

MIT | Arts, Commerce
& Science College

Alandi (D), Pune

Affiliated to



Savitribai Phule Pune University

A

PROJECT REPORT

ON

“PARK MY VEHICLE”

BY

Mr. Omkar Gadhave

Under the guidance of

Prof. Kavita Shinde

In Partial fulfillment of

TYBSC(CS)

Academic Year 2022-2023

CERTIFICATE

This is to certify that, the project report entitled “**PARK MY VEHICLE**” which is submitted by **Pankaj Mehta** in partial fulfillment of Bachelor of Science - Computer Science has satisfactorily completed the project work under our guidance and supervision.

We wish our best wishes for your future endeavors.

Prof. Kavita Shinde

**Project guide
Science**

Dr. Sangita Birajdar

HOD, Science and Comp.

Internal Examiner

External Examiner

ACKNOWLEDGEMENT

I take this opportunity to express my sincere gratitude to everyone who has directly or indirectly helped me in completing the project successfully.

I owe profound intellectual debt to **Prof. Kavita Shinde** who is a guiding source of encouragement and helped me throughout the course of my project.

I am also thankful to **Prof. Dr. B. B. Waphare, Principal MIT Arts Commerce and Science College Alandi(D), Pune** and also to **Dr. Sangita Birajdar, HOD, Science and Comp. Science** for providing me with this opportunity.

Mr. Omkar Gadhave

TYBSC(CS)-E

DECLARATION

I, hereby declare that the project report on “**PARK MY VEHICLE**” is written and submitted by me to MAEER’s MIT Arts Commerce and Science College, Alandi(D), Pune, towards the partial fulfillment for the study of Bachelor of Science (Computer Science) in year 2+02++2-2023 is original work done by me, which is based on the primary and secondary data and it is based on the knowledge and material gained by me and from website and other documents.

The contents provided are true to the best of my knowledge and beliefs.

I further declare that this project report has not been submitted to any other college or university for any other degree or course earlier.

Place: Alandi(D), Pune

Date:

Mr. Omkar Gadhawe

INDEX

Sr.No	Contents
1	Abstract
2	Introduction <ul style="list-style-type: none">• Motivation• Problem statement• Purpose/objective and goals• Project scope and limitations
3	System analysis <ul style="list-style-type: none">• Existing System• Scope and Limitations of Existing Systems• Project Prespective, Features
4	System Design <ul style="list-style-type: none">• ER-Diagram• System model: UML Diagrams• User Interface
5	Implementation details <ul style="list-style-type: none">• Software/hardware specification
6	Conclusion and recommendation future scope
7	Bibliography and references

ABSTRACT

The main aim of this project is to reduce the traffic in the parking place. Normally we can see in the Multiplexes, Cinema Halls, Large Industries, Functional Hall etc. there is a problem. They have to go and search which line is empty and which line has a place to park the vehicle for parking. Then they need workers for parking in the correct position. It is a money consuming and time-consuming process. So, to avoid this problem the “Park My Vehicle” project is implemented.

Our website is an online platform that enables parking lot owners to manage their parking facilities more effectively, while also providing an easy-to-use and convenient parking experience for drivers. The website typically includes features such as online parking reservations, payment processing, and real-time availability tracking, as well as other tools for managing parking operations.

Through the website, parking lot owners can create and manage parking lots, assign parking spots, set prices, and configure other settings. Drivers can then access the website to reserve a spot, pay for parking, and view real-time availability and other parking-related information.

INTRODUCTION

Motivation:

Having a car can be convenient, but finding a parking slot can be a pain in the neck for both the driver and the society. Few years ago one driver spent 20 minutes finding an empty slot to park his vehicle. This project helps the driver to find areas where parking is available in that area.

There are a few websites/applications which provide a similar platform. We have tried to make our website specifically simple so that any normal person can access and manage the website with ease. Our system provides very user-friendly work.

Problem Statement:

- If I want to visit a Theater, Mall, Railway Station, Cinema Halls etc. there is a problem finding an empty slot to park my vehicle.
- It is difficult to find a vehicle where I park.
- It is risky to park vehicles in public areas.

Objective & Goals:

- Main goal is that customers can park their vehicle in a safe zone, because of their website customers do not have to wait to park their vehicle anywhere which causes irrelevant traffic in that area.
- We save customers time to park their vehicle by providing them with the current status of parking if their slot is empty or not , so they don't have to wait in a queue.
- Easy to book slot due to user-friendly interface.
- Customers can easily search and book the slot online at the lowest price.
- Maintaining details of customer payment, details and also updating the same is easier.
- Capable of storing day-to-day transactions.
- Since all the data is stored in the database, analysis of data can be done. Every data can be accessed and analysis can be done which will help in generation of reports for future use.

Project Scope :

- Utilize the parking area proficiently.
- Reducing time to search the free parking spaces.
- This project will be highly used in busiest cities like Mumbai, Pune, Bangalore, Delhi etc.
- The global smart parking market size is expected to grow from USD 24,329.6 million in 2020 to USD 95,059.9 million by 2027.
- If all slots are full, users have to wait for undefined time
- Reservation System: The website can allow users to reserve parking spots in advance, reducing the amount of time spent searching for available parking spots.
- Payment Processing: The website can allow users to pay for parking online, reducing the need for cash transactions and increasing revenue collection.
- Real-Time Parking Availability: The website can provide real-time updates on parking availability and location, allowing users to make informed decisions about where to park.
- Reporting and Analytics: The website can provide parking managers with real-time data on occupancy rates, revenue, and other key performance indicators, allowing for better decision making and planning.
- Customer Support: The website can provide users with access to customer support, including FAQs, chatbots, and phone support.

Limitations:

- Hardware Limitations: The performance of the website may be limited by the hardware specifications of the server hosting the website.
- Network Limitations: The website may experience slower load times or downtime due to network issues or bandwidth limitations.
- Data Accuracy: The accuracy of parking availability and occupancy data may be limited by the quality and frequency of data collection.
- User Adoption: The success of the website may be limited by the willingness of users to adopt new technology and change their parking habits.
- Security Risks: The website may be at risk for security breaches and cyber-attacks, which can compromise user data and negatively impact the reputation of the parking management system.

Overall, the scope and limitations of a parking management system website will depend on a variety of factors, including the hardware and software specifications of the system, the quality of data collection and reporting, and the willingness of users to adopt new technology. By carefully considering these factors and implementing appropriate security measures, parking management systems can create a website that provides a valuable service to users and helps to improve the efficiency and profitability of the parking facility.

System Analysis:

A. Existing Systems:

The existing system for parking management typically involves manual processes, which can be time-consuming, inefficient, and error-prone. Parking lot owners or operators usually manage parking operations manually, which can result in long wait times, overbooking, double bookings, and other issues that negatively impact the user experience.

In the absence of a dedicated parking management system website, drivers have limited options for parking, such as finding a spot on the street, which may not be safe, or finding a parking lot that does not offer real-time availability tracking, online reservations, and payment processing.

Additionally, existing parking management systems often lack integration with other services, such as navigation, payment gateways, or location services, making it challenging for drivers to find and reserve parking spots conveniently.

B. Scope and Limitations of Existing Systems:

Scope –

The existing systems for parking management have a limited scope, as they are typically manual processes that involve physical paperwork and manual calculations. The scope is further limited by the lack of real-time availability tracking, online reservations, and payment processing, making it challenging for drivers to find and reserve parking spots conveniently. Additionally, the lack of integration with other services, such as navigation and payment gateways, also limits the scope of the existing systems.

Limitations -

- Time-consuming and error-prone: The manual processes involved in the existing systems for parking management are time-consuming and error-prone. It can lead to issues such as overbooking, double bookings, and other problems that negatively impact the user experience.
- Limited capacity: The existing parking management systems have limited capacity, making it difficult to handle large volumes of traffic during peak hours or events.
- Lack of real-time availability tracking: Without real-time availability tracking, drivers cannot see which parking spots are available and which are occupied, making it difficult to find a spot quickly

- Lack of online reservations and payment processing: The absence of online reservations and payment processing makes it challenging for drivers to book and pay for parking spots easily and securely
- Limited integration: The existing systems for parking management often lack integration with other services, such as navigation, payment gateways, or location services, making it challenging for drivers to find and reserve parking spots conveniently.
- Manual management: The existing systems for parking management require manual management, which can be inefficient and error-prone, leading to operational and financial issues for parking lot owners.

C. Project Perspective and Features:

A parking management system website can help to automate and streamline parking operations for parking lot owners and operators, while also providing a better parking experience for drivers. From a project perspective, a parking management system website should include the following features:

- User management
- Real-time availability tracking
- Online reservations Payment processing
- Integration with location services
- Analytics and reporting
- Security and privacy
- Mobile compatibility
- 24/7 availability

D. Requirement Analysis: -

● Functional Requirements-

Functional requirements for website can be defined as the features and functionalities that the website must provide to fulfill its purpose of connecting service providers with customers.

- **User registration and profile management:** The website should allow users to register for an account and manage their profile information, such as name, address, and contact details.
- **Slot booking and scheduling:** The website should allow customers to book slots.

- **Payment processing:** The website should provide secure payment processing options for customers to pay for services online.
- **Review and rating system:** The website should provide a review and rating system that allows customers to rate and review service providers and their services.
- **Service cancellation and refund policy:** The website should provide a clear and transparent service cancellation and refund policy for customers and service providers.
- **Reporting and analytics:** The website should provide reporting and analytics tools to help service providers and website administrators understand service usage, customer behavior, and other key metrics.

● **Performance Requirements-**

- **Response Time:** The website should have a fast response time to ensure that users can complete their transactions quickly and easily. The website should respond within 2-3 seconds to ensure optimal user experience.
- **Scalability:** The website should be scalable to accommodate an increasing number of users, parking spaces, and transactions. The website should be able to handle a high volume of traffic without crashing or slowing down.
- **Availability:** The website should be available 24/7 to allow users to access it at any time. The website should have a reliable hosting provider, and the servers should be regularly maintained and monitored to ensure optimal uptime.
- **Reliability:** The website should be reliable, with a high degree of uptime and minimal downtime. The website should have backup systems in place to ensure that data is not lost in case of a system failure.
- **Compatibility:** The website should be compatible with different browsers, devices, and operating systems. The website should be tested on different platforms to ensure optimal performance
- **Transaction Processing Time:** The website should process transactions quickly and efficiently to ensure that users can complete their parking reservations and payments without delay. The website should process transactions within seconds to ensure optimal user experience.

● **Security Requirements-**

A parking management system is a software application that is used to manage parking lots or garages. Security requirements for such a system are critical to ensure the safety of users and their vehicles. Here are some security requirements that should be considered for a parking management system:

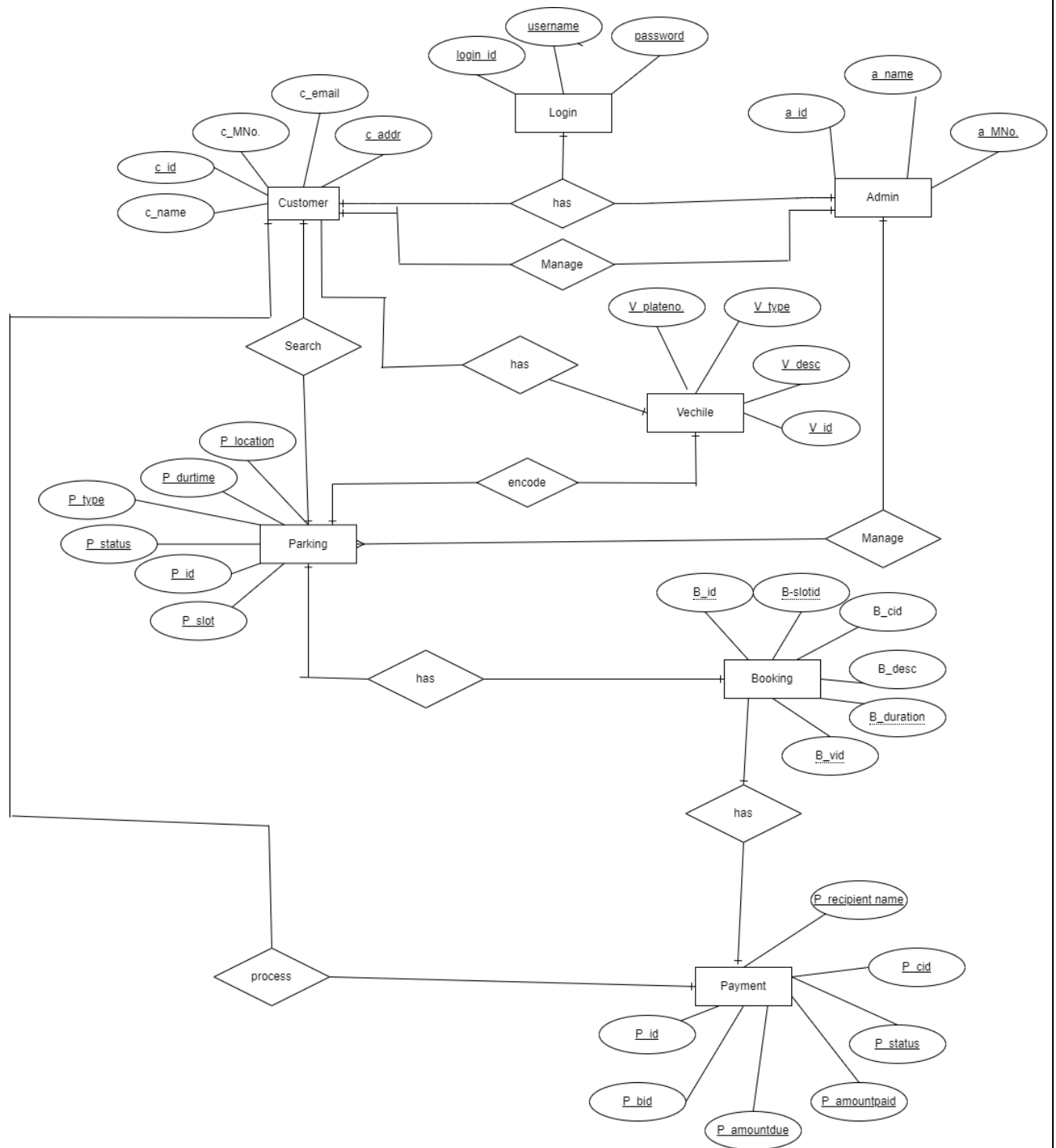
1. **Access control:** The system should have proper access control measures in place to ensure that only authorized personnel can access the system. This can include strong passwords, two-factor authentication, or biometric authentication.

2. Encryption: All sensitive data transmitted between the parking management system and other systems or devices should be encrypted to prevent unauthorized access.
3. Data backup and recovery: The system should have a reliable data backup and recovery mechanism to ensure that data can be recovered in the event of a disaster or system failure.
4. Audit trail: The system should maintain an audit trail of all transactions, including user access, system modifications, and payment transactions. This helps to track any suspicious activities and provide evidence in case of an investigation.

Physical security: Physical security measures should be implemented to ensure that the servers and other equipment hosting the system are secure from unauthorized access. This can include access control systems, surveillance cameras, and security guards.

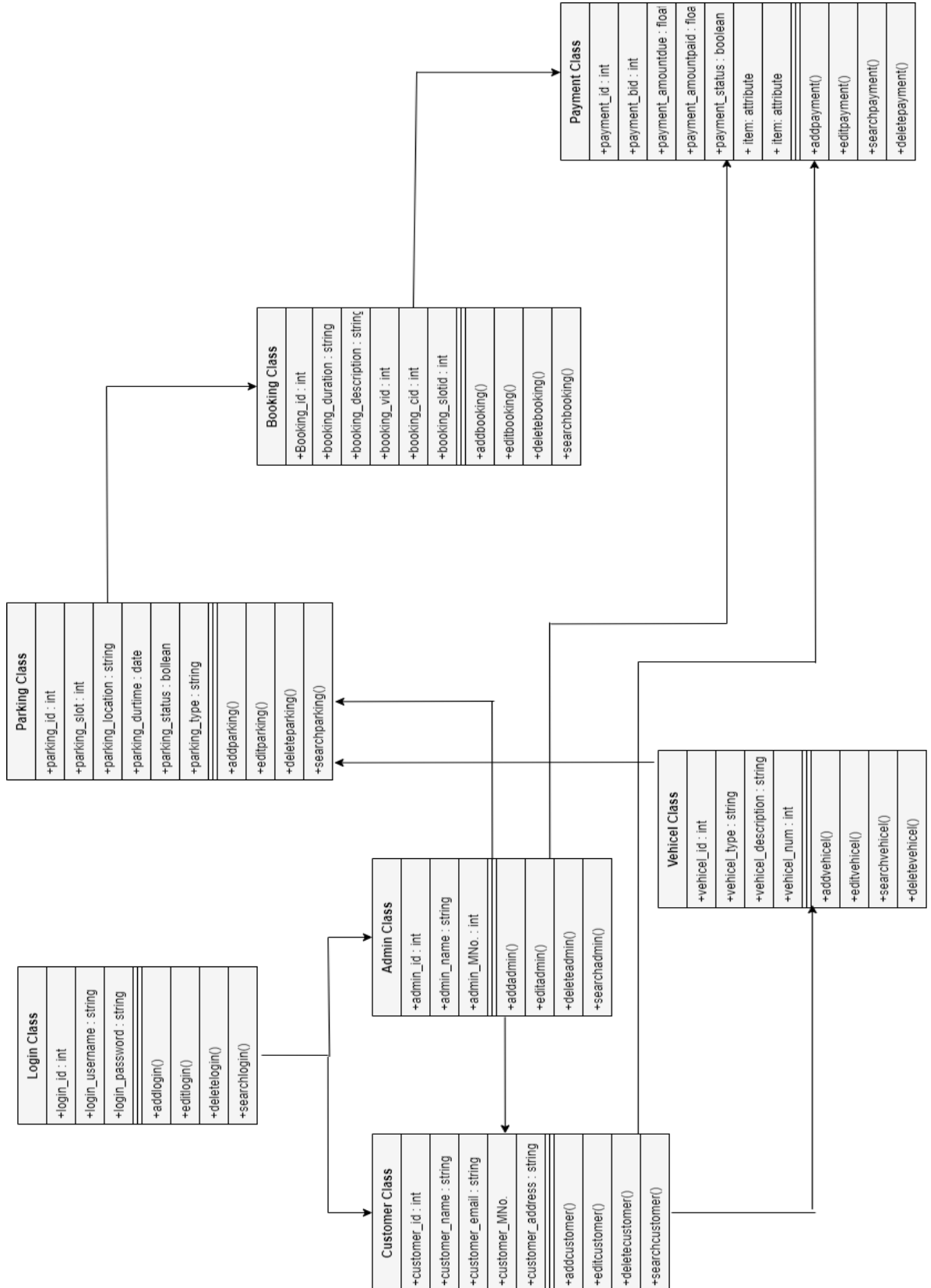
SYSTEM DESIGN

ER-Diagram:

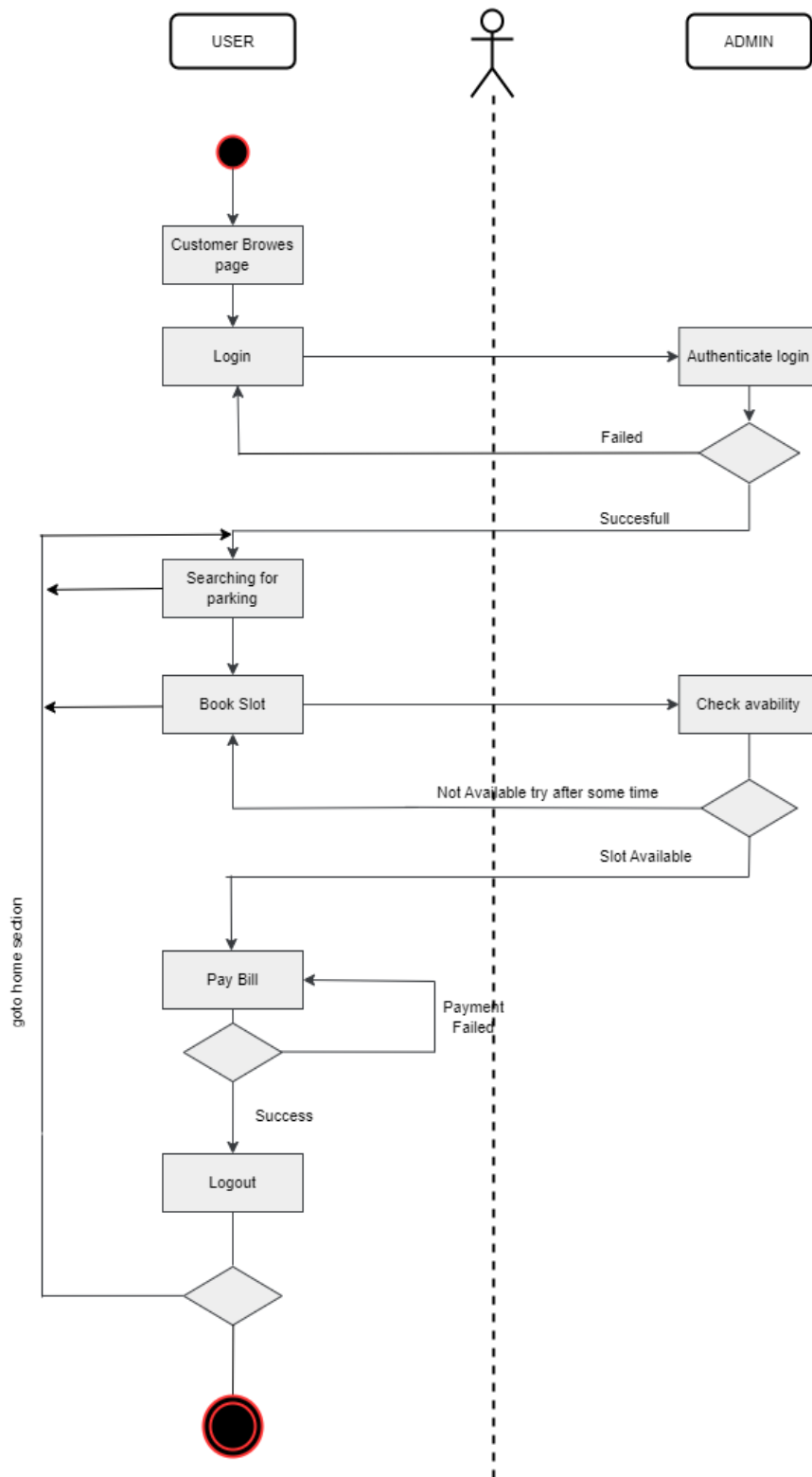


UML DIAGRAMS

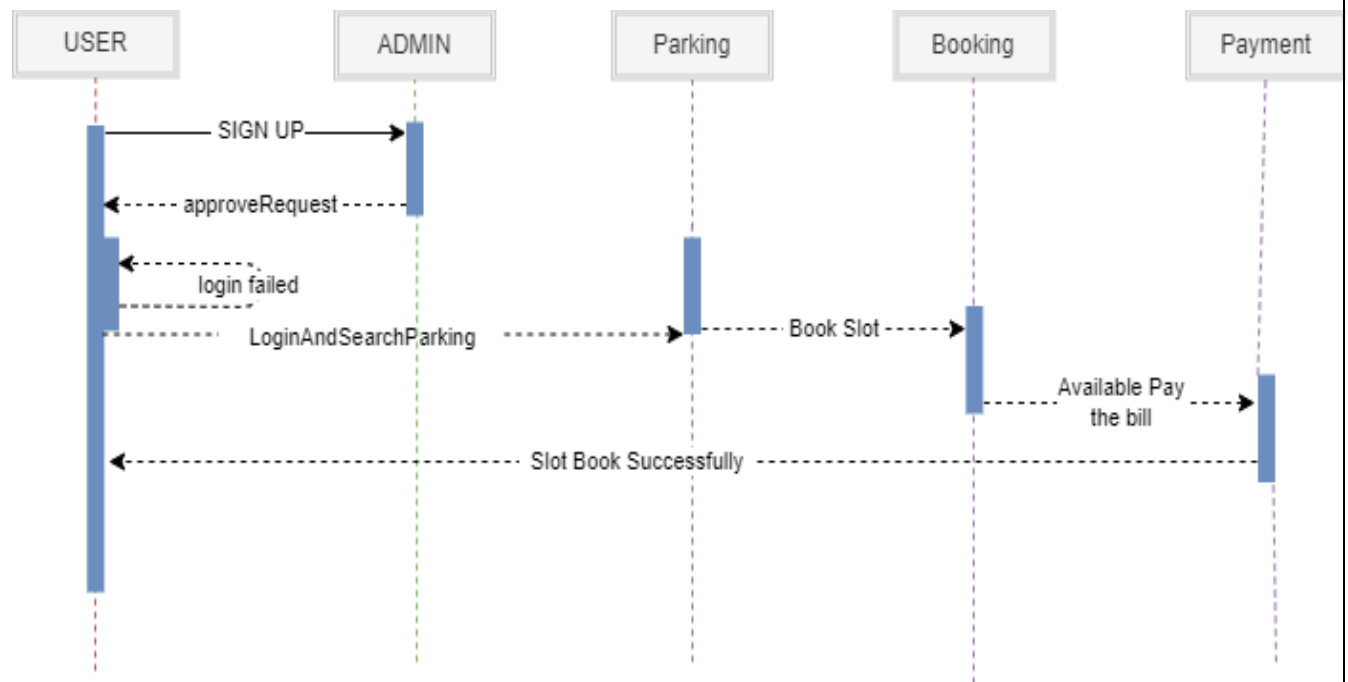
- Class Diagram:



● Activity Diagram:

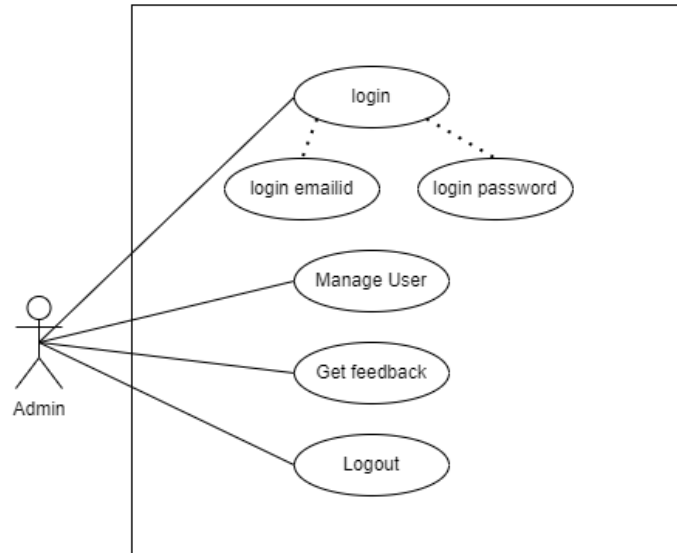


- **Sequence Diagram:**

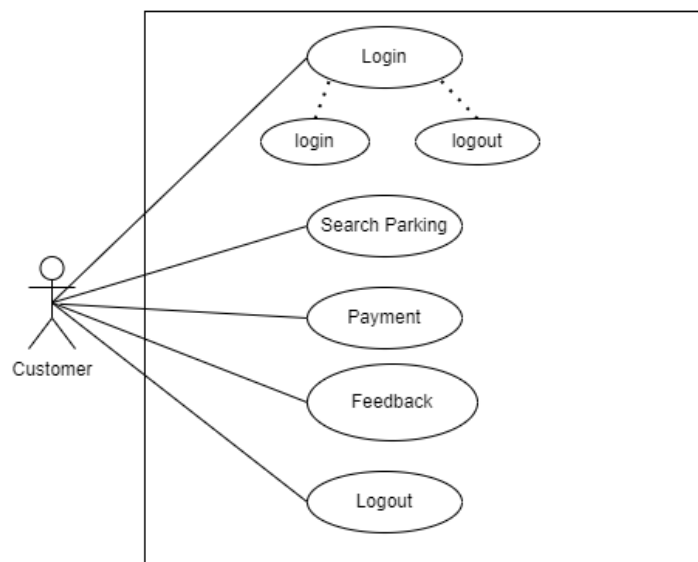


● Use Case Diagram:

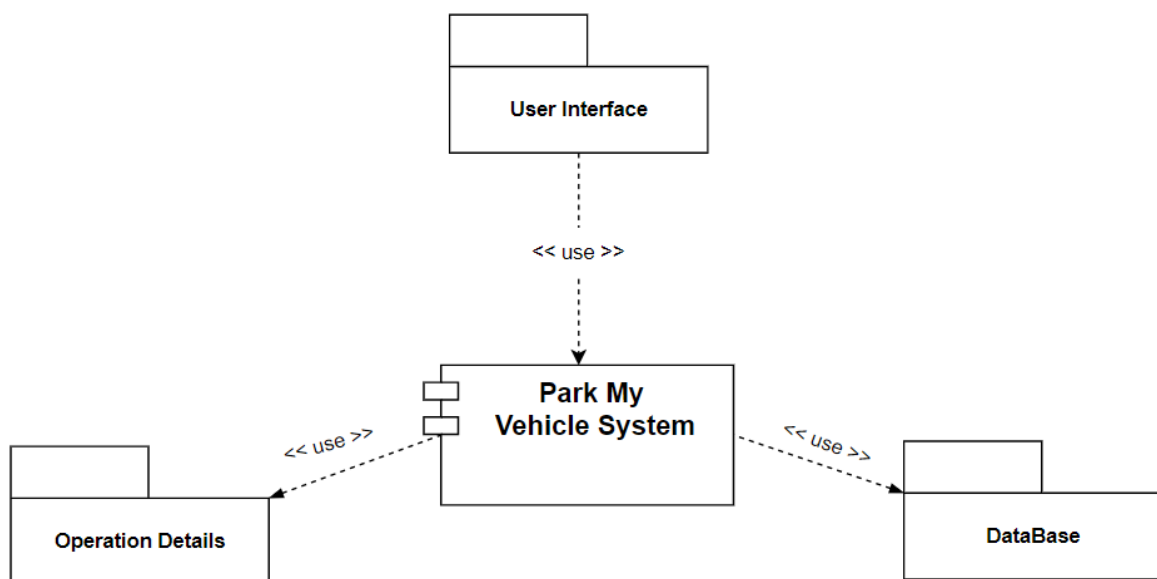
1. ADMIN



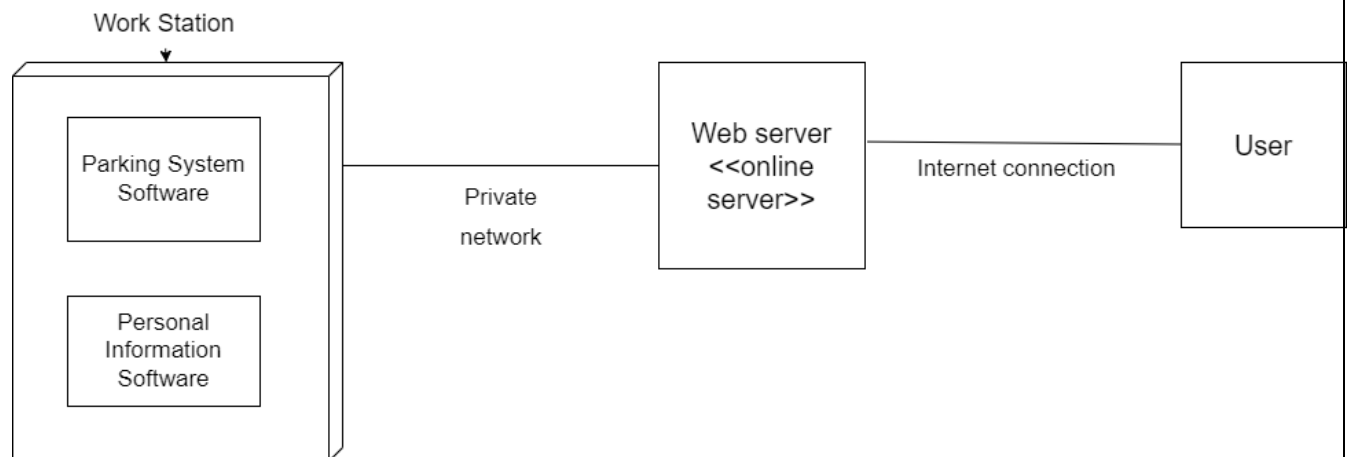
2. CUSTOMER



- **Component Diagram:**

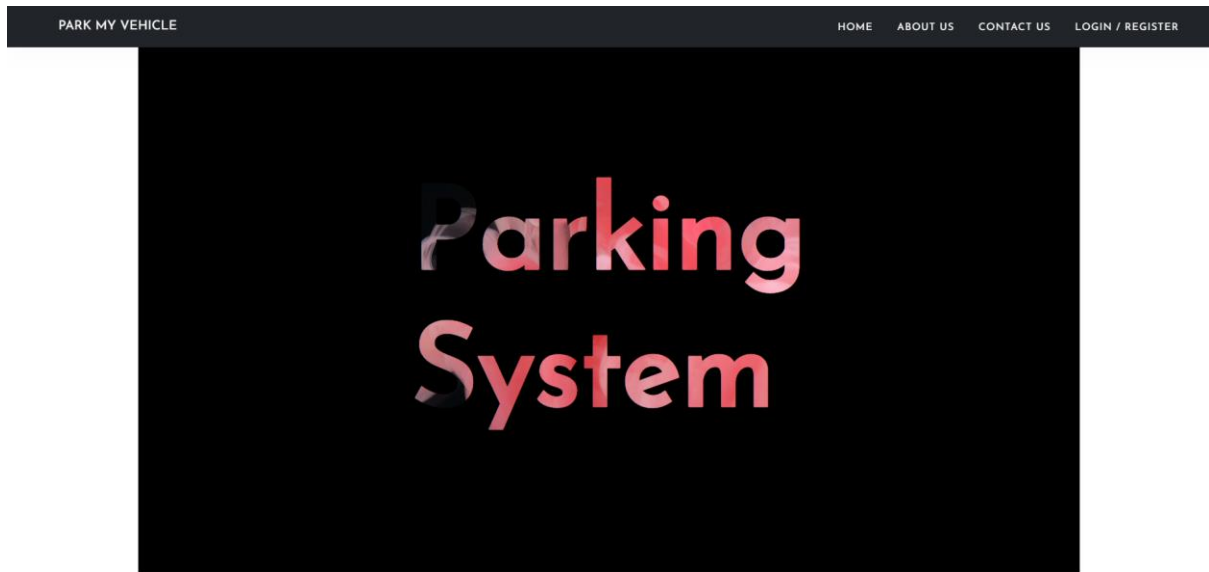


- **Deployment diagram:**



OUTPUT DIAGRAMS

MAIN PAGE: -



Contact Us

Username :*

Email ID :

Mobile No. :*

Comments :

SUBMIT



About Us

Can't find parking in your city? Is a rate correct? OP Praking System team is here to improve your parking experience and making it hassle free.Our Company reduses the time consuming and money consuming of the customer. We know your trouble when it comes to administration, management and operational issues of your vehicle park and as a result we have used technology to resolve your problems and simultaneously increase your revenue.

Links

- [Home](#)
- [About Us](#)
- [Contact Us](#)

Contact Info

- MIT Alandi, Tal. Haveli , Dist. Pune
- Maharashtra, India.
- admin@opparking.com
- +91 7556678031,+91 9511984028

© 2023-2024 OP Parking System - ALL RIGHTS RESERVED

[PRIVACY POLICY](#)

follow us on [in](#) [f](#) [g](#) [@](#)

USER – INTERFACE :-

[HOME](#)

REGISTER

OMKAR

om@gmail.com

123456789

☒ Male ☐ Female ☐ Other

chakan

rc4656

rc1234

Password

Submit

Already Registered? [Login](#)

Register successfully

Successfully registered!

Validation

Parking System

Invalid User!

User Login

om1@gmail.com

....

Login

New user? [Register](#)

WELCOME PM!

List & Rent your Space for Parking.

Search

Book

Cancel

Book

Enter Details

Date

05/13/2023

Start Time [hh:mm:AM/PM]

17:18



Select no. of hours

2



Additional Services:

☒ Valet Parking

Confirm

Cancel

Parking is ₹10/-

Valet Parking is ₹10/-

Select slot

Slot 1

Slot 2

Slot 3

Slot 4

Slot 5

Slot 6

Slot 7

Slot 8

Slot 9

Slot 10

Slot 11

Slot 12

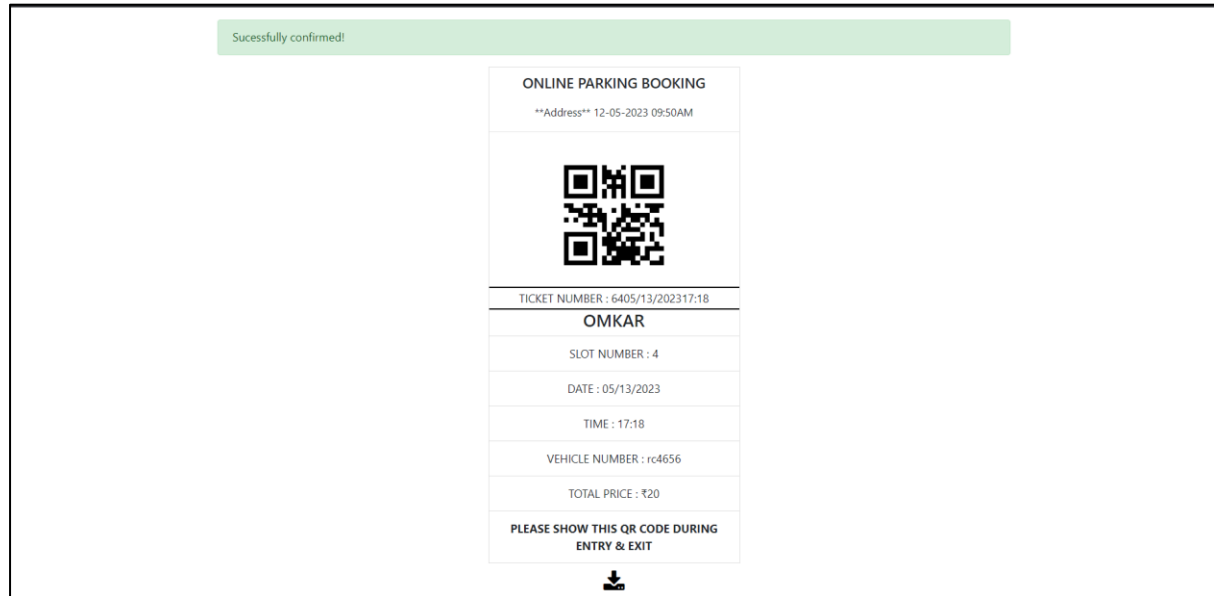
☒ slot already booked
☐ slot available

Do you want to confirm?

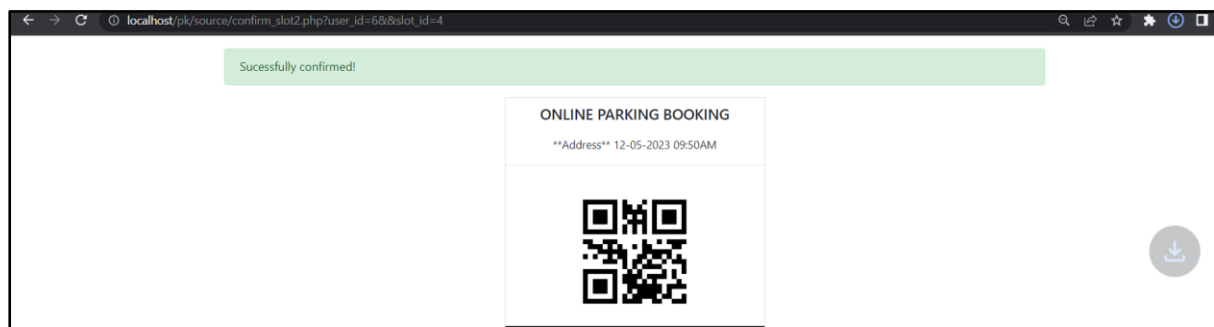
YOU SELECTED SLOT 4
DATE: 05/13/2023
ENTRY TIME: 17:18
EXIT TIME: 19:18
VEHICLE NUMBER: RC4656

YES

NO



Can download the payment slip



ADMIN – INTERFACE :-

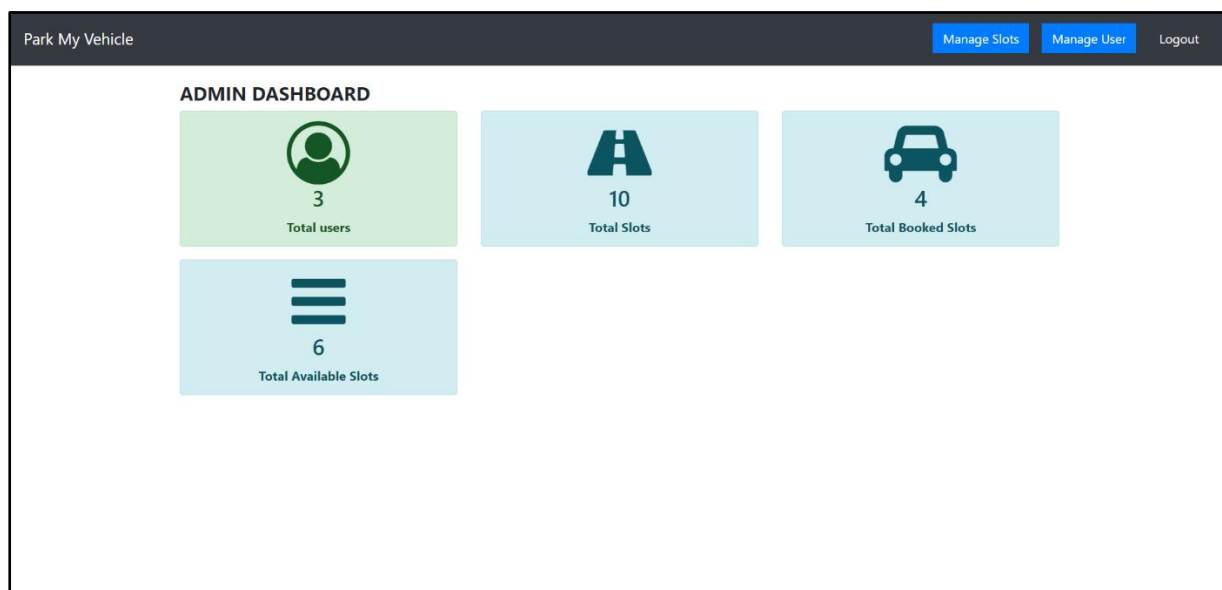
PARK MY VEHICLE ADMIN

RegisterUser Login

Admin Login

pankaj

Login



Park My Vehicle

Manage Slots

Manage User

Logout

Manage Registered Users

USER ID	USER NAME	USER EMAIL	USER CONTACT NUMBER	USER ADDRESS	USER VEHICLE NUMBER	ACTION
0	DEM	123@mail.com	8765	ch	ch	<div>UPDATEDELETE</div>
1	AKASH	aj@gmail.com	7249184378	Chennai	CHMT456734	<div>UPDATEDELETE</div>
2	ADITYA	ad@gmail.com	9876543210	noida	KNTE212027	<div>UPDATEDELETE</div>

localhost/prm/admin/update_user.php?user_id=2

Park My Vehicle

Manage Slots

Manage User

Logout

Manage Slots

SLOT ID	SLOT NUMBER	SLOT STATUS	SLOT ACTION
1	1	0	ACTIVE
2	2	1	INACTIVE
3	3	1	INACTIVE
4	4	0	ACTIVE
5	5	1	INACTIVE
6	6	0	ACTIVE
7	7	0	ACTIVE
8	8	0	ACTIVE
9	9	1	INACTIVE
10	10	0	ACTIVE

Filters

Containing the word:

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> admin	<div><div>★</div><div>Browse</div><div>Structure</div><div>Search</div><div>Insert</div><div>Empty</div><div>Drop</div></div>	1	InnoDB	utf8mb4_general_ci	16.0 K1B	-
<input type="checkbox"/> contactus	<div><div>★</div><div>Browse</div><div>Structure</div><div>Search</div><div>Insert</div><div>Empty</div><div>Drop</div></div>	1	InnoDB	utf8mb4_general_ci	16.0 K1B	-
<input type="checkbox"/> parking_details	<div><div>★</div><div>Browse</div><div>Structure</div><div>Search</div><div>Insert</div><div>Empty</div><div>Drop</div></div>	1	InnoDB	utf8mb4_general_ci	16.0 K1B	-
<input type="checkbox"/> slot_m	<div><div>★</div><div>Browse</div><div>Structure</div><div>Search</div><div>Insert</div><div>Empty</div><div>Drop</div></div>	10	InnoDB	utf8mb4_general_ci	16.0 K1B	-
<input type="checkbox"/> users	<div><div>★</div><div>Browse</div><div>Structure</div><div>Search</div><div>Insert</div><div>Empty</div><div>Drop</div></div>	3	InnoDB	utf8mb4_general_ci	16.0 K1B	-
5 tables	Sum	16	InnoDB	utf8mb4_general_ci	80.0 K1B	0 B

User Interfaces

a) **Login/Register Interface:**

The website should have a login/register interface to allow users to create an account and login to the system. This interface should be designed to be easy to use and secure.

b) **Parking Spot Reservation Interface:**

The website should have a parking spot reservation interface that allows users to reserve a parking spot in advance. This interface should be designed to be intuitive and easy to use, with clear information about parking availability and rates.

c) **Parking Spot Locator Interface:**

The website should have a parking spot locator interface that allows users to locate their reserved parking spot in the parking facility. This interface should be designed to be easy to use, with clear directions and instructions for locating the spot.

d) **Payment Interface:**

The website should have a payment interface that allows users to pay for parking. This interface should be designed to be intuitive and easy to use, with clear information about payment options and fees.

e) **Help/Support Interface:**

The website should have a help/support interface that allows users to access customer support if they require assistance. This interface should be designed to be easy to use, with clear information about how to access customer support and the types of assistance available.

Overall, the user interfaces for a parking management system website should be designed to be intuitive, user-friendly, and efficient, allowing users to easily access and use the website to reserve parking spots, pay for parking, and access customer support if needed.

Implementation Details

● Software/Hardware Specifications:

Hardware Specifications:

Overall, the hardware specifications for a parking management system website should be designed to ensure that the website is fast, reliable, secure, and able to handle the expected traffic volume. By investing in high-quality hardware and security systems, parking management systems can ensure that their websites provide a seamless and efficient user experience for drivers and parking managers alike.

Software Specifications:

The software specifications for a parking management system website can vary depending on the specific requirements of the system. However, here are some key software specifications that should be considered when designing a parking management system website:

Content Management System (CMS): A CMS should be used to manage the website's content, including parking rates, availability, and location information. The CMS should be easy to use and allow parking managers to quickly update information as needed.

- **Responsive Design:** The website should be designed to be responsive, which means it should be able to adjust its layout and functionality based on the size and orientation of the user's device. This ensures that the website is accessible and easy to use on desktops, laptops, tablets, and smartphones.
- **Payment Processing Integration:** The website should be integrated with a payment processing system to allow users to pay for parking online. The payment processing system should be secure and compliant with industry standards for payment processing.
- **Reservation System Integration:** The website should be integrated with a reservation system to allow users to reserve parking spots in advance. The reservation system should be easy to use and provide real-time updates on parking availability.
- **Real-Time Analytics and Reporting:** The website should be equipped with real-time analytics and reporting features to allow parking managers to track usage, occupancy rates, revenue, and other key performance indicators.

Security Features: The website should be equipped with security features, such as SSL encryption, firewalls, and intrusion detection systems, to ensure that user data is protected from unauthorized access and cyber threats.

Overall, the software specifications for a parking management system website should be designed to ensure that the website is secure, reliable, and user-friendly. By investing in high-quality software and security features, parking management systems can ensure that their websites provide a seamless and efficient user experience for drivers and parking managers alike.

- **Software-**

Front-end: HTML, CSS, JavaScript, Bootstrap, PHP.

Back-end: MySQL

- **Hardware-**

RAM	:	3GB
STORAGE	:	50 GB
OS	:	Windows 7/8/10 or linux

Conclusion

In conclusion, the "Park My Vehicle" project has successfully developed a system that allows users to easily locate and reserve parking spots in their desired location. Through the use of real-time data, the system is able to provide accurate and up-to-date information on parking availability, saving users valuable time and reducing the stress associated with finding parking.

Overall, the "Park My Vehicle" project represents a valuable contribution to the field of parking management and has the potential to improve the parking experience for drivers in urban areas. It is our hope that this project will inspire further research and development in the area of smart parking systems and lead to more efficient and sustainable transportation solutions in the future.

Future Scope of this Project involves

- **Integration with payment systems:** One potential future scope is to integrate the parking reservation system with payment systems to allow users to pay for their parking spot directly through the app. This would eliminate the need for users to carry cash or use separate payment systems, making the process more convenient.
- **Integration with public transit:** Another potential future scope is to integrate the parking reservation system with public transit systems. This would allow users to plan their entire transportation route from their current location to their destination, including parking and public transit options.
- **Expansion to new locations:** The project could be expanded to cover more locations, including other urban areas with high demand for parking. This would require partnerships with parking facilities in new locations and the collection of real-time data for those areas.
- **Integration with smart city infrastructure:** As smart city infrastructure continues to develop, the parking reservation system could be integrated with other smart city technologies, such as traffic management systems and real-time weather monitoring, to provide users with more comprehensive information about their parking options.
- **Integration with electric vehicle charging stations:** With the increasing popularity of electric vehicles, the project could be expanded to include information about electric vehicle charging stations. This would allow users to reserve parking spots with charging capabilities and plan their route accordingly.

Bibliography and References

Here are some references that may be useful for researching and developing a parking management system website:

- "Smart Parking System: A Review of the State-of-the-Art," by V. K. Agrawal and S. S. Dash, IEEE Transactions on Intelligent Transportation Systems, vol. 17, no. 2, pp. 522-538, Feb. 2016.
- "Development of a Smart Parking System Using IoT Technology," by K. Park, H. Shin, and H. Kim, IEEE Access, vol. 5, pp. 6615-6622, 2017.
- "Parking Guidance and Information Systems: A Review," by J. D. Owens, D. J. Sperling, and S. W. Shladover, Transportation Research Record: Journal of the Transportation Research Board, no. 2204, pp. 85-93, 2011.
- "An Intelligent Parking Management System Based on Wireless Sensor Networks," by X. Liu and Y. Liu, International Journal of Distributed Sensor Networks, vol. 9, no. 2, pp. 1-11, 2013.
- "Smart Parking System with Real-Time Data Analytics," by S. Kim, S. Lee, and S. Kim, Journal of Advanced Transportation.
- "Design and Implementation of a Cloud-Based Smart Parking System Using RFID," by J. Wu, X. Jia, and Y. Yao, International Journal of Distributed Sensor Networks.
- "Smart Parking System with Android Application," by A. Roy, A. Kundu, and S. K. Ghosh, International Journal of Computer Science and Information Security.
- "A Survey of Intelligent Parking Management Systems," by S. S. Al-Sakib, M. R. Amin, and M. F. Hossain, Journal of Sensor and Actuator Networks.

These references cover various aspects of parking management systems, including smart parking, IoT technology, data analytics, and cloud-based systems. They may be useful for understanding the state-of-the-art in parking management systems and for developing a parking management system website that incorporates the latest technologies and best practices.