

A
PROJECT REPORT ON

Online Parking Management System

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B.Tech CE Semester-VI
Subject: System Design Practice

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CERTIFICATE

This is to certify that the practical / term work carried out in the subject of
System Design Practice and recorded in this journal is the
bonafide work of
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Abstract

In this 21st century, population growth and urbanization increased so it is a big problem to find place for parking in city area. Therefore, our web application will be useful to the people who have been face a daily problem in the park of their vehicles. And if the user is at an unknown place, then the user will not know the parking place near him, then this application will also be useful to the user and user can park their vehicle. we provide this facility to user so user have not problem for parking vehicle.

Brief Introduction

The "**Online Parking Management System**" project has been designed keep in mind Landlord, Administrator and end user who wants to take land on rent for parking purpose. Landlord can add their land with location and land details And Landlord can edit his land in future. Landlord can also delete the land which he has added and can also see all the land which he has added and also view the history of all lands and also get payout of land. The administrator can verify the land added by the landlord by checking all the details. If the land added by Landlord is not verified then the land user cannot see that land. The end user can view any nearby parking space and also reserved that place. End user can reserve parking space from any place but for that, he has to added that place location once. The end user can also view the history of all the parking locations he or she had previously used. End user can give feedback of any land and When a user opens nearby parking place page, they can see this feedback.

Tools/Technologies

- ❖ **Technologies:** python, html5, Bootstrap4, jQuery
- ❖ **Framework:** Django
- ❖ **Tool:** Visual Studio Code, PyCharm, GitHub Desktop, Selenium Testing Tool
- ❖ **Platform:** Window, Linux

Software Requirement Specification

R1. Authentication

R1.1 Login

Input: Email address and password

Output: Authentication successful

Description: If credentials are succeeded then user related pages display else error page display on failure.

R1.2 Register

Input: New user credentials

Output: Registration successful

Description: User can register themselves and get successful message.

R1.3 Forgot Password

Input: Email Address

Output: Reset password link mail to user

Description: User reset password by link.

R1.4 Edit profile information

Input: User modify credentials

Output: Edit successful

Description: User can modify their details and get successful message.

R2. Admin

R2.1 Verify Land Details

Input: Select land

Output: Send successful mail to landlord

Description: Admin can verify land details by checking all details correctly.

R3. User

R3.1 Reserve parking spot based on current location

R3.1.1 Get nearby parking spots

Input: Date and enable location

Output: Show all nearby parking spots

Description: User can get list of all parking spots which can nearby user current location and list sorted by distance.

R3.1.2 Reserve parking spot

Input: Select parking spot

Output: Reserve parking spot successful

Description: User reserve a nearby parking spot for particular day.

R3.2 Reserve parking spot based on other location

R3.1.1 Add location

Input: Location name and enable location

Output: Add location successful

Description: User add location so he/she can be reserve parking spot in advance.

R3.1.1 Get parking spots based on added location

Input: Date and select location name

Output: Show all parking spots

Description: User can get list of all parking spots which can nearby user selected location and list sorted by distance.

R3.1.2 Reserve parking spot

Input: Select parking spot

Output: Reserve parking spot successful

Description: User reserve a nearby parking spot for particular day in advance.

R3.3 View usage history

Input: Select history page

Output: Show list of all reservation details

Description: User can view history of reservation details which reserved earlier.

R3.4 Provide feedback

Input: Select particular record and provide feedback

Output: Feedback provided successfully

Description: User can provide feedback to particular parking spot which reserved earlier.

R4. **Landlord**

R4.1 Add land details

Input: New land credential and enable location

Output: Get successful message

Description: Landlord can add land details successfully.

R4.2 Edit land details

Input: Land modify credential

Output: Get successful message

Description: Landlord can edit land details successfully.

R4.3 Remove land

Input: Select particular land

Output: Get successful message

Description: Landlord can delete land if and only if land should not reserve by any user.

R4.4 View all land details

Input: Select land details page

Output: Show list of all land among with their details.

Description: Landlord can view all land among with their details which add earlier.

R4.5 View history of particular land

Input: Select particular land

Output: Show list of all usage history among with their user details.

Description: Landlord can all usage history among with their user details for particular land.

R4.6 Get payout

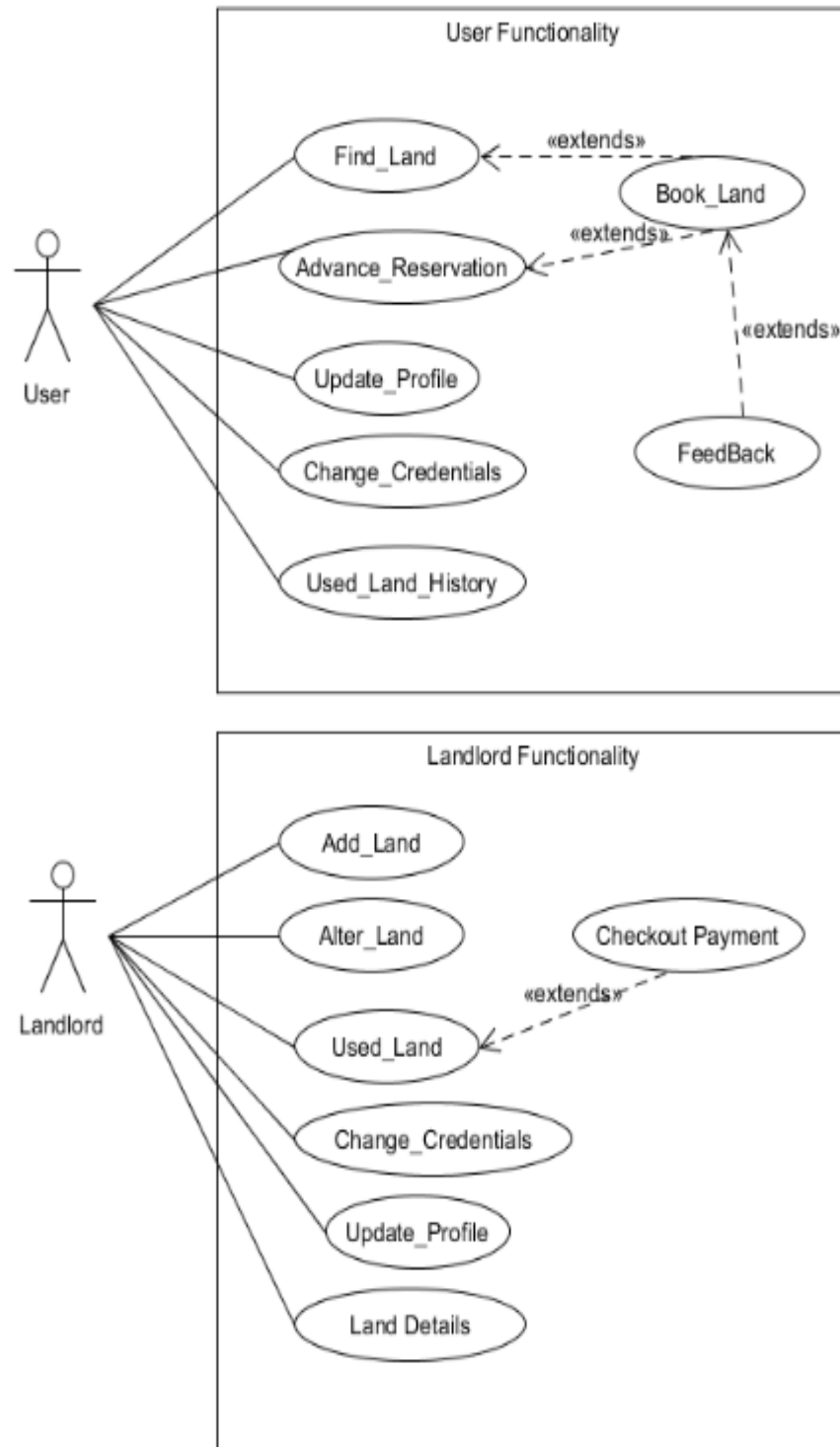
Input: Select particular land

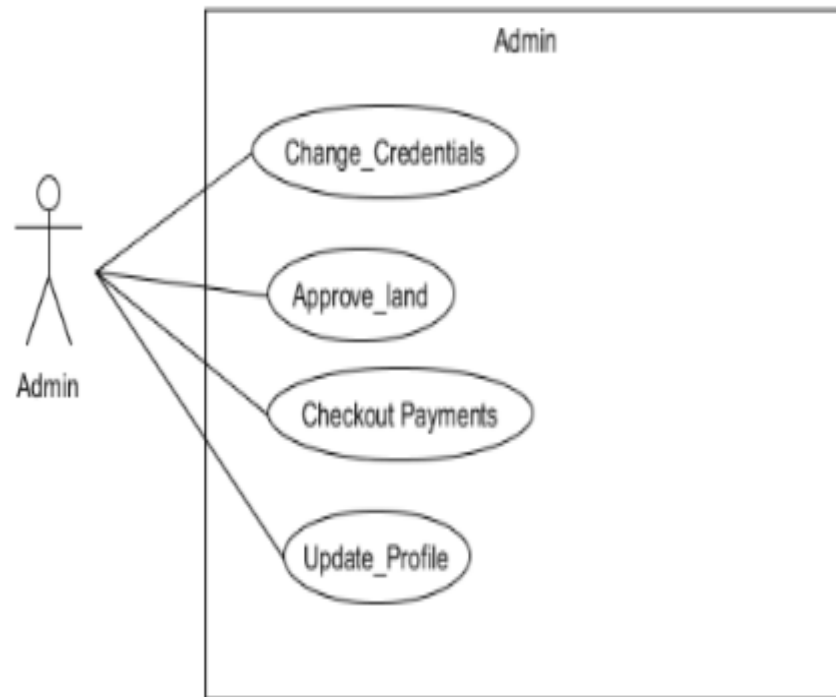
Output: Show the accumulated amount and get the payout successfully.

Description: Landlord view the accumulated amount and get the payout for particular land.

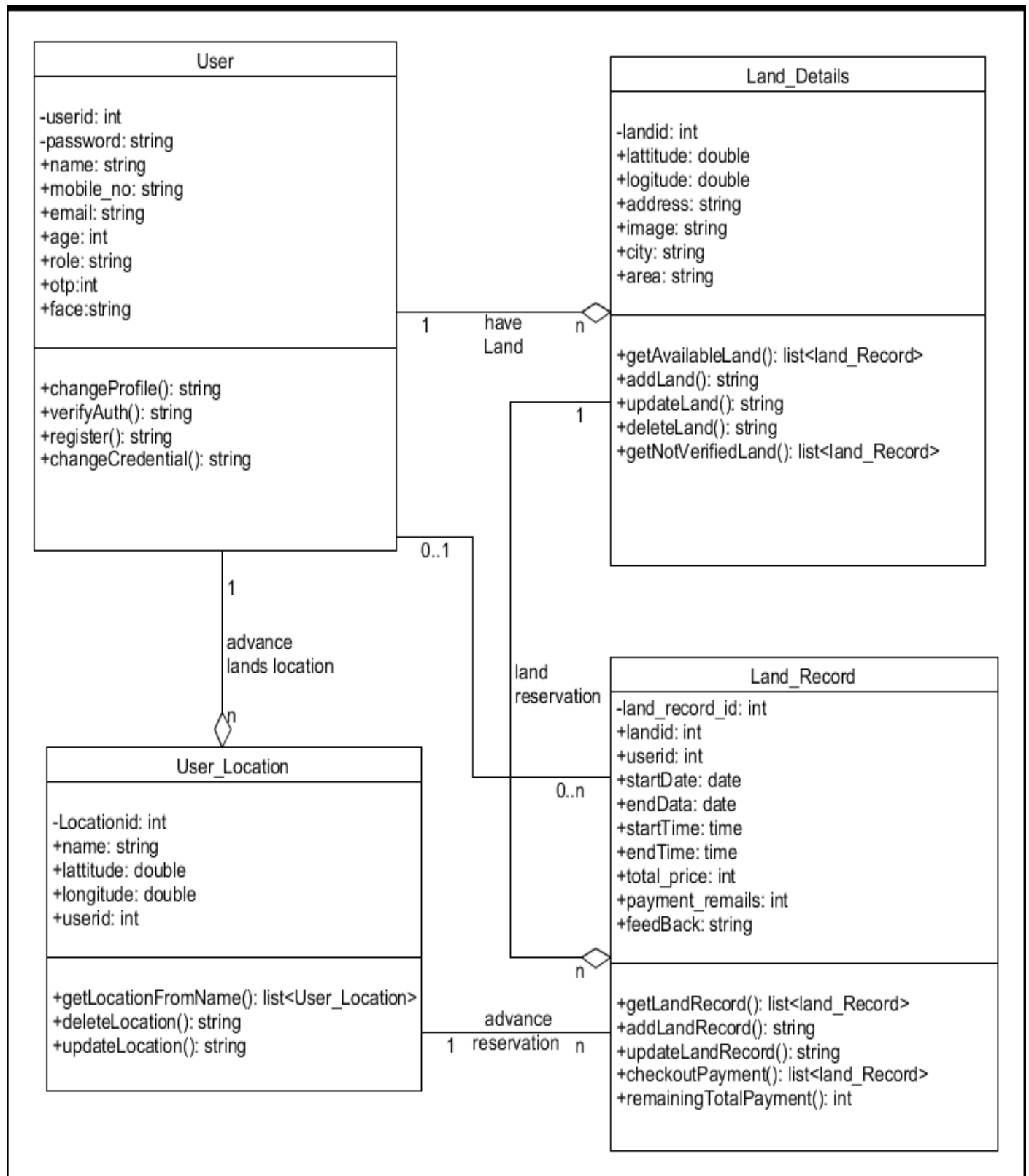
Design

Use Case Diagram

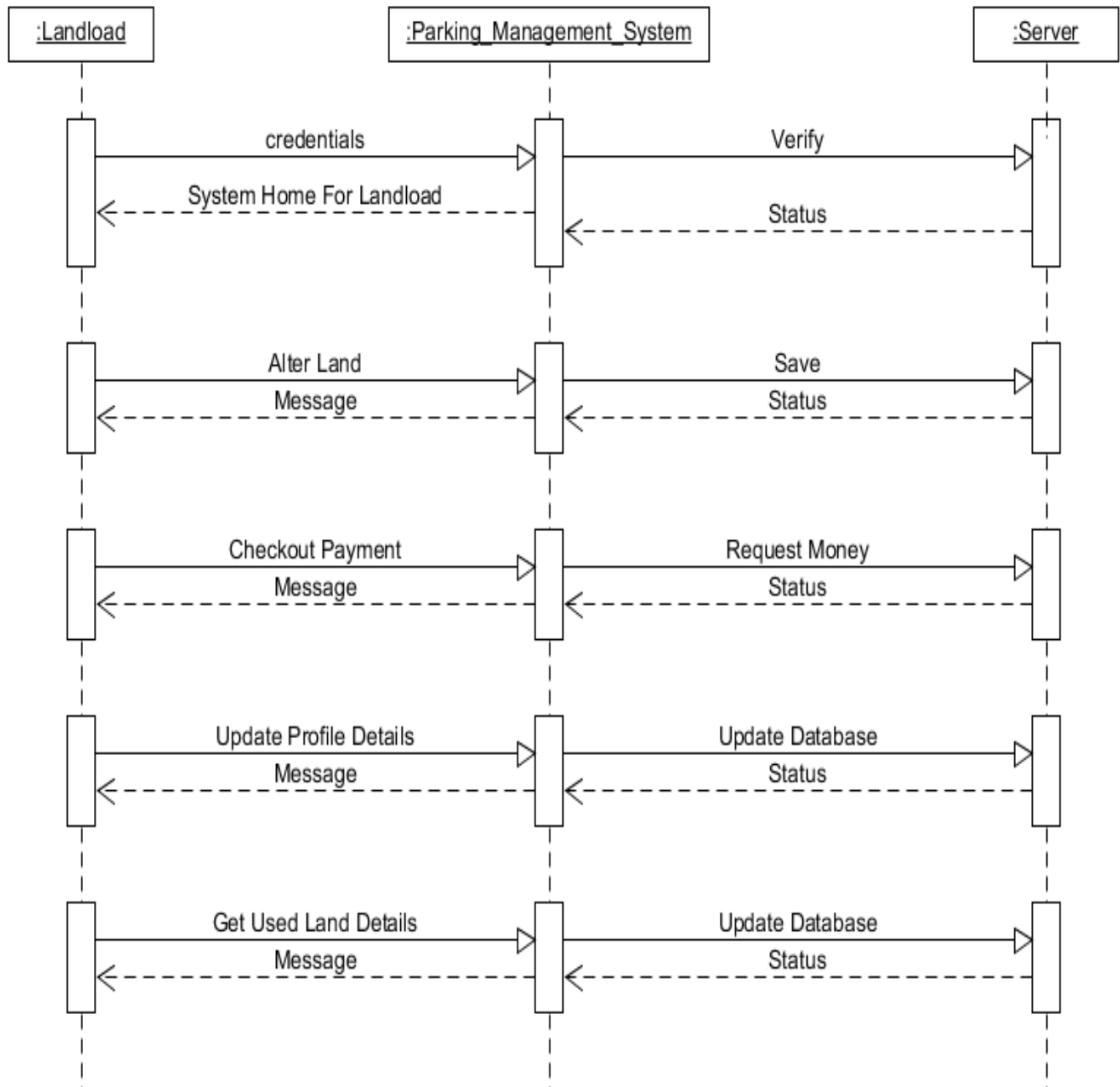


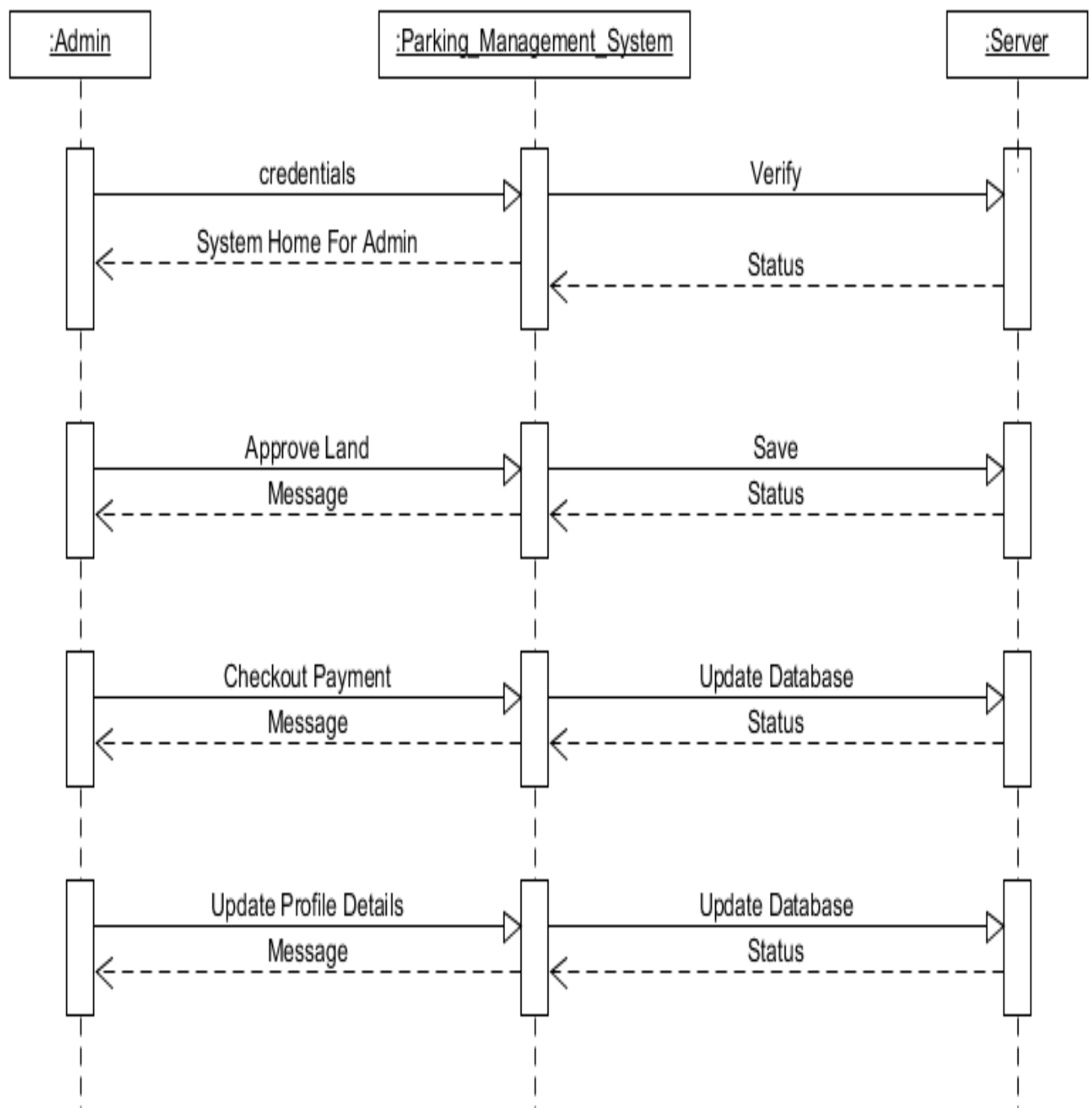


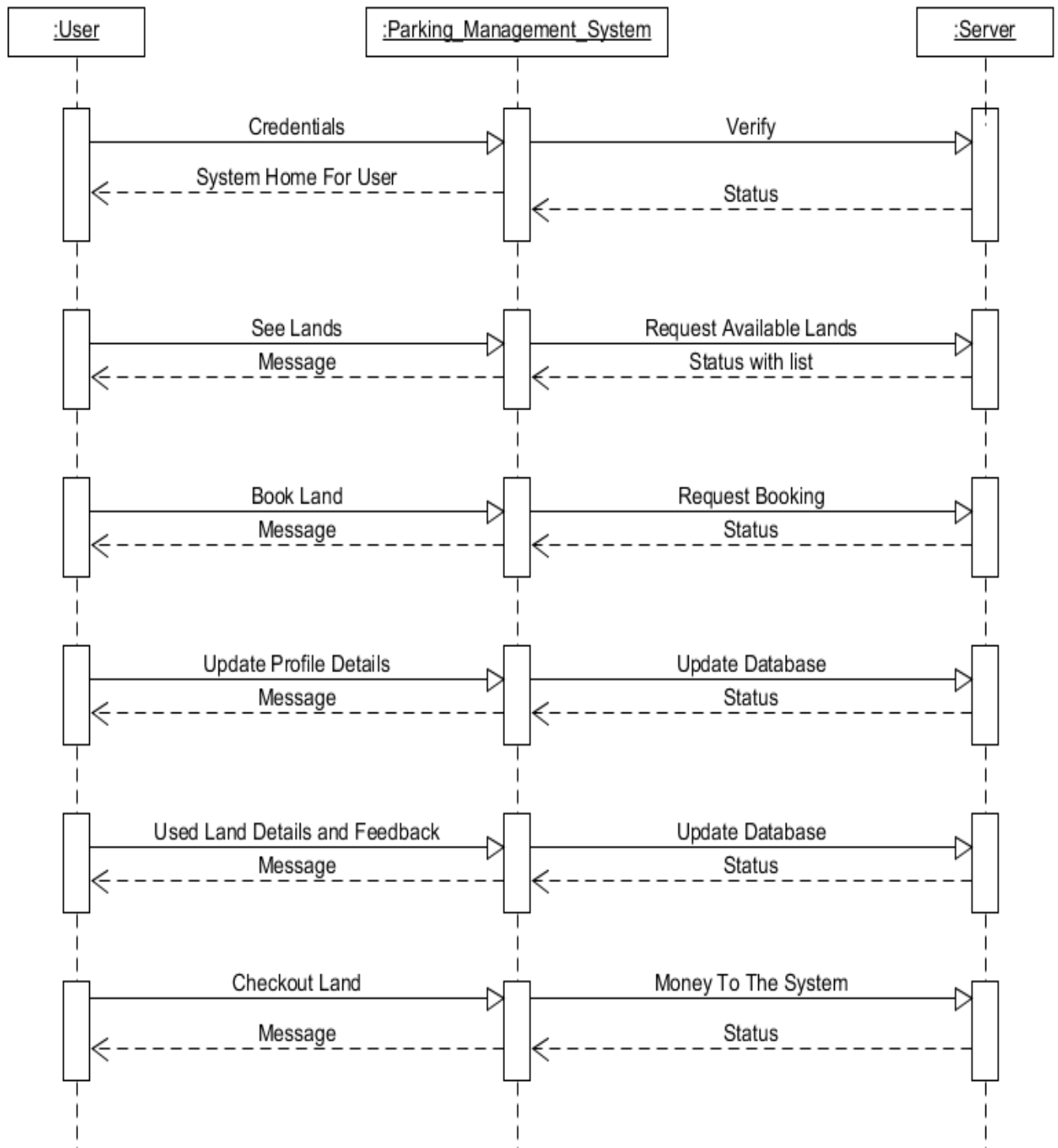
Class Diagram



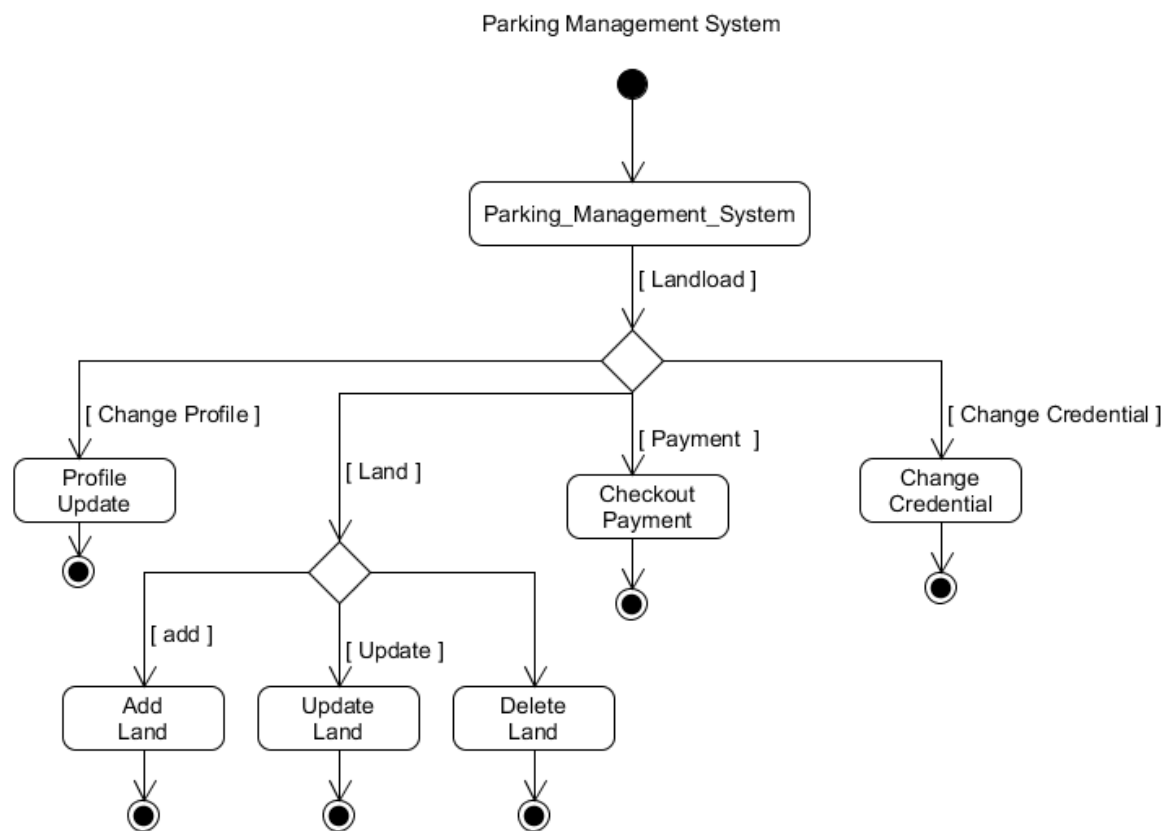
Sequence Diagram

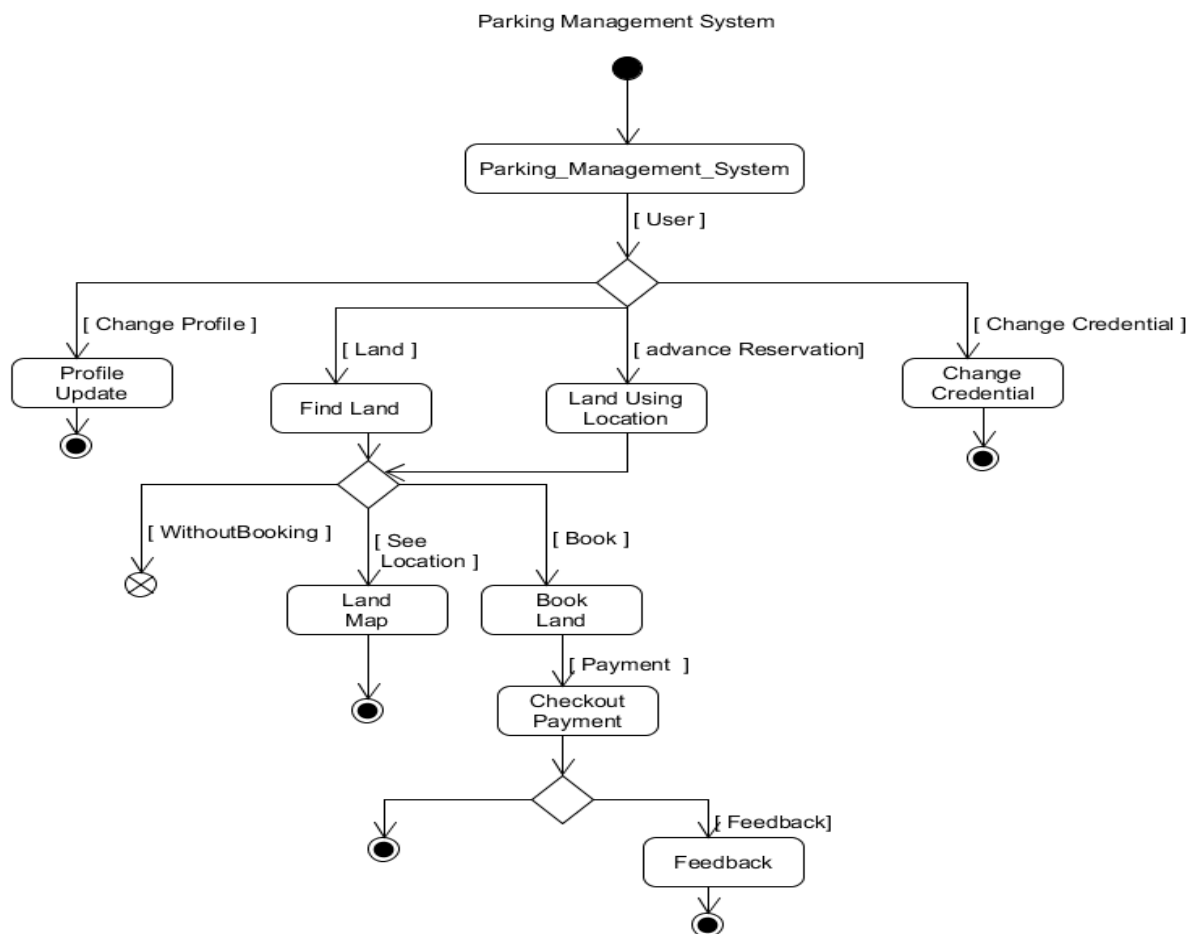
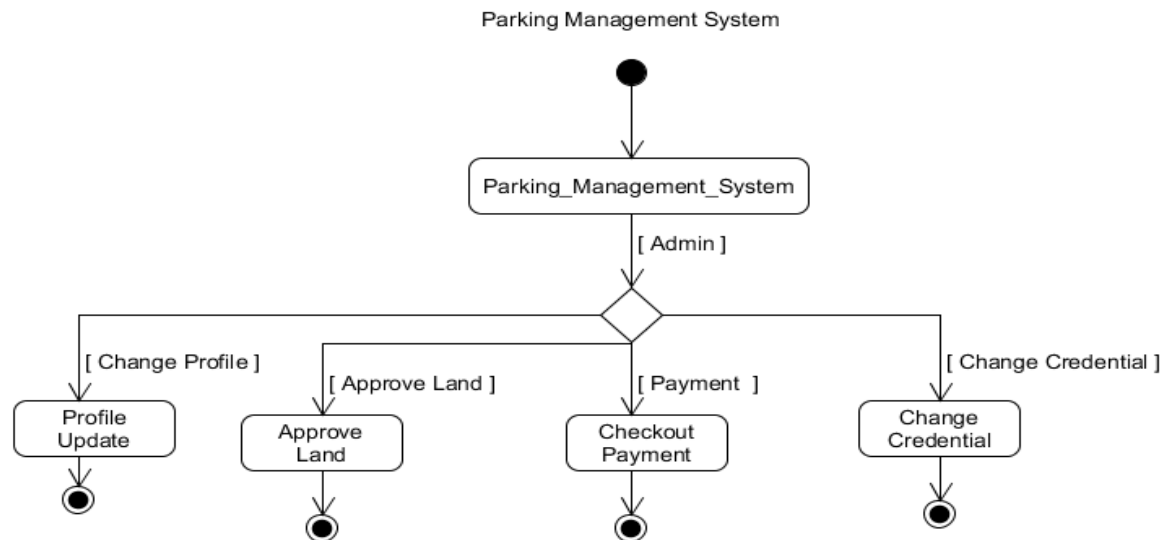




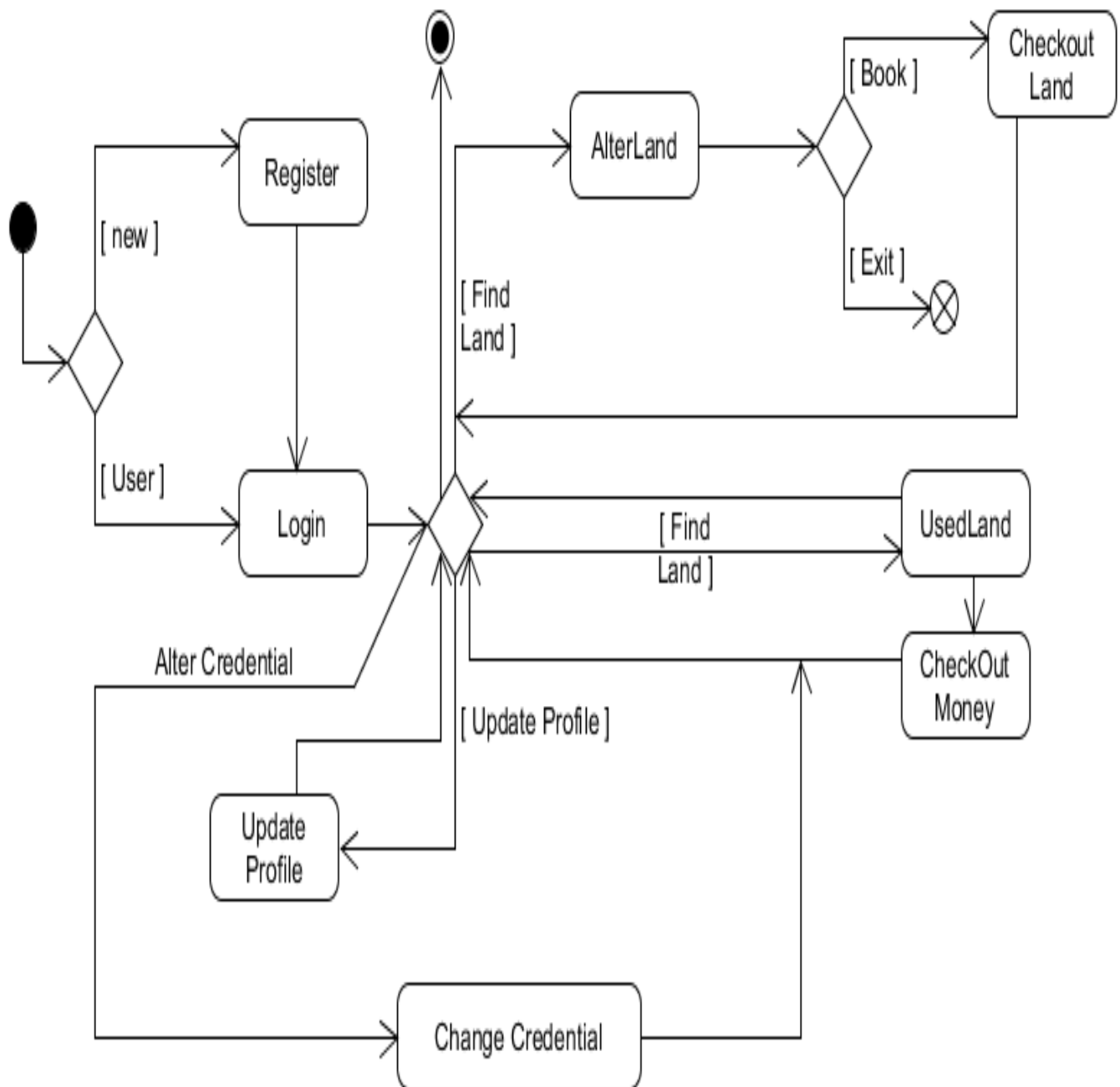


Activity Diagram

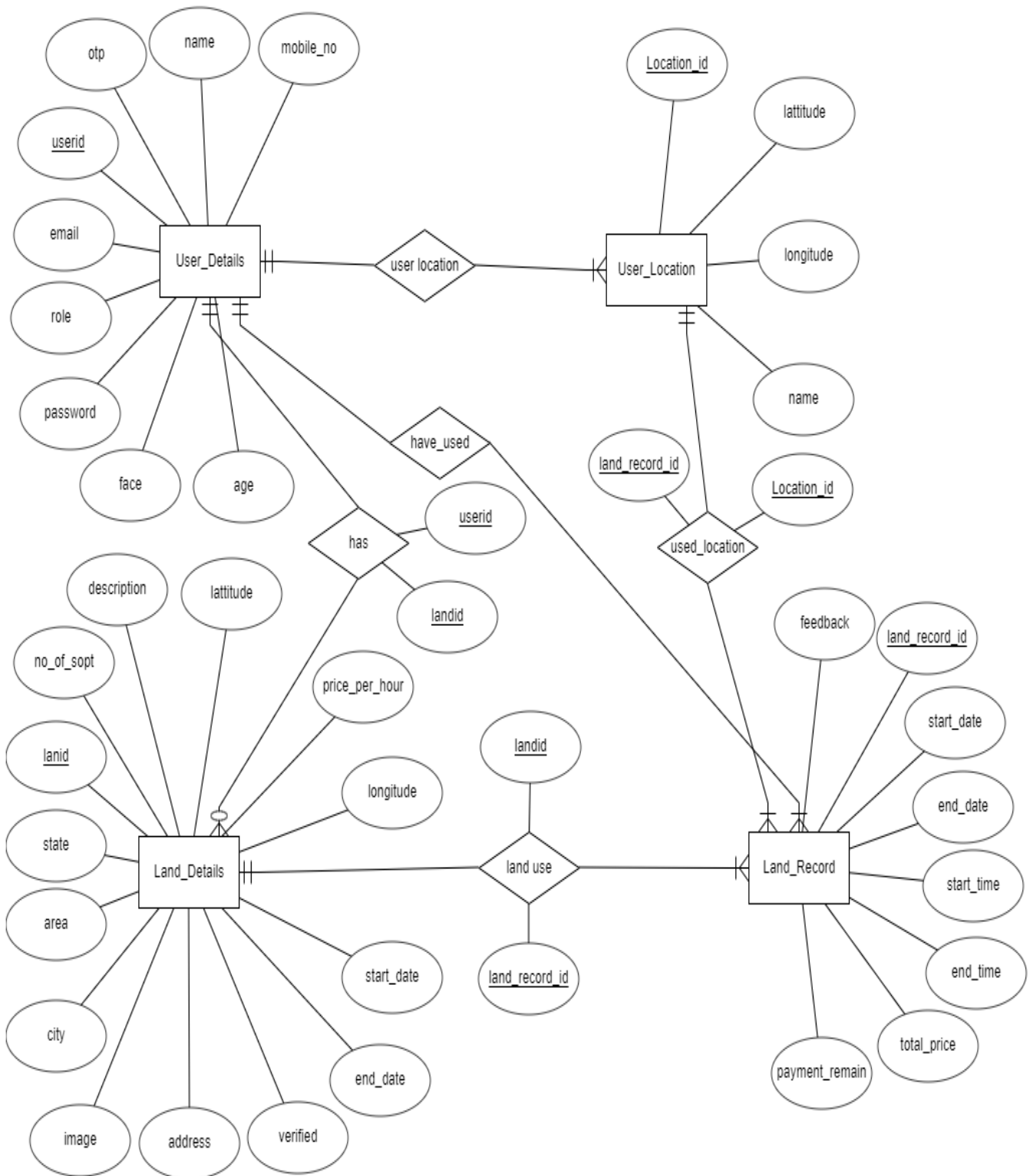




State Diagram



E-R Diagram



Data Dictionary

User_detail								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	userid	Number	11	Yes	Yes	PK		
2.	name	Varchar	100	Yes	No			
3.	password	Varchar	14	Yes	No			
4.	mobile_no	Number	10	Yes	No			
5.	email	Varchar	100	Yes	Yes			
6.	age	Number	11	Yes	No			
7.	role	Varchar	10	Yes	No			
8.	otp	Number	11	No	No			
9.	face	Longtext		No	No			

User_Location								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	Locationid	Number	10	Yes	Yes	PK		

2.	name	Varchar	10	Yes	No			
3.	latitude	Double	30	Yes	No			
4.	langitude	Double	30	Yes	No			
5.	userid	Number	10	Yes	No	FK	User_detail	

Land_detail								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	landid	Number	11	Yes	Yes	PK		
2.	latitude	Double	30	Yes	No			
3.	langitude	Double	30	Yes	No			
4.	address	Varchar	300	Yes	No			
5.	image	Varchar	100	No	No			
6.	city	Varchar	255	Yes	No			
7.	area	Varchar	255	Yes	No			
8.	state	Varchar	255	Yes	No			
9.	no_of_spot	Number	11	Yes	No			
10.	description	Longtext		No	No			
11.	price_per_hour	Double	20	Yes	No			

12.	start_date	Date		Yes	No			
13.	end_date	Date		Yes	No			
14.	verified	Boolean	1	Yes	No			
15.	userid	Number	1	Yes	No	FK	User_detail	

Land_record								
Sr. No.	Field Name	Data Type	Width	Required	Unique	PK/FK	Referenced Table	Description
1.	land_record_id	Number	11	Yes	Yes	PK		
2.	landid	Number	11	Yes	No	FK	Land_detail	
3.	userid	Number	11	Yes	No	FK	User_detail	
4.	start_date	Date	300	Yes	No			
5.	end_date	Date	100	No	No			
6.	start_time	Time	6	No	No			
7.	end_time	Time	6	No	No			
8.	total_price	Number	11	Yes	No			
9.	payment_remaining	Boolean	1	Yes	No			
10.	feedback	Varchar	255	No	No			

5 Implementation Details

5.1 Module Description

❖ Login Module

This is first page after home page if user want to perform any operation in our application. According to credentials given by any user they can login into the system.

❖ Registration Module

In our system, any user is registered by giving his details.in this system, there are two type of registration page one for landlord and another one for user. Any users of the system can sign up for landlord and end user. users can sign up for both if desired.

❖ Landlord Module

Landlord can add their land with location and land details And Landlord is also edit its land in the future. Landlord can also delete the land which he has added. He can also see all the land which he has added. He also get money from his land. Landlord also see the land wise history.

❖ Administrator module

The administrator is a person who only has the authority to verify the land that has been uploaded by the landlord and if the administrator does not verify that land, the end user cannot see that land for parking.

❖ User module

The end user can view any nearby parking space and also reserved that place. End user can reserve parking space from any place but for that, he has to added that place location once. The end user can also view the history of all the parking locations which he had previously used. End user can give feedback of any land and When a user opens nearby parking place page, they can see this feedback.

5.2 Function Prototype

Operation :

- **Create** : For registration, reserve parking spot and add land.
- **Read** : For view land list and usage history.
- **Update** : For modify land details and user profile details.
- **Delete** : For Delete particular land.
- **Search** : For view nearby parking spot details

Testing

We have done Black box testing and also some validation testing.

❖ CSRF (Cross-Site Request Forgery) Token

Attacker can send URL like for login, logout, payment etc. and if victim click on that link victim perform the task. It called cross site request forgery. For preventing this attack CSRF token is come into picture.so if victim click on the attacker's link than it gives invalid CSRF token because it is different for every request and not create cookies and also cannot access the account. So, we use CSRF Token.

❖ Selenium testing tool

we use selenium testing tool for test our website because It create robust, browser-based regression automation suites and tests, scale and distribute scripts across many environments. for that we have writing test script in both famous browser Google chrome and Mozilla Firefox and we have also test our website in different platform like Linux and window. In this script, we did different test cases in sign in page and sign up page like, in sign in page we check for blank username or password, incorrect username or incorrect password. And in sign up page we check for any blank data, age below 18, both passwords must same. And we also check test case for add parking land page like location enable or not and required field.

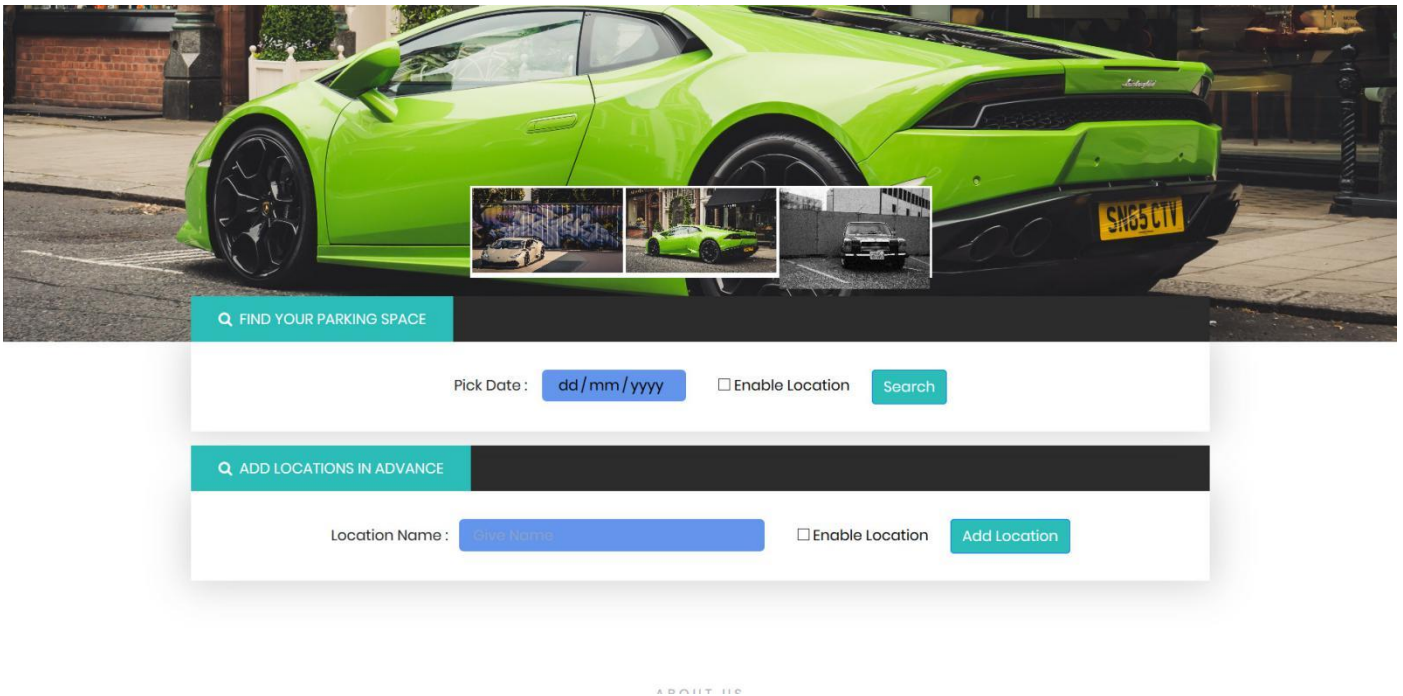
❖ Test Cases

No.	Test Scenario	Expected Result	Actual Result	PASS / FAIL
1.	Password must be same	if both are different then give error otherwise successful.	if both are different then give error otherwise successful.	PASS
2.	Blank field	Give required field error	Give required field error	PASS
3.	Age Restriction	If age less than 18 then give error otherwise successful	f age less than 18 then give error otherwise successful	PASS

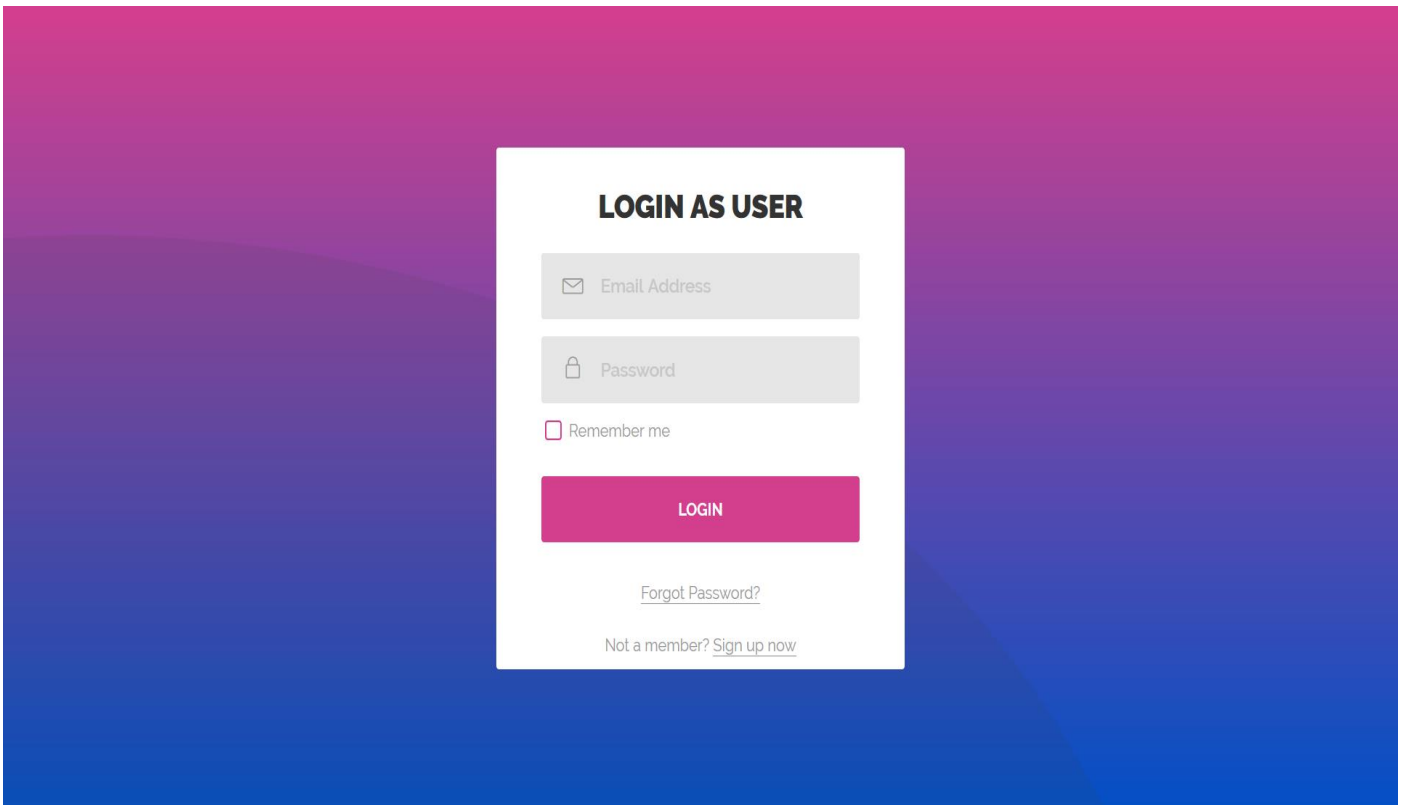
4.	Email notification have no significant delay	User is notified in less than 30 seconds after forgot password email entered.	User is notified in less than 20 seconds after forgot password email entered.	PASS
5.	Email address must be valid	It will give error if email address is wrong otherwise successful	It will give error if email address is wrong otherwise successful.	PASS
6.	While Searching For Lands If Location is not Turned on	Please Check This Box If You Want to Proceed	Please Check This Box If You Want to Proceed	PASS
7.	While Adding New Location for Advanced Reservation Name Is Not Valid.	Please Fill Name As per Instruction.	Please Fill Name As per Instruction.	PASS
8.	While Adding New Land Location Successfully.	Title: Location Done	Title: Location Done	PASS
9.	While Editing Profile Age If Added age less than 18	Age must be greater than or equal to 18.	Age must be greater than or equal to 18.	PASS
10.	While Adding Value to the Input Text boxes.	Show errors according to JavaScript listed	Showing errors according to JavaScript listed	PASS
11.	While Searching for Space showing Land Data	Title: Reserve your favorite space	Title: Reserve your favorite space	PASS
12.	While Searching For Lands If Land is not verified by Admin	Land not visible for USER otherwise visible	Land not visible for USER otherwise visible	PASS
13.	While Adding Land If Location is not Turned on	Land not visible for USER otherwise visible	Land not visible for USER otherwise visible	PASS
14.	While Deleting Land If Land is not reserved by user	Land details delete successful	Land details delete successful	PASS

Screen Shot

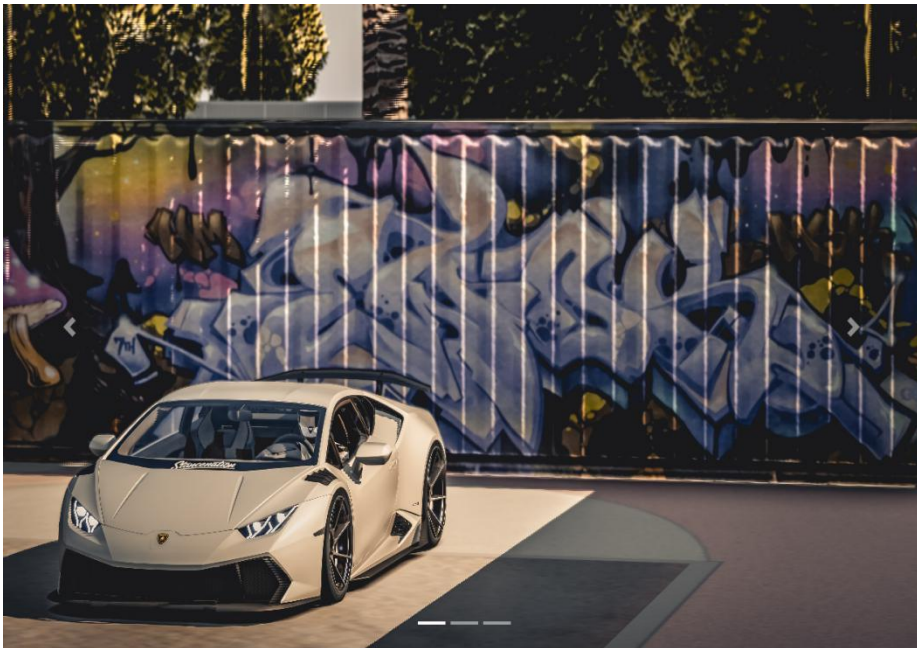
❖ Home Page



❖ Login Page



❖ Sign Up Page



Sign Up as User

Full Name :

Name

Email :

Email Address...

mobile_no :

Mobile Number

age :

Age

Password :

Confirm Password

☐ I agree to the Terms of User

Sign Up

Sign in →

❖ Edit Profile



EDIT PROFILE

Full Name :

shubham

Email :

shubham@gmail.com

mobile_no :

7575880402

age :

19

EDIT PROFILE

❖ Add Parking Place



ADD PARKING DETAILS

Enter Your Address

Enter Number Of Spot



Enter Description

Browse...

Enter Price Per Hour



Area

City

State

Start Date

End Date


☐ Enable Location


Add Now


❖ User History for land

[HOME](#) [LAND DETAILS](#) [ADD LAND](#) [Logout](#)

Azenta.

 Phone: (+91) 9664911300

 Address: DDU ,Nadiad

 Email: ParkingSystem@gmail.com

Date	User Name	User Email	User Mobile Number	User Age
April 28, 2020	shubham	shubham@gmail.com	7575880402	19
April 28, 2020	bhavya	bhavya@gmail.com	9874512630	22
April 27, 2020	bhavya	bhavya@gmail.com	9874512630	22
April 27, 2020	bhavya	bhavya@gmail.com	9874512630	22
April 26, 2020	bhavya	bhavya@gmail.com	9874512630	22
April 26, 2020	shubham	shubham@gmail.com	7575880402	19
April 27, 2020	shubham	shubham@gmail.com	7575880402	19
April 24, 2020	shubham	shubham@gmail.com	7575880402	19
April 28, 2020	shubham	shubham@gmail.com	7575880402	19

❖ Land Detail (Landlord)



City : rajkot
State : Gujarat
Area : Gundavadi
Price : 50.0
Spots : 20
Verified : Not verified
Date : April 24, 2020 to May 7, 2020
Description : For office parking

[Show History](#) [Edit Land Detail](#) [Delete Land](#) [Payment](#)



City : rajkot
State : Gujarat
Area : Mahadev Temple Garden
Price : 40.0
Spots : 18
Verified : Not verified
Date : April 23, 2020 to April 29, 2020
Description : Best place for parking

[Show History](#) [Edit Land Detail](#) [Delete Land](#) [Payment](#)

❖ Payment of land

Azenta.



Phone:
(+91) 9664911300



Address:
DDU ,Nadiad



Email:
ParkingSystem@gmail.com

For Land (landid:3) successfully payment done!!!Payment Rs:1200.0



City : rajkot
State : Gujarat
Area : Gundavadi
Price : 50.0
Spots : 20
Verified : Yes
Date : April 24, 2020 to May 7, 2020
Description : For office parking

Show History

Edit Land Detail

Delete Land

Payment



City : rajkot
State : Gujarat
Area : Mahadev Temple Garden

❖ Delete Land (Landlord)

Azenta.



Phone:
(+91) 9664911300

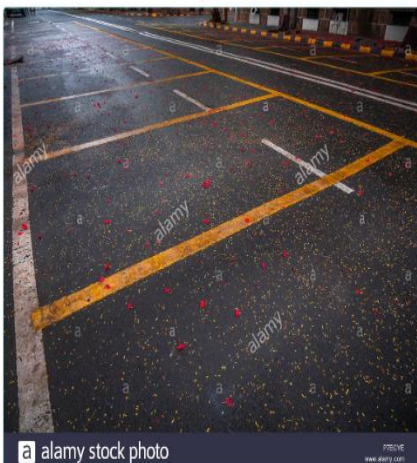


Address:
DDU ,Nadiad



Email:
ParkingSystem@gmail.com

You can't delete this land (landid:3) because land already reserved by some user!!!



City : rajkot
State : Gujarat
Area : Gundavadi
Price : 50.0
Spots : 20
Verified : Yes
Date : April 24, 2020 to May 7, 2020
Description : For office parking

Show History

Edit Land Detail

Delete Land


Payment





City : rajkot
State : Gujarat
Area : Mahadev Temple Garden

❖ History of Land(landlord)

Azenta.

Phone:
(+91) 9664911300


Address:
DDU ,Nadiad


Email:
ParkingSystem@gmail.com


Date	Price	Land Address	Landlord Name	Landlord Email	Landlord Mobile Number	Landlord Age	FeedBack
April 23, 2020	2400	Home,Race Course,rajkot,Gujarat	yash	yash@gmail.com	9654854621	20	✓
April 28, 2020	960	Park,Mahadev Temple Garden,rajkot,Gujarat	rutvik	rutvik@gmail.com	9876543210	18	✓
April 24, 2020	1200	Office,Gundavadi ,rajkot,Gujarat	rutvik	rutvik@gmail.com	9876543210	18	✓
April 26, 2020	960	Park,Mahadev Temple Garden,rajkot,Gujarat	rutvik	rutvik@gmail.com	9876543210	18	✓
April 27, 2020	960	Park,Mahadev Temple Garden,rajkot,Gujarat	rutvik	rutvik@gmail.com	9876543210	18	✓
April 24, 2020	960	Park,Mahadev Temple Garden,rajkot,Gujarat	rutvik	rutvik@gmail.com	9876543210	18	✓
April 28, 2020	960	Park,Mahadev Temple Garden,rajkot,Gujarat	rutvik	rutvik@gmail.com	9876543210	18	✓

❖ Land Verification (Admin)

Azenta.

Phone:
(+91) 9664911300

Address:
DDU ,Nadiad

Email:
ParkingSystem@gmail.com

Approval Needed

Address	No Of Spots	Description	Price_Per_Hour	Start_Date	End_Date	Approve
Home	10	Best place for parking	100.0	April 22, 2020	April 30, 2020	✓ Done
Park	18	Best place for parking	40.0	April 23, 2020	April 29, 2020	Verification Required
Office	20	For office parking	50.0	April 24, 2020	May 7, 2020	Verification Required

Home

❖ Advance Reservation (User)

Land Details

Q CHOOSE PLACE

Pick Place :



Home

▼

Pick Date :

dd/mm/yyyy

Search

Address	City	Area	State	Number of spot	Description	Price per Hour	Distance(km)	Path	Book	Image
Park	rajkot	Mahadev Temple Garden	Gujarat	18	Best place for parking	40.0	5.87	Map	Reserve	
Office	rajkot	Gundavadi	Gujarat	20	For office parking	50.0	7.94	Map	Reserve	

❖ Reserve your favorite space (User)

Land Details

Q CHOOSE PLACE

Pick Place :

Home

▼

Pick Date :

dd/mm/yyyy

Search

Address	City	Area	State	Number of spot	Description	Price per Hour	Distance(km)	Path	Book	Image
Park	rajkot	Mahadev Temple Garden	Gujarat	18	Best place for parking	40.0	5.87	Map	Reserve	
Office	rajkot	Gundavadi	Gujarat	20	For office parking	50.0	7.94	Map	Reserve	
Home	rajkot	Race Course	Gujarat	10	Best place for parking	100.0	9.11	Map	Reserve	

Conclusion

The functionality implemented in system after understanding all the system modules according to the requirements.

Functionality That are successfully implemented in the system are:

- ❖ User registration with all the necessary validation on field
- ❖ Login
- ❖ Logout
- ❖ Forgot password with email verification
- ❖ Add land details
- ❖ Edit land details
- ❖ View usage history
- ❖ Delete land
- ❖ Get pay-out for land
- ❖ Verification of land by admin
- ❖ Reserve parking spot based on current location
- ❖ View reservation history
- ❖ Add location in advance
- ❖ Provide feedback

After the implementation and coding of system comprehensive testing was performed on the system to determine the errors and possible flaws in the system

Limitation and Future Extension

Limitation

- ❖ User can't reserve parking spot for particular time interval.
- ❖ If user wants to add a location then he/she must be at that location. .

Future Extension

- ❖ SMS for reserved parking details
- ❖ Authentication using face detection
- ❖ Use of Google Map API.

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