Project Assignment

Software Engineering Project

Submitted By

Roll no: 200102028 & 200102003
Name: Aryan Srivastav & Sarthak Verma
Section: G (P1)

Submitted to

Mr. Ankit Maithani, Assistant Professor,
School of Computing

Introduction to Vehicle parking management:

A parking management system refers to the innovative technologies providing solutions in the parking industry. The core idea behind any parking management system is self-explanatory:

It's a system that helps people, companies, and organizations to manage their parking spaces.

Managing car parks isn't an easy task for companies and organizations because there are lots of moving parts including traffic and the availability of spaces. It is a time-consuming task, requires human labor, and is inefficient. Using a parking management system can help reduce a business's administrative overhead on parking and reduce the impact of their parking space on their local community.

Parking software is used at educational institutions, municipalities, offices, businesses, and corporate organizations. This article defines parking management systems, discusses their key components, and the different use cases for the systems and software.

- It help people find parking spots quickly.
- It provides facilities to keep the records of Market, Agency, Hospital and College etc. with all their required details handling.
- Parking management system for managing the records of the incoming and outgoing
- It will determine the cost of per vehicle according to their time consumption.
- It fixes parking related complications.

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Objective:

In other words we can say that our project has the following objectives:-

- Maintain records in short time of period. Enhances the visitor's experience.
- Easy operations for operator of the system.
- Centralized database management.
- Reduce time consumption.
- No paper work requirement**.**

Software Requirement Specifications:

A software requirements specification (SRS) is a document that describes what the software will do and how it will be expected to perform.

Requirements are generally split into two types: *Functional* and *Non-functional requirements*.

Functional Requirements: These are the requirements that the end user specifically demands as basic facilities that the system should offer. All these functionalities need to be necessarily incorporated into the system as a part of the contract. These are represented or stated in the form of input to be given to the system, the operation performed and the output expected. They are basically the requirements stated by the user which one can see directly in the final product, unlike the non-functional requirements.

Non-functional requirements: These are basically the quality constraints that the system must satisfy according to the project contract. The priority or extent to which these factors are implemented varies from one project to other.

Some Functional Requirements in our Project:

- Admin must be able to Define new parking areas, specify a range of parking lots, the parking cost per minute/hour, and other details.
- admin must be able to update data of existing parking areas.
- The user must be able to Reserve an obtainable parking space and specify the duration of the reservation.
- User must be able to Register for the service and enter personal and vehicle details.

Some Non Functional Requirements in our Project:

- Persons can park their vehicle in an efficient manner.
- The system should provide a reliable environment to both operator and admin. All orders should be reaching at the admin without any errors.
- Unauthorized person cannot access the panel and database, do not read and write the information.

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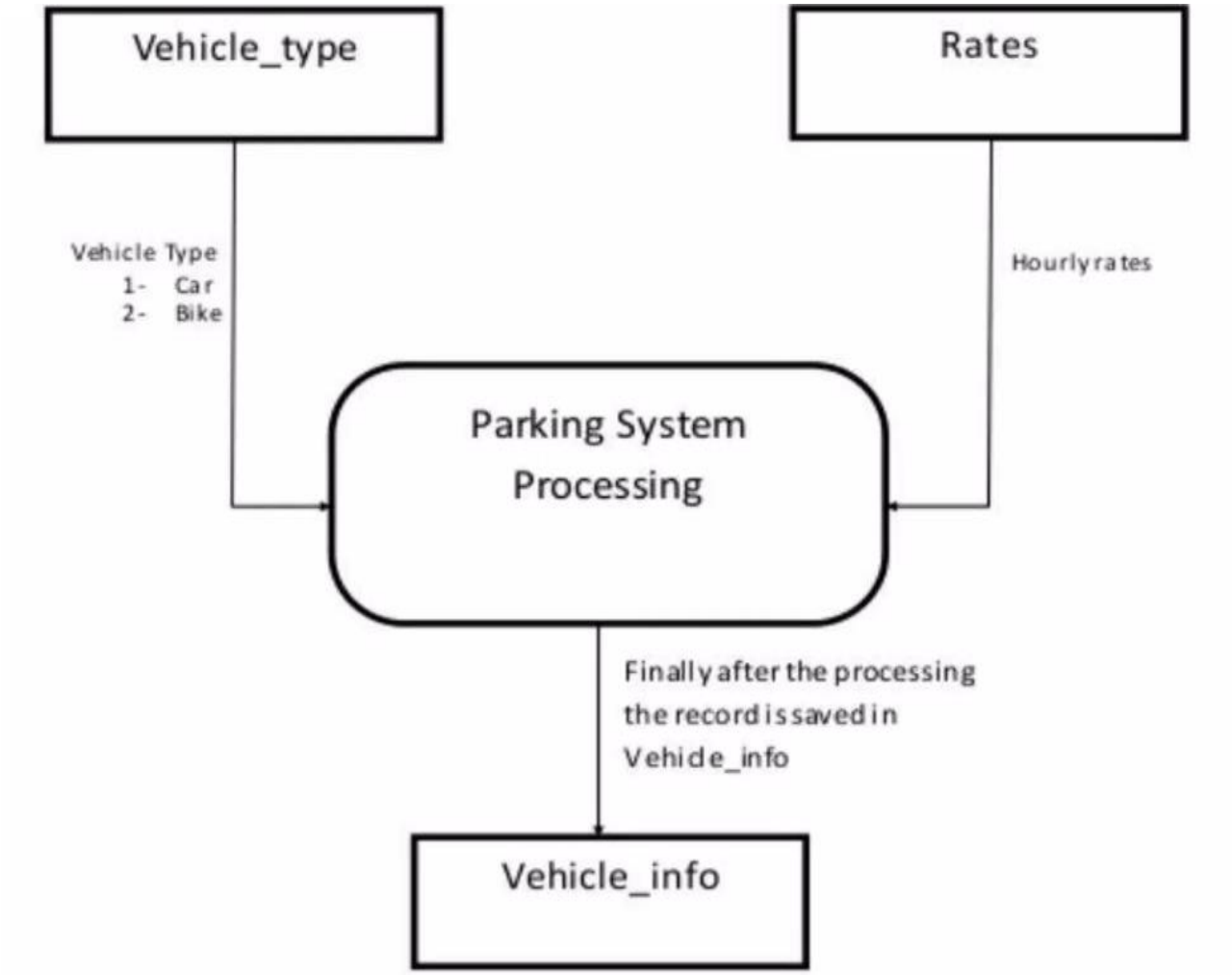
Data flow diagram:



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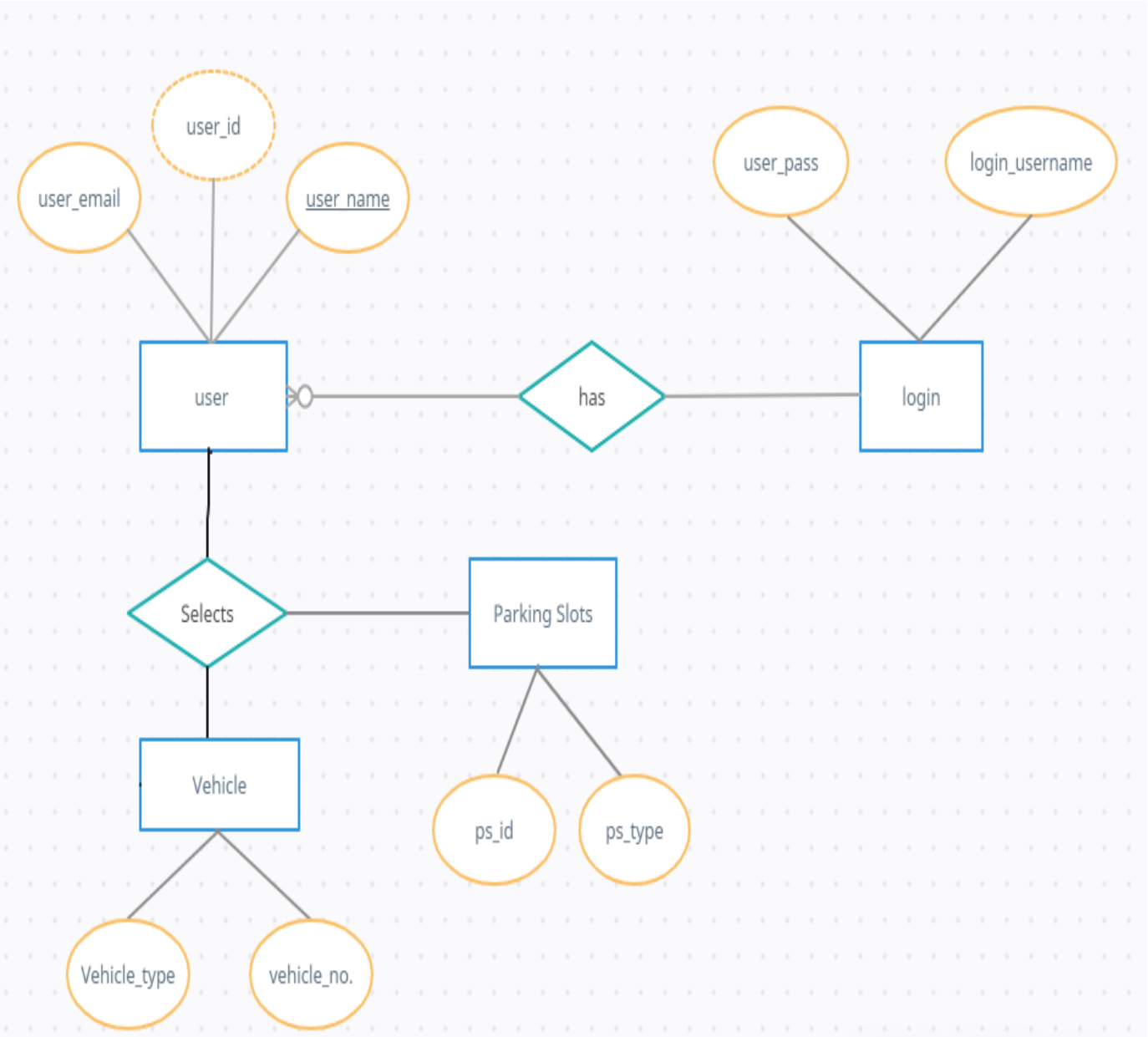
ER DIAGRAM:



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Requirement Gathering:

- **Hardware Interfaces** – The external hardware interface used for accessing the PMS is the personal computers of the employees.

- **Software Interfaces** – The Operating Systems can be any version of Windows, Linux, Mac or Android

- **Communication Interfaces** – The communication interface is a local area network through Ethernet

SECURITY:

- Management and our vehicle has been parked in a secure condition.
- There is no risk for vehicle owner for parking the car.
- Secure management.

ADVANTAGES:

- **Easy implementation and management:**
  Another of the benefit of a parking management system is that it can efficiently be designed and implemented. These systems have a well-organised structure; you can easily manage as well as control and regulate them. **Parking management** systems are also user-friendly, so the parking staff won't have any difficulties handling the system, thus improving the whole car park management process.

- **Cost-effective:**
  Another advantage that you obtain from installing a smart parking management system is the cost. It runs on a low workforce, so you can save money and time. Another great feature of a parking management system is controlling the car park/street lights and other services that require electricity. You can set all electrical devices to shut automatically at a certain time every day or remotely switch them on/off depending on the car park usage level. The potential options are limitless.

- **Better parking experience:**
  Better **car park management** means happier customers. A parking management system enhances the customer journey by providing them with a unified procedure. An efficient parking management system enables your users to find empty parking spaces, saving time and fuel, improving customer satisfaction.

- **Reduced traffic and pollution:**
  Vehicles that keep circling an area in search of an empty parking space cause most of the city traffic. Moreover, significantly driving around or waiting for a parking space to be vacant burns through a lot of fuel and releases emissions daily.
  An optimal parking management system opens the option of quicker parking that significantly reduces city traffic, driving time, vehicle emissions and carbon footprint.

DISADVANTAGES:

- **Requires Regular Maintenance:**

The parking systems are usually automated, but they require regular maintenance to ensure everything is working smoothly. This means ensuring the software isn't broken, and everything works properly, such as updating portions of code or optimising tasks for quickness and efficiency. This could include updating portions of code or optimising the program in order to optimise tasks for speed, reliability, and efficiency. Regular maintenance of **parking systems** requires not only money but also time. Hence it could be considered a downside of having a parking management system.

- **Expensive Construction & Installation:**

A parking management system can cost a lot of money. For example, the statistical feature, **ticketing technology**, and reporting tools are just some things that increase the price. In addition, the other things you might need to pay for include high usage or peak access fees, software maintenance fees, and fee waivers, to name a few. Your budget may not allow you to purchase everything at once, so make sure you prioritise your needs based on your organisation's requirements.

- **System Breakdown:**

Utilising technology to manage a car park is unquestionably an excellent decision. Still, we cannot ignore that machines can start malfunctioning anytime, no matter how meticulously they are manufactured or what software they are integrated with. In these cases, chaos may occur. Imagine if cars couldn't access buildings and parked inside vehicles couldn't move. If the system malfunctions, this could lead cars to park in the wrong places. This is another considerable downside of using a **parking management system**.

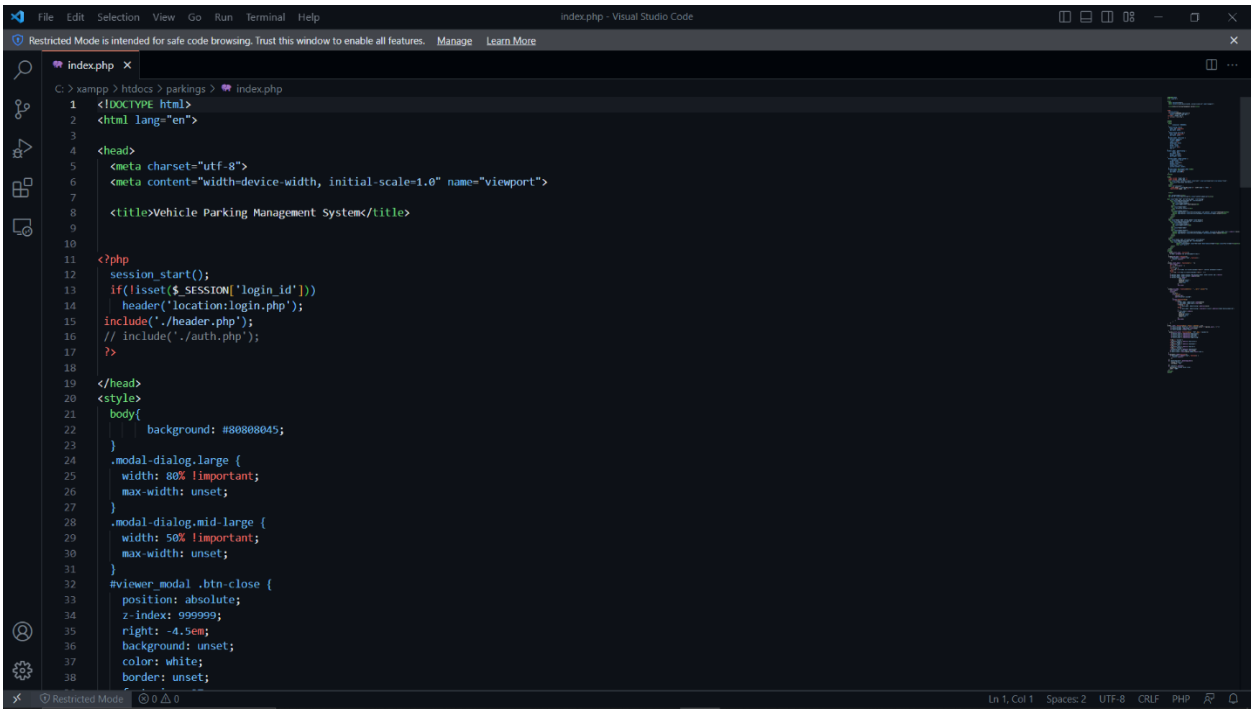
APPLICATION:

Car parking may be considered a problem, especially in the big cities. Unorganized parking systems are time wasting and cause traffic jams. When a customer visits a mall or a centre it may take him/her a long time to locate free areas. Later on, after spending a couple of hours in the mall or centre, it may be a difficult task to relocate the parked car. Moreover more time is needed to pay for parking fees because of the long waiting queues

Some Places Where Parking Management System can be used:-

- Enterprises and institutions
- Market, place, Plaza, Hospital
- Factory, Bank, Collages/school

Source code:



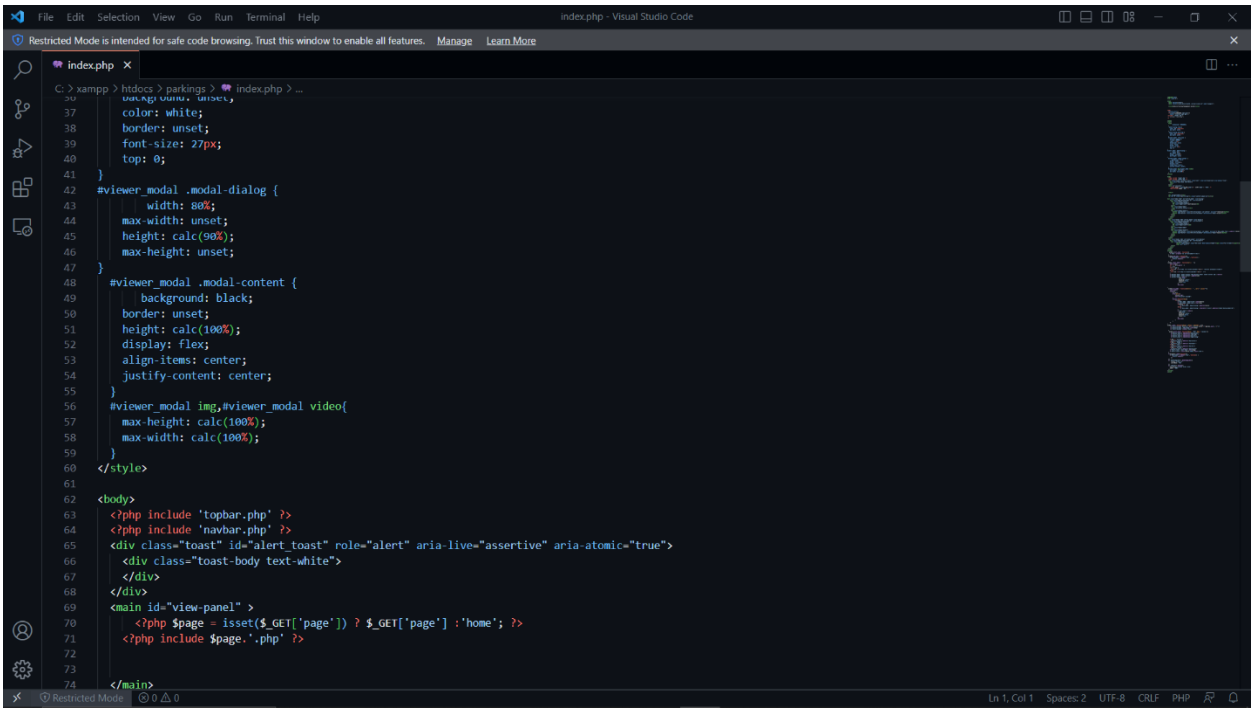
```
<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8">
  <meta content="width=device-width, initial-scale=1.0" name="viewport">

  <title>Vehicle Parking Management System</title>


<?php
  session_start();
  if(!isset($_SESSION['login_id']))
    header('location:login.php');
include('./header.php');
// include('./auth.php');
?>

</head>
<style>
  body{
        background: #80808045;
  }
  .modal-dialog.large {
    width: 80% !important;
    max-width: unset;
  }
  .modal-dialog.mid-large {
    width: 50% !important;
    max-width: unset;
  }
  #viewer_modal .btn-close {
    position: absolute;
    z-index: 999999;
    right: -4.5em;
    background: unset;
    color: white;
    border: unset;
```



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    color: white;
    border: unset;
    font-size: 27px;
    top: 0;
  }
  #viewer_modal .modal-dialog {
        width: 80%;
    max-width: unset;
    height: calc(90%);
    max-height: unset;
  }
  #viewer_modal .modal-content {
       background: black;
    border: unset;
    height: calc(100%);
    display: flex;
    align-items: center;
    justify-content: center;
  }
  #viewer_modal img,#viewer_modal video{
    max-height: calc(100%);
    max-width: calc(100%);
  }
</style>

<body>
  <?php include 'topbar.php' ?>
  <?php include 'navbar.php' ?>
  <div class="toast" id="alert_toast" role="alert" aria-live="assertive" aria-atomic="true">
    <div class="toast-body text-white">
    </div>
  </div>
  <main id="view-panel" >
      <?php $page = isset($_GET['page']) ? $_GET['page'] :'home'; ?>
    <?php include $page.'.php' ?>


  </main>
```

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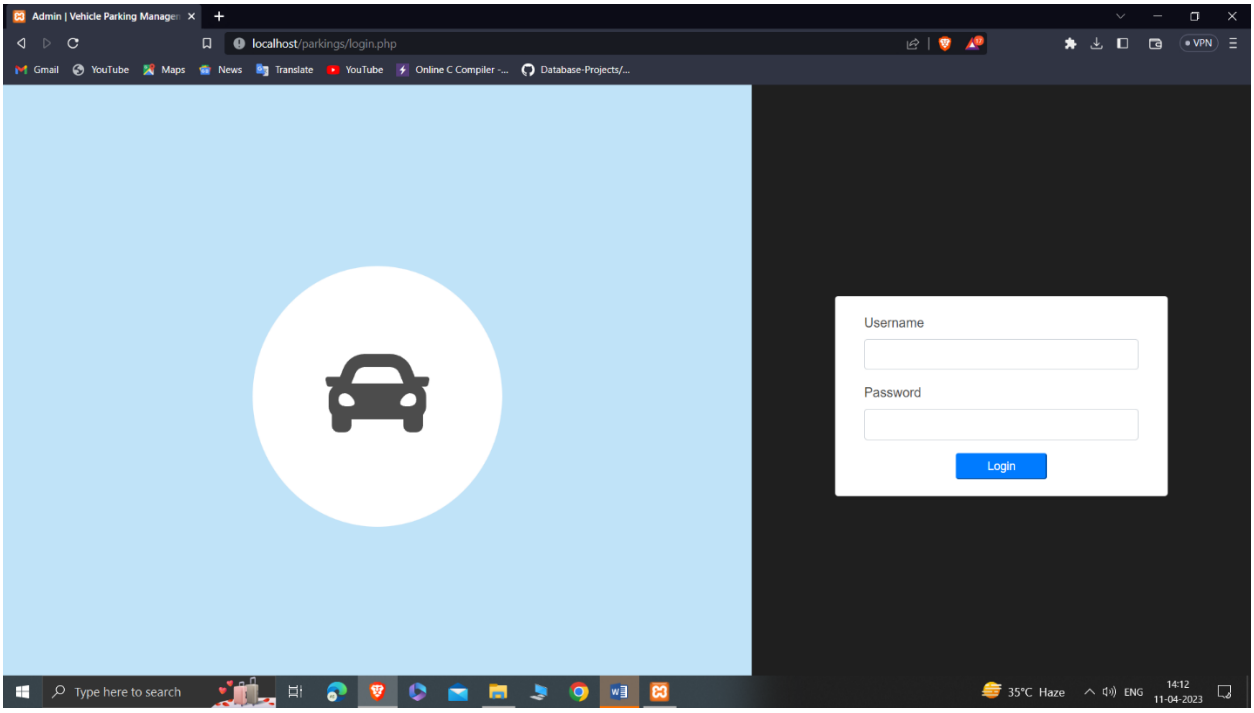
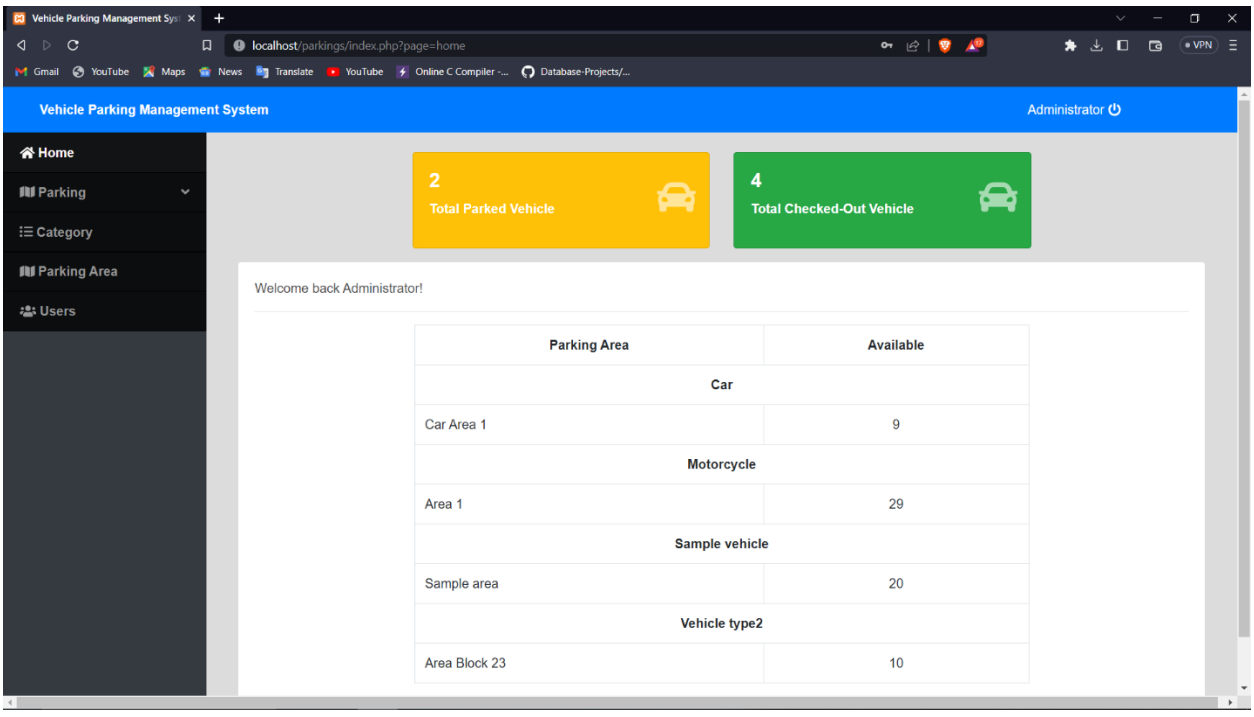
Web Page:





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FUTURE SCOPE OF THE PROJECT:

In the modern age. Many people have vehicles. Vehicle is now a basic need. Every place is under the process of urbanization. There are many corporate offices and shopping centers etc. There are many recreational places where people used to for refreshment. So, all these places need a parking space where people can park their vehicles safely and easily. Every parking area needs a system that records the detail of vehicles to give the facility. These systems might be computerized or non-computerized. With the help of computerized system we can deliver a good service to customer who wants to park their vehicle into the any organization's premises.

In some of the parking areas are lacking such facilities and hence fail all the security norms necessary to park a vehicle. By looking such a huge concern it is highly required that each and every parking areas should be well equipped with high tech parking control systems, that nevertheless lasts the best. These innovative parking control systems not only make a bright choice but also allow you to pay the right price without getting any worry.

It is highly observed that such a level of integrated parking management system stands expensive for every individual. At present such king of parking control systems can only be seen in VIP enclosure, to safeguard VIP cars. By looking over the Middle East & African country's ratio of vehicle theft, it is highly recommended that every people and authorities concern should take necessary steps to extend the level of parking in enhance integrated parking control system. We do agree that such enhance level of parking control system will definitely land up with a huge expense, but certainly it will make a radical step to stop theft and improvise security, by installing parking control system.

CONCLUSION:

Getting the land in metropolitan cities and other higher order cities for Parking space is proving infeasible. The solution for the parking requirements is the multi-level car parking system to maximize car parking capacity by utilizing vertical space, rather than expanding horizontally.* Use this project for industrial purposes in a wide range*Low cost*The accuracy of this project may be improved by adding some features

Parking user management issues raise huge concerns for organizations and park managers. With the aid of park management solutions, management teams can efficiently manage their parking spaces.

Although, user management issues differ in each parking, the parking solution should be simple, safe, and efficient. With Park Office, drivers can easily navigate the parking lot to their booked spots.

Management teams can use parking software for their overall organization's benefits. With a clear objective for using the software including reducing costs, reducing time wastage, and increasing revenue, organizations can be sure the software will help to achieve their set goals.

Parking management systems can help to improve the parking experience for drivers, reduce congestion on the roads, and generate revenue for the area. With the advancement of technology, smart parking systems have become increasingly popular, and have proven to be an effective solution for managing parking spaces. If you're looking to improve parking in your area, a parking management system may be a great option to consider.