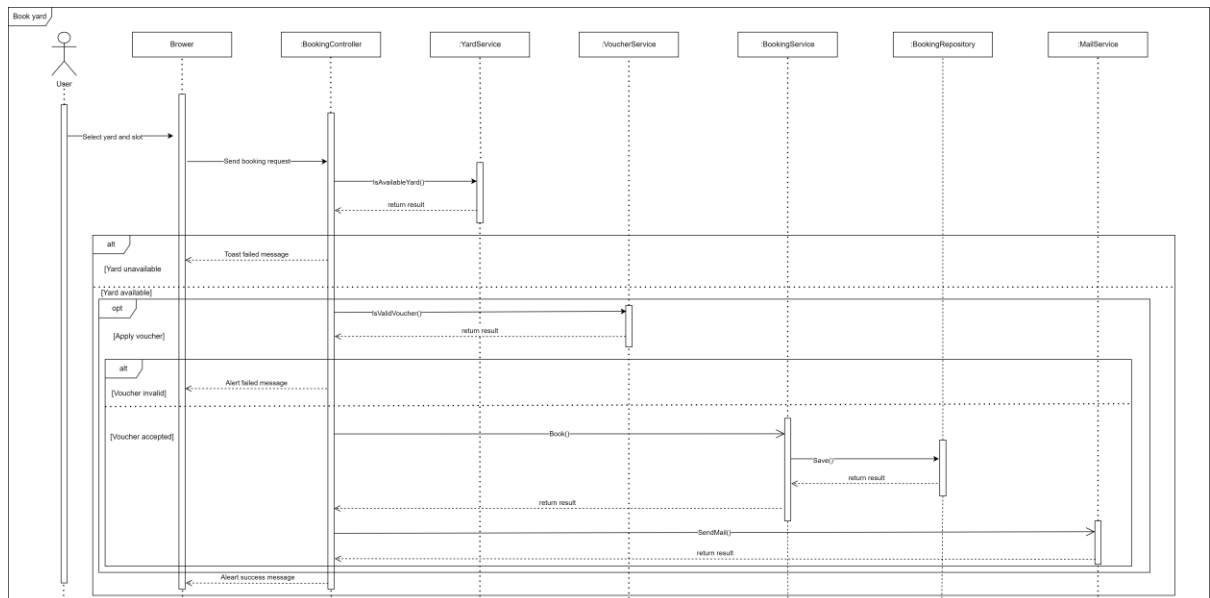
2.4.1 Login



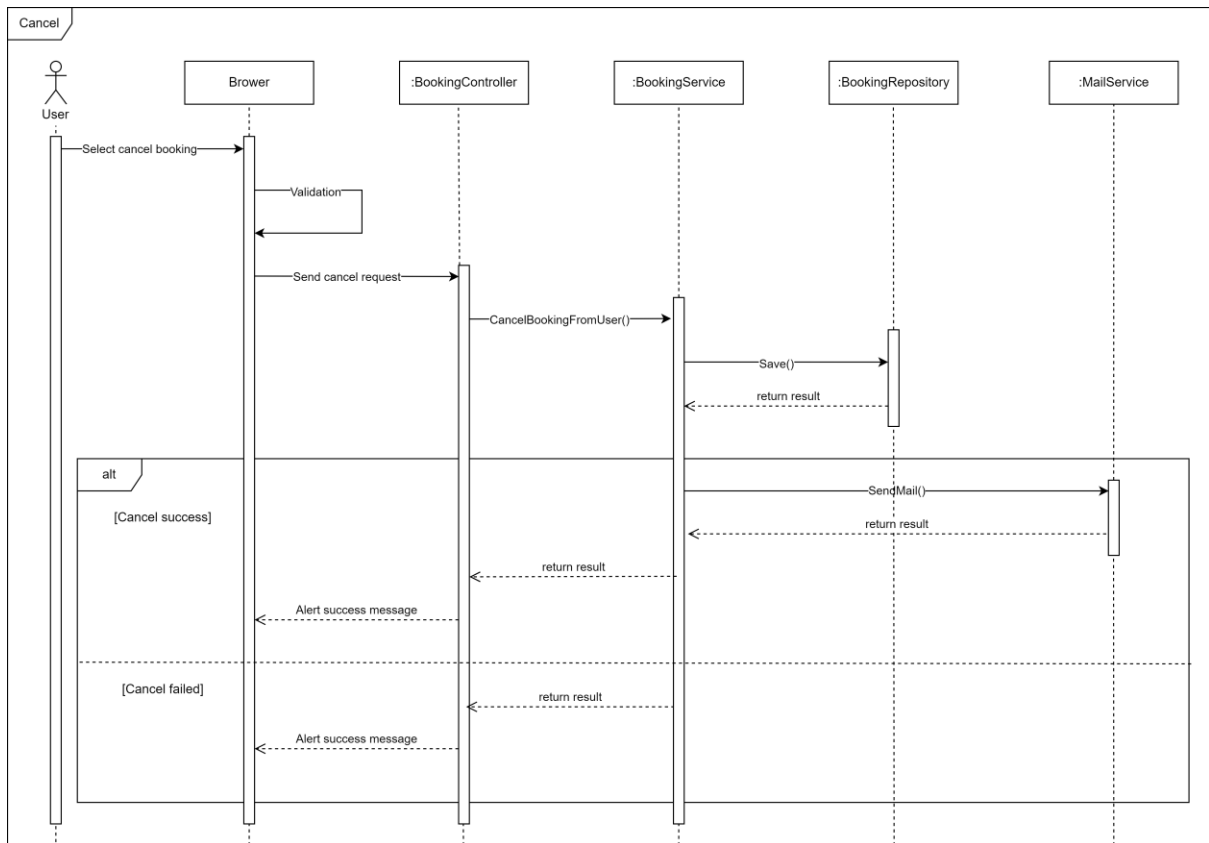
2.4.2 Register



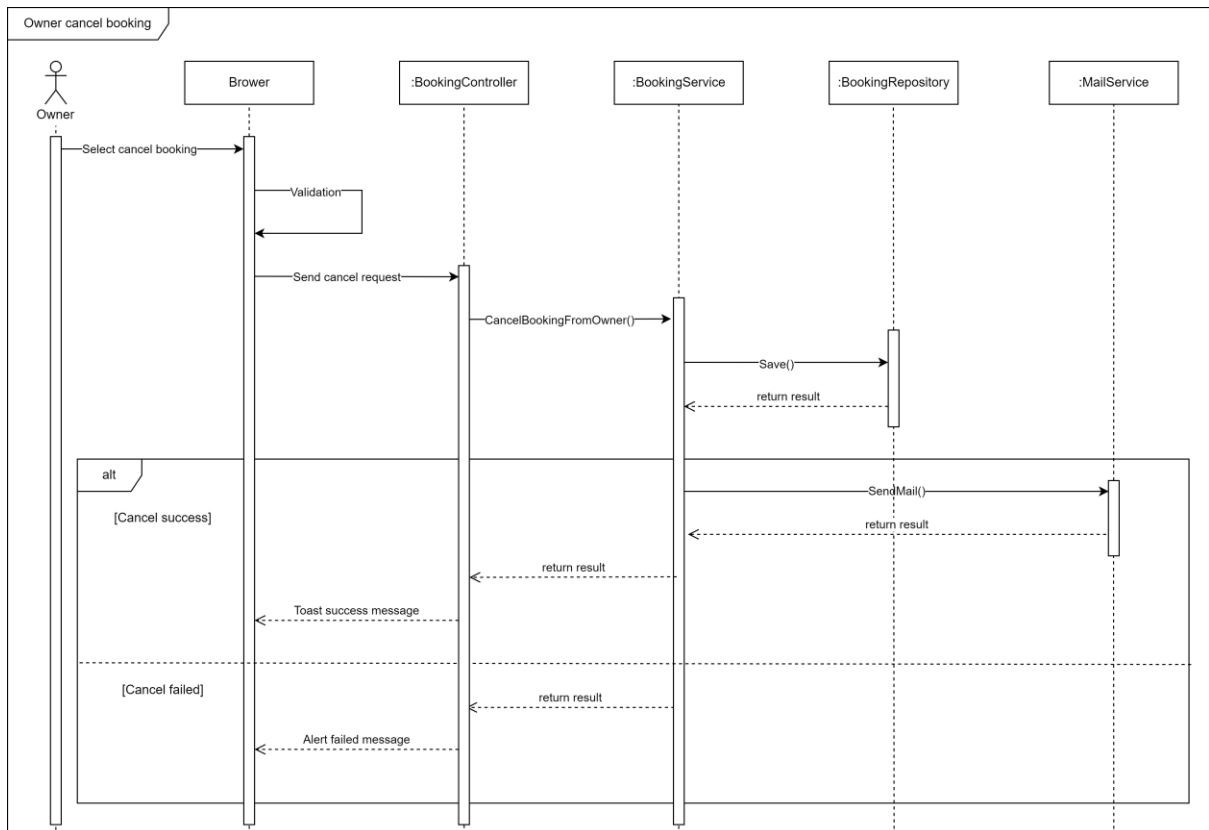
2.4.3 User vote yard



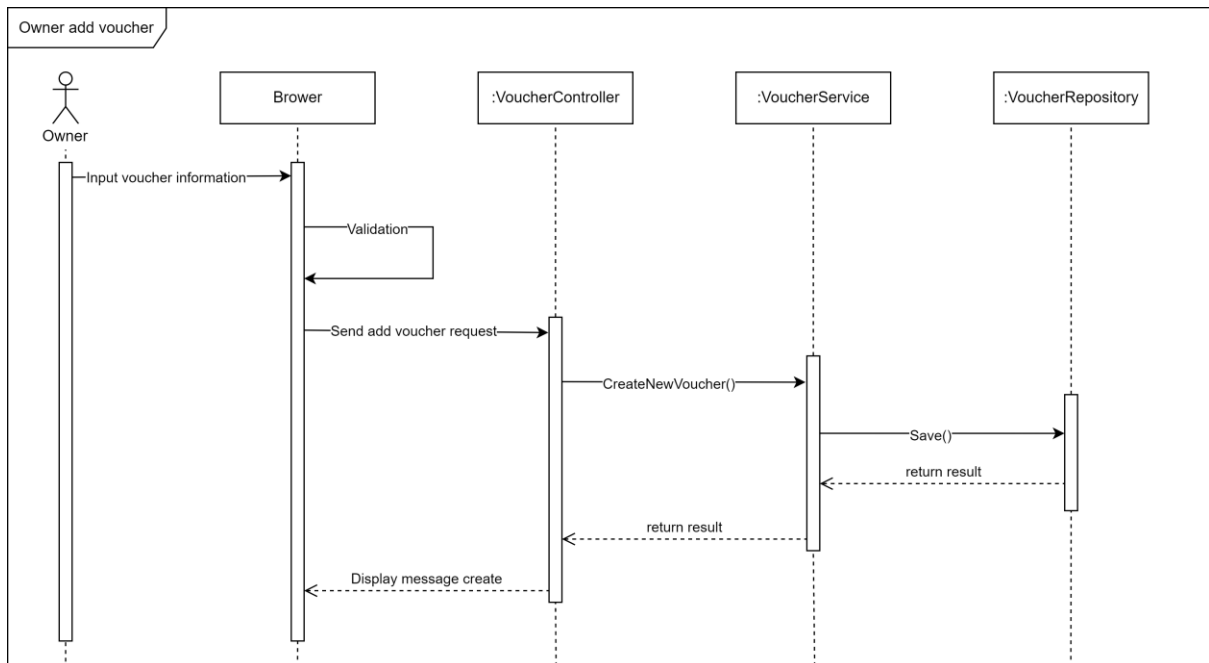
2.4.4 User booking yard



2.4.6 User cancel booking



2.4.7 Owner cancel booking



2.4.8 Owner add voucher

3. Overall Architecture

