VEHICLE PARKING MANAGEMENT SYSTEM (VPMS)

FINAL REVIEW REPORT

Submitted by

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for

DATABASE MANAGEMENT SYSTEM (CSE2004)
PROJECT COMPONENT

Submitted To

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Abstract

This project will enable The firm in charge of overseeing and managing a vehicle parking facility, whether be it in complexes or establishments with paid parking lots, need to keep track of the details of the vehicles parked and their user database which includes, entry, and deletion of entries, the time period for which vehicle has been parked. Hence it is required for maintaining their daily activities as it is currently being done manually. A large number of records have to be updated at the appropriate time and even a slight mistake can complicate things. It is very difficult to handle bulk data in manual methods since human memory is weaker than its digital counterpart. Hence there is a need for an automated system, which can efficiently manage the firm's records, provide faster access to the database, and enhance overall productivity.

By implementing this automated digital system, the activities of the firm are performed within the stipulated time period, thus ensuring reliable and efficient service to its users. It also ensures a smooth flow of the work done and streamlines the entire process

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Table of Contents

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1. Introduction

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 go 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.

Vehicle parking management system is an automatic system which delivers data processing in very high speed in systematic manner. Parking is a growing need of the time. Development of this system is very useful in this area of field. We can sell this system to any organization. By using our system they can maintain records very easily. Our system covers the every area of parking management. In coming future there will be excessive need of Vehicle parking management system

1.2 Motivation

As we all know that the world is advancing day by day new technologies come and go, many new methods are been introduced almost daily, therefore, the demand of the new systems have been increased in every organization old systems have been replaced by new systems, the question is why? Its because every organization demands excellent quality work more profit to be earned in short span of time, to gain as much market trust as they can, and not to forget as quick they can so they can compete with other organizations. New systems should be

i. User friendly
ii. More efficient
iii. They should provide security
iv. Fast

As these four are mentioned, our idea will be based upon these.

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1.3 Objective

- There is no risk for vehicle owner for parking the car.

- In case of any damages and problem of vehicle that will claim by parking management.

- As the world is facing many threats daily, robberies are done easily with no track to trace, bomb blasts occur with the use of vehicle, so if a proper system is adopted each and every record can be saved and anyone can be track easily therefore mainly is to make a better and fast software, most important user-friendly

- Maintain records in short time of period.

- Enhances the visitor's experience.

1.4 Work Breakdown Structure

Team Member Registration Number	Name	Work Assigned
19BCE2544	K.V. Ayushnav	Front end & backend ,website framework and compilation, module design & implementation, introduction ,literature survey,print functionality
19BCE2542	Ronit Mohanty	Front end & backend ,ER diagram , schema ,conclusion ,table creation, GUI graphics and templates
19BCI0143	Sukumar Satapathy	Admin login , project design, normalized table, module description And search sort function and features

2. Project Resource Requirements

2.1 Software Requirements

- Microsoft Visual Studio Code/Jetbrains PyCharm IDE
- SQLite
- Python 3.8.3
- Django

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2.2 Hardware Requirements

- Microsoft Windows 10/Mac OS/Linux
- At least 4 GB RAM
- At least 6 GB HDD space
- Intel Core i3 3rd Gen or newer

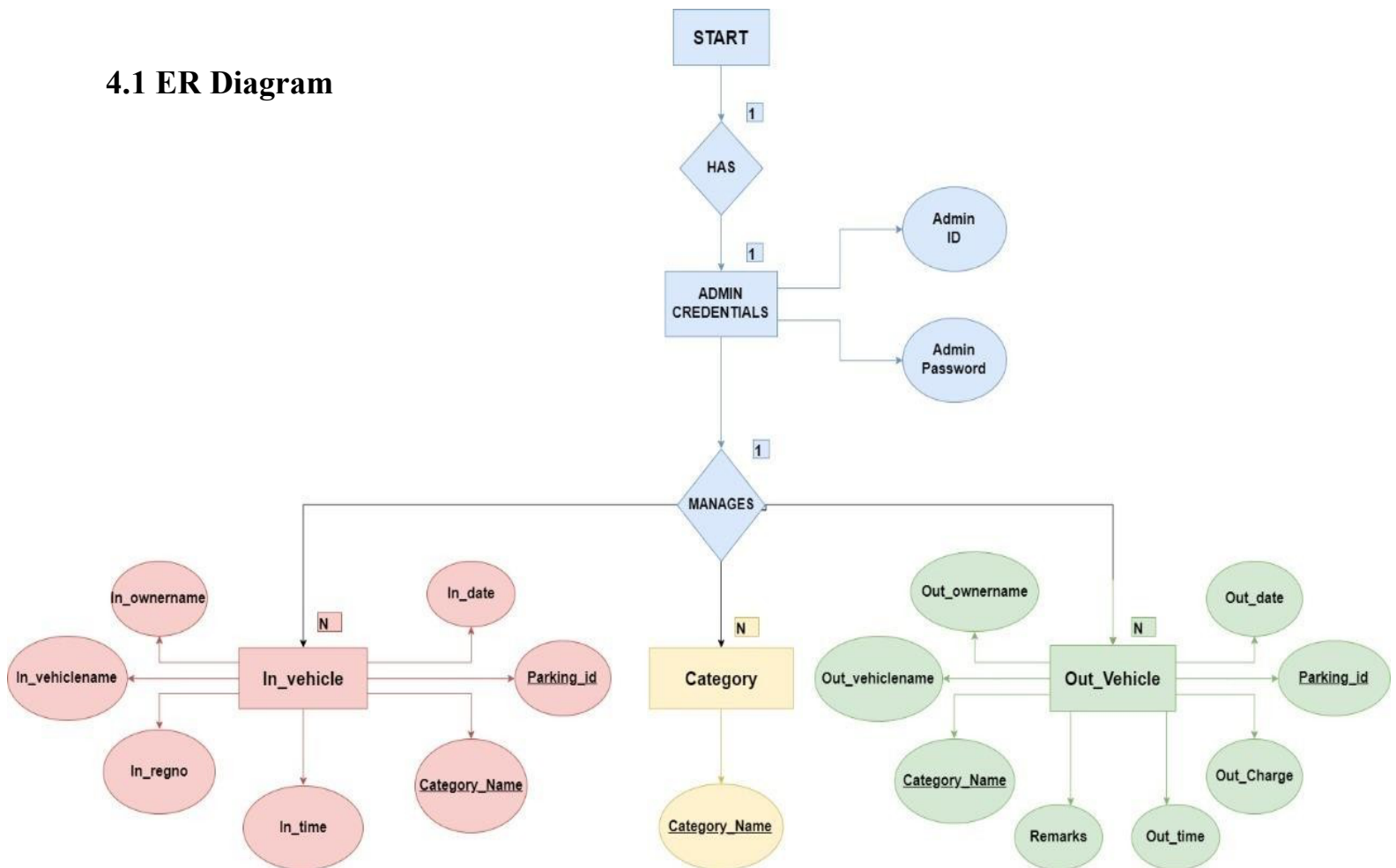Django framework is needed for running backend operations

3.   LITERATURE SURVEY

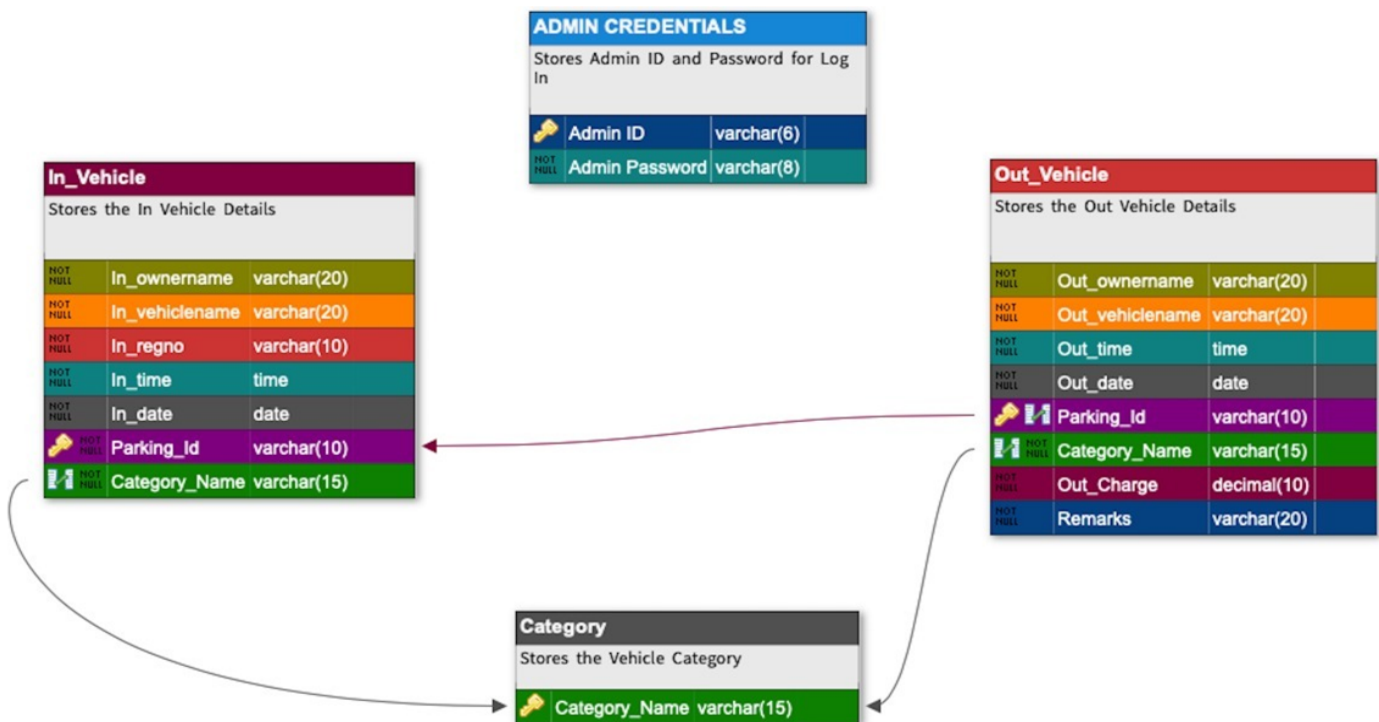| Authors	Method	Purpose	Advantages	Disadvantages
Oracle Inc. Official Documentation	SQL	SQL is the set of statements with which all programs and users access data in a database	Easy to understand syntax which is almost similar to Natural Language, faster query processing	The overall interface can be a bit complex at times. Due to hidden business rules, complete control over the database isn't granted generally
S.T Bhosale, Ms. Tejaswini, Ms. Pooja Patil	SQLite	If you are working on an application whereby multiple clients need access and use the same database, a fully featured RDBMS (eg: MySQL) is probably better to choose over SQLite	As SQLite is a light database it is a direct file system engine that uses SQL syntax. SQLite also doesn't require a special database server or anything	SQLite doesn't support the Map-Reduce method
Katarina Grolinger	NewSQL Database	NewSQL is also a new term in a database that works on the relational model and provide scalability performance same as NoSQL	The main aim of NewSQL is to provide scalability, availability without compromising with transactional capabilities and strong consistency	Many existing RDBMS products support many of its features

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Dr. Michael Stonebridge	OODBMS	Language dependent, as it was tied to a specific language by a specific API. There was a lack of Ad-hoc queries too.	Queries can be performed on the data in an OODBMS are largely dependant on the design of the system	Lack of security, increase in complexity, lack of standards, and lack of experience were some other issues
Bjarne Stroustrup, Stephen R. Davis, Alex Allain	Usage of functions	Helps in linking different parts of the system	Introduces modularity and helps in easy detection of bugs	Tedious to design, may occupy more memory during run-time
Ashok Kumar Karunanithi	Using different sorting techniques	Maintenance of the data of a database	Improving the efficiency of the system	May increase memory usage and/or may encounter specific exceptions
Dr. Robelyn Garcia	CSS Layouts	Determining the appearance of the project page	Responsive and beautiful page design which is also easy to navigate irrespective of the skill level of the user/admin	Designing the page can be quite tedious and can be messed up quite easily
Adrian Holovaty, Jacob K Moss	Django Framework	Django framework allows us to create a robust application based on python language	Using the Django framework, we can create much better and efficient web apps as compared to making on plain python with TkInter GUI	Requires extra time and effort as compared to using normal python with TkInter GUI
Patricia Ghann, Jun Steed Huang	HTML5	HTML allows us to develop the overall skeleton of our web-based interface	Very easy to work with and can be used along with other frameworks like CSS and JQuery	Can be tedious and too plain at times. Need to incorporate additional frameworks in order to further improve the project
Michael Rys, Donald D. Chamberlain, Daniela Florescu	XML	XML allows us to represent our data in a structured way	Less time needed to view the data by the users and is very easy to use without much complexity	Syntax is redundant and can pose a problem when using large amounts of data

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4. Design of the Project

4.1 ER Diagram

4.2 ER to Relational Mapping (Schema Diagram)

4.3 Tables and Constraints

Attribute	Datatype	constraint

Category

Category_name	Varchar2	Not null

Admin:

Admin_id	Varchar2	Not null
Admin_pass	Varchar2	Not null

In_Vehcile:

In_ownername	Vatchar2	Not null
In_vehiclename	Varchar2	Not null
In_category	Varchar2	Not null
In_regno.	Varchar2	Not null
intime	Time	Not null
In_date	Date	Not null
In_parkingID	int	Primarykey

Out_Vehicle:

Out_ownername	Vatchar2	Not null
Out_vehiclename	Varchar2	Not null
Out_category	Varchar2	Not null
Out_regno.	Varchar2	Not null
Outtime	Time	Not null
Out_date	Date	Not null
Out_parkingID	int	Not null
remarks	Varchar2	
Out_charge	Varchar2	Not null

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5. Normalized Tables

ADMIN_CREDENTIALS Table

Admin_ID	**Admin_Password**

Functional Dependencies: Admin_ID → Admin_ID, Admin_Password

Present Normal Form: BCNF

Category Table

Category_Name

Functional Dependencies: *Category_Name* → *Category_Name*

Present Normal Form: BCNF

In_Vehiclename Table

In_ownername	In_vehiclename	In_regno	In_time	Category_Name	**Parking_id**	In_date

Functional Dependencies: *In_vehiclename* → *Category_Name*

Parking_id → *In_ownername, In_vehiclename, In_regno, In_time, Category_Name, In_date*

In_regno → *In_ownername, In_vehiclename, In_time, Category_Name, Parking_id, In_date*

Present Normal Form: 2NF

Conversion to 3NF and BCNF: The conversion will split the In_Vehiclename Table into 2 tables i.e. In_R1 and In_R2

In_R1 Table

In_vehiclename	Category_Name

Functional Dependencies: *In_vehiclename* → *Category_Name*

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In_R2 Table

In_ownername	In_vehiclename	In_regno	In_time	**Parking_id**	In_date

Functional Dependencies: *In_regno   →   Parking_id*

*Parking_id → In_ownername, In_vehiclename, In_regno,
In_time, Category_Name, In_date*

Now, we have normalized the table to BCNF.

Out_Vehiclename Table

Out_ownername	Out_vehiclename	Remarks	Out_time	Category_Name	**Parking_id**	Out_date	Out_Charge

Functional Dependencies: *Out_vehiclename → Category_Name*

*Parking_id → Out_ownername, Out_vehiclename, Remarks,
Out_time, Category_Name, Out_date, Out_charge*

Present Normal Form: 2NF

Conversion to 3NF and BCNF: The conversion will split the Out_Vehiclename Table into 2 tables
i.e. Out_R1 and Out_R2

Out_R1 Table

Out_vehiclename	Category_Name

Functional Dependencies: *Out_vehiclename → Category_Name*

Out_R2 Table

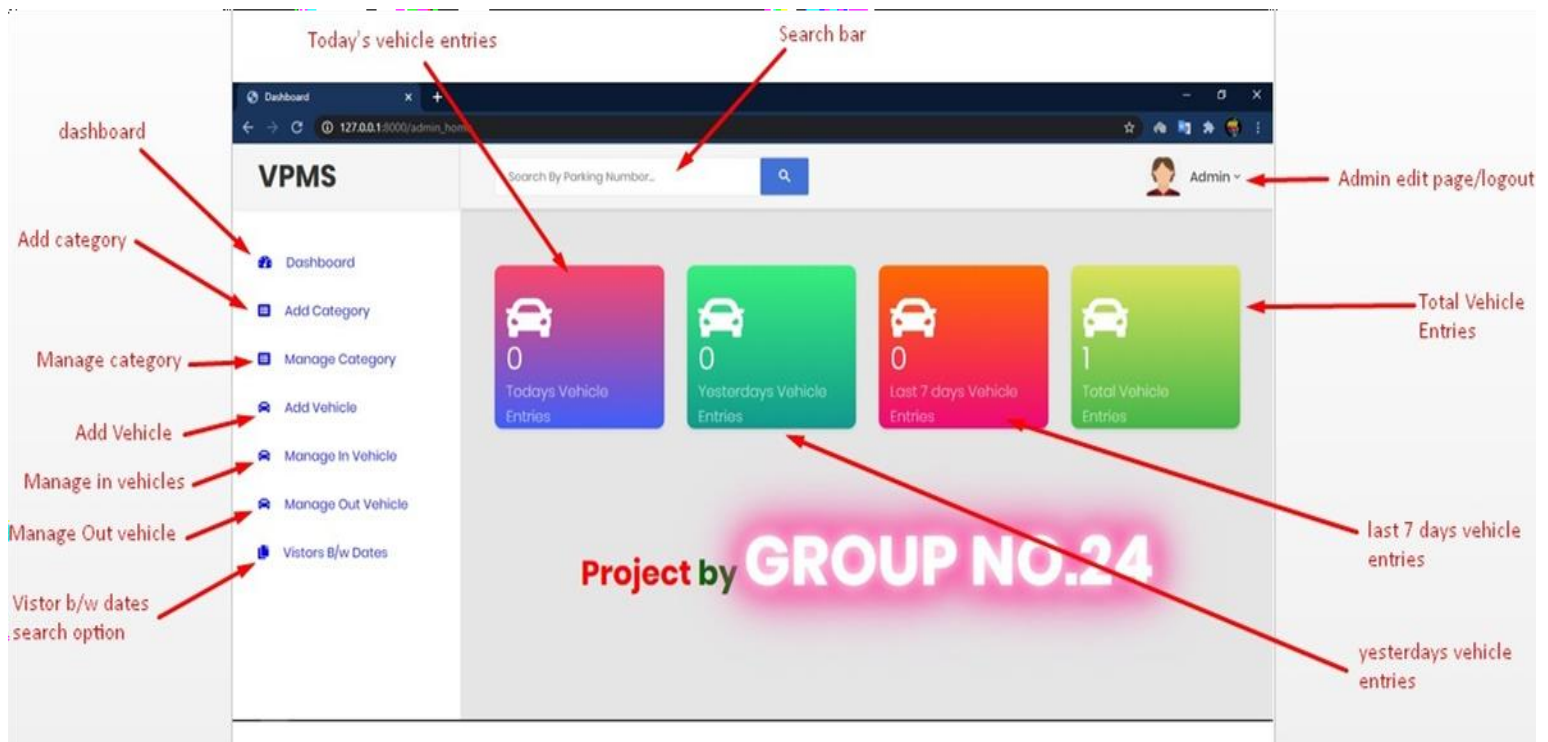| Out_ownername	Out_vehiclename	Remarks	Out_time	**Parking_id**	Out_date	Out_charge

Functional Dependencies: *Parking_id → Out_ownername, Out_vehiclename, Remarks,
Out_time, Category_Name, Out_date, Out_Charge*

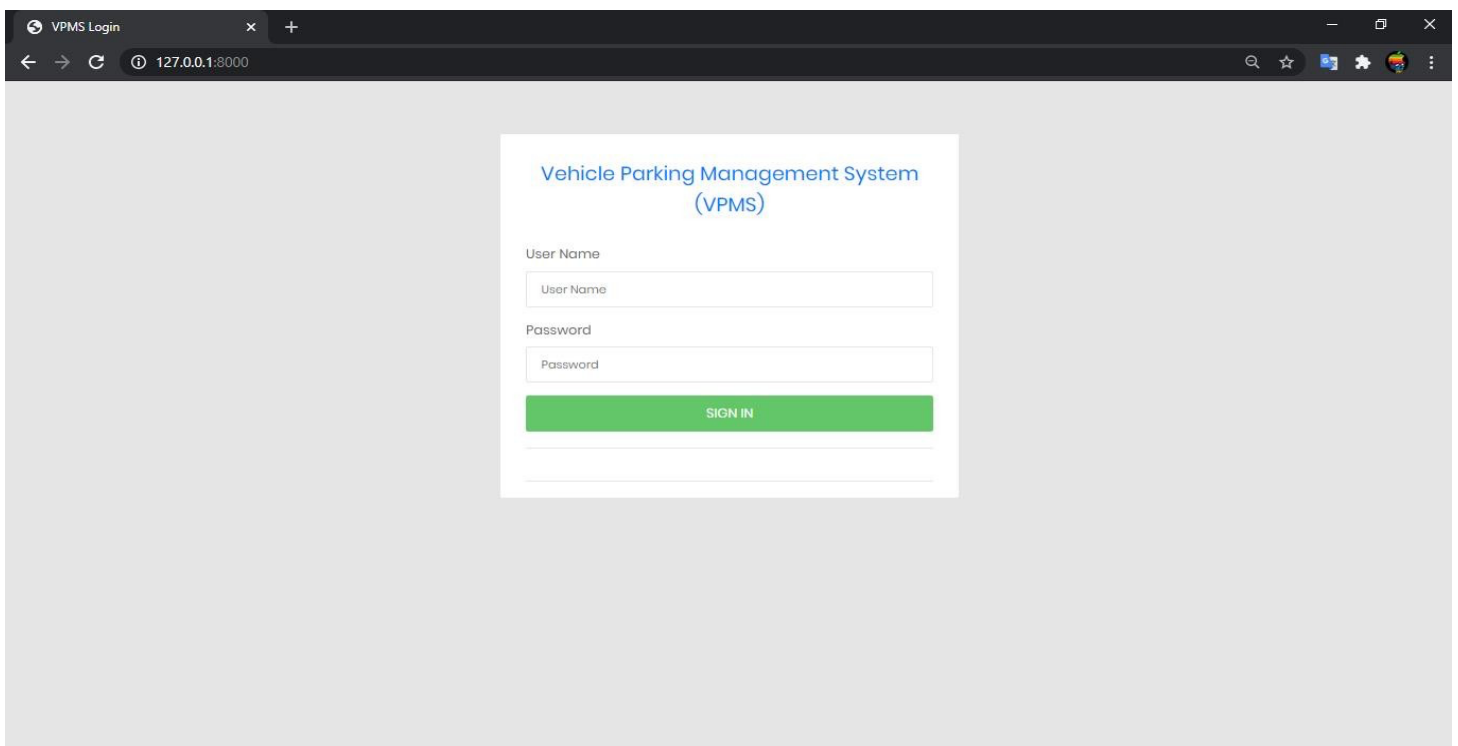Now, we have normalized the table to BCNF.

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6. Modules

- **Dashboard:**
  It allows us to have an overall overview over the number of cars currently in the lot, the number of cars which used the lot for that particular week, etc.

- **Add/Manage Category:**
  Allows the admin to add and manage different vehicle categories like 2 wheelers, 4 wheelers, heavy vehicles etc.

- **Admin edit page:**
  Here the admin can modify their login credentials i.e. their password.

- **Add vehicle:**
  Here, we can add newer vehicles to the database in case of newer entries.

- **Manage in_vehicle/out_vehicle :**
  This allows us to edit the different entries and attributes for in_vehicle/out_vehicle respectively.

- **Visitors Search option:**
  This allows us to search through our database based on queries entered by the admin and can be used to find out all the details about the vehicles present in the lot based on matching queries.

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7. Output Screenshots

Dashboard

Admin login page

change admin password page

add category page

VPMS

Search By Parking Number... 🔍

👤 Admin ⌄

- 🚲 Dashboard
- 🖥 Add Category
- 🖥 Manage Category
- 🚗 Add Vehicle
- 🚗 Manage In Vehicle
- 🚗 Manage Out Vehicle
- 📋 Vistors B/w Dates

Manage Category

S.NO	CategoryName	Action
1	Four Wheeler Vehicle	🗑
2	Two Wheeler Vehicle	🗑
3	Bicycles	🗑

manage category page

VPMS

Search By Parking Number... 🔍

👤 Admin ⌄

- 🚲 Dashboard
- 🖥 Add Category
- 🖥 Manage Category
- 🚗 Add Vehicle
- 🚗 Manage In Vehicle
- 🚗 Manage Out Vehicle
- 📋 Vistors B/w Dates

Add Vehicle

Vehicle Category	---Select Vehicle Category--- ⌄
Vehicle Company	Vehicle Company
Registration Number	Registration Number
Owner Name	Owner Name
Owner Contact Number	Contact Number
Parking Date	mm/dd/yyyy 📅
In Time	--:-- -- 🕐

Submit

add vehicle page

`

Search By Parking Number...

Admin ⌄

Dashboard

Add Category

Manage Category

Add Vehicle

Manage In Vehicle

Manage Out Vehicle

Vistors B/w Dates

Manage Incoming Vehicle

S.NO	Parking Number	Owner Name	Vehicle Reg No.	Action
1	33195033	ayushnav	xyzabc	✎

manage in vehicles page

VPMS

Search By Parking Number...

Admin ⌄

Dashboard

Add Category

Manage Category

Add Vehicle

Manage In Vehicle

Manage Out Vehicle

Vistors B/w Dates

Vehicle Details

Parking Number	33195033
Vehicle Category	Four Wheeler Vehicle
Vehicle Company Name	tata
Registration Number	xyzabc
Owner Name	ayushnav
Owner Contact Number	975380042
In Time	18:49
Status	In
Outing Remark :	
Parking Charge :	
Out Time :	--:-- --- 🕐

Update

In vehicle details

`

VPMS

Search By Parking Number... 🔍

👤 Admin ⌄

- 🚗 Dashboard
- 🖥 Add Category
- 🖥 Manage Category
- 🚗 Add Vehicle
- 🚗 Manage In Vehicle
- 🚗 Manage Out Vehicle
- 📋 Vistors B/w Dates

Manage Outgoing Vehicle

S.NO	Parking Number	Owner Name	Vehicle Reg No.	Action
1	98415982	Pankaj	MP04A2300	👁 | 🖨

Manage out vehicle details

VPMS

Search By Parking Number... 🔍

👤 Admin ⌄

- 🚗 Dashboard
- 🖥 Add Category
- 🖥 Manage Category
- 🚗 Add Vehicle
- 🚗 Manage In Vehicle
- 🚗 Manage Out Vehicle
- 📋 Vistors B/w Dates

Vehicle Details

Parking Number	98415982
Vehicle Category	Two Wheeler Vehicle
Vehicle Company Name	Bajaj
Registration Number	MP04A2300
Owner Name	Pankaj
Owner Contact Number	9229465037
In Time	14:00
OutTime	14:30
Remark	Work Done
Status	Out
Parking Fee	50

out vehicle details

`

Search visitors by date

8.Conclusion:-

Many metropolitan areas have seen explosive growth in the number of visitors and patrons due to urban revitalization, an extension of transit services into suburban areas, and the general trend toward increased mobility of our society. As a result, Vehicle parking is becoming a major concern. Development of a computerized vehicle parking system will be essential in this field.

vehicle parking management system improves the existing system since we are in computerized world. With this new system is mandatory, it enables the user of the system to manage a parking lot and this reduces the wastage of time of the clients, increase the safety of the property since the parking lot is numbered.

9. Code

https://github.com/SukumarSatapathy/DBMS-Project

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Sample code: (only few selected module codes are pasted)

Admin_home page：

```
{% load static %}

{% block body %}


<html lang="en">

<head>
  <!-- Required meta tags-->
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
  <meta name="description" content="au theme template">
  <meta name="author" content="Hau Nguyen">
  <meta name="keywords" content="au theme template">

  <!-- Title Page-->
  <title>Dashboard</title>

  <!-- Fontfaces CSS-->
  <link href="{% static 'css/font-face.css' %}" rel="stylesheet" media="all">
  <link href="{% static 'vendor/font-awesome-4.7/css/font-awesome.min.css' %}" rel="stylesheet"
media="all">
  <link href="{% static 'vendor/font-awesome-5/css/fontawesome-all.min.css' %}" rel="stylesheet"
media="all">
  <link href="{% static 'vendor/mdi-font/css/material-design-iconic-font.min.css' %}" rel="stylesheet"
media="all">

  <!-- Bootstrap CSS-->
  <link href="{% static 'vendor/bootstrap-4.1/bootstrap.min.css' %}" rel="stylesheet" media="all">

  <!-- Vendor CSS-->
  <link href="{% static 'vendor/animsition/animsition.min.css' %}" rel="stylesheet" media="all">
  <link href="{% static 'vendor/bootstrap-progressbar/bootstrap-progressbar-3.3.4.min.css' %}"
rel="stylesheet" media="all">
  <link href="{% static 'vendor/wow/animate.css' %}" rel="stylesheet" media="all">
  <link href="{% static 'vendor/css-hamburgers/hamburgers.min.css' %}" rel="stylesheet" media="all">
  <link href="{% static 'vendor/slick/slick.css' %}" rel="stylesheet" media="all">
  <link href="{% static 'vendor/select2/select2.min.css' %}" rel="stylesheet" media="all">
  <link href="{% static 'vendor/perfect-scrollbar/perfect-scrollbar.css' %}" rel="stylesheet" media="all">

  <!-- Main CSS-->
  <link href="{% static 'css/theme.css' %}" rel="stylesheet" media="all">

</head>
<body class="animsition">
  <div class="page-wrapper">
    <!-- HEADER MOBILE-->


`
```

```html
<!-- MENU SIDEBAR-->
 {% include 'sidebar.html' %}
<!-- END MENU SIDEBAR-->

<!-- PAGE CONTAINER-->
<div class="page-container">
   <!-- HEADER DESKTOP-->
   {% include 'header.html' %}
   <!-- HEADER DESKTOP-->

   <!-- MAIN CONTENT-->
   <div class="main-content">
      <div class="section__content section__content--p30">
         <div class="container-fluid">

            <div class="row m-t-25">
               <div class="col-sm-6 col-lg-3">
                  <div class="overview-item overview-item--c1">
                     <div class="overview__inner">
                        <div class="overview-box clearfix">
                           <div class="icon">
                              <i class="fa fa-car"></i>
                           </div>
                           <div class="text">
                              <h2>{{tv}}</h2>
                              <span>Todays Vehicle Entries</span>
                           </div>
                        </div>

                     </div>
                  </div>
               </div>

               <div class="col-sm-6 col-lg-3">
                  <div class="overview-item overview-item--c2">
                     <div class="overview__inner">
                        <div class="overview-box clearfix">
                           <div class="icon">
                                 <i class="fa fa-car"></i>
                           </div>
                           <div class="text">
                              <h2>{{yv}}</h2>
                              <span>Yesterdays Vehicle Entries</span>
                           </div>
                        </div>

                     </div>
                  </div>
               </div>
               <div class="col-sm-6 col-lg-3">
                  <div class="overview-item overview-item--c3">
                     <div class="overview__inner">
```
`

```html
                            <div class="overview-box clearfix">
                                <div class="icon">
                                    <i class="fa fa-car"></i>
                                </div>
                                <div class="text">
                                    <h2>{{ls}}</h2>
                                    <span>Last 7 days Vehicle Entries</span>
                                </div>
                            </div>

                        </div>
                    </div>
                </div>

                <div class="col-sm-6 col-lg-3">
                    <div class="overview-item overview-item--c4">
                        <div class="overview__inner">
                            <div class="overview-box clearfix">
                                <div class="icon">
                                <i class="fa fa-car"></i>
                                </div>
                                <div class="text">
                                    <h2>{{totalv}}</h2>
                                    <span>Total Vehicle </br>Entries</span>
                                </div>
                            </div>

                        </div>
                    </div>
                </div>
            </div>


{% include 'footer.html' %}

            </div>
          </div>
        </div>

    </div>

  </div>
  <!-- Jquery JS-->
  <script src="{% static 'vendor/jquery-3.2.1.min.js' %}"></script>
  <!-- Bootstrap JS-->
  <script src="{% static 'vendor/bootstrap-4.1/popper.min.js' %}"></script>
  <script src="{% static 'vendor/bootstrap-4.1/bootstrap.min.js' %}"></script>
  <!-- Vendor JS       -->
  <script src="{% static 'vendor/slick/slick.min.js' %}">
  </script>
  <script src="{% static 'vendor/wow/wow.min.js' %}"></script>
  <script src="{% static 'vendor/animsition/animsition.min.js' %}"></script>
  <script src="{% static 'vendor/bootstrap-progressbar/bootstrap-progressbar.min.js' %}">


`
```

```
    </script>
    <script src="{% static 'vendor/counter-up/jquery.waypoints.min.js' %}"></script>
    <script src="{% static 'vendor/counter-up/jquery.counterup.min.js' %}">
    </script>
    <script src="{% static 'vendor/circle-progress/circle-progress.min.js' %}"></script>
    <script src="{% static 'vendor/perfect-scrollbar/perfect-scrollbar.js' %}"></script>
    <script src="{% static 'vendor/chartjs/Chart.bundle.min.js' %}"></script>
    <script src="{% static 'vendor/select2/select2.min.js' %}">
    </script>

    <!-- Main JS-->
    <script src="{% static 'js/main.js' %}"></script>

</body>

</html>
<!-- end document-->

 {% endblock %}
```

Add_category page：

```
{% load static %}

{% block body %}
<html lang="en">
<head>
    <!-- Required meta tags-->
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <meta name="description" content="au theme template">


    <!-- Title Page-->
    <title>CVSM Visitors Forms</title>

    <!-- Fontfaces CSS-->
    <link href="{% static 'css/font-face.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/font-awesome-5/css/fontawesome-all.min.css' %}"
rel="stylesheet" media="all">
    <link href="{% static 'vendor/font-awesome-4.7/css/font-awesome.min.css' %}"
rel="stylesheet" media="all">
    <link href="{% static 'vendor/mdi-font/css/material-design-iconic-font.min.css' %}"
rel="stylesheet" media="all">

    <!-- Bootstrap CSS-->
    <link href="{% static 'vendor/bootstrap-4.1/bootstrap.min.css' %}" rel="stylesheet"
media="all">


    `
```

```html
    <!-- Vendor CSS-->
    <link href="{% static 'vendor/animsition/animsition.min.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/bootstrap-progressbar/bootstrap-progressbar-3.3.4.min.css' %}"
rel="stylesheet" media="all">
    <link href="{% static 'vendor/wow/animate.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/css-hamburgers/hamburgers.min.css' %}" rel="stylesheet"
media="all">
    <link href="{% static 'vendor/slick/slick.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/select2/select2.min.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/perfect-scrollbar/perfect-scrollbar.css' %}" rel="stylesheet"
media="all">

    <!-- Main CSS-->
    <link href="{% static 'css/theme.css' %}" rel="stylesheet" media="all">

</head>

<body class="animsition">
    <div class="page-wrapper">
      <!-- HEADER MOBILE-->
       {% include 'sidebar.html' %}
      <!-- END MENU SIDEBAR-->

      <!-- PAGE CONTAINER-->
      <div class="page-container">
        <!-- HEADER DESKTOP-->
        {% include 'header.html' %}

        <!-- MAIN CONTENT-->
        <div class="main-content">
          <div class="section__content section__content--p30">
            <div class="container-fluid">
              <div class="row">

                  <div class="col-lg-12">
                    <div class="card">
                      <div class="card-header">
                        <strong>Add</strong> New Category
                      </div>
                      <div class="card-body card-block">
                        <form method="post" enctype="multipart/form-data" class="form-
horizontal">
                            {% csrf_token %}
                          <p style="font-size:16px; color:red" align="center">

                          <div class="row form-group">
                            <div class="col col-md-3">
                               <label  class=" form-control-label">Category Name</label>


`
```

```html
                    </div>
                    <div class="col-12 col-md-9">
                        <input type="text" id="categoryname" name="categoryname"
placeholder="Category Name" class="form-control" required="">

                    </div>
                  </div>

                    <div class="card-footer">
                      <p style="text-align: center;"><button type="submit" name="submit"
id="submit" class="btn btn-primary btn-sm">Submit
                        </button></p>

                  </div>
                  </form>
                  </div>

                </div>

            </div>

        </div>

  </div> </div>
        </div>
      </div>
</div>
    <!-- Jquery JS-->
    <script src="{% static 'vendor/jquery-3.2.1.min.js' %}"></script>
    <!-- Bootstrap JS-->
    <script src="{% static 'vendor/bootstrap-4.1/popper.min.js' %}"></script>
    <script src="{% static 'vendor/bootstrap-4.1/bootstrap.min.js' %}"></script>
    <!-- Vendor JS       -->
    <script src="{% static 'vendor/slick/slick.min.js' %}">
    </script>
    <script src="{% static 'vendor/wow/wow.min.js' %}"></script>
    <script src="{% static 'vendor/animsition/animsition.min.js' %}"></script>
    <script src="{% static 'vendor/bootstrap-progressbar/bootstrap-progressbar.min.js' %}">
    </script>
    <script src="{% static 'vendor/counter-up/jquery.waypoints.min.js' %}"></script>
    <script src="{% static 'vendor/counter-up/jquery.counterup.min.js' %}">
    </script>
    <script src="{% static 'vendor/circle-progress/circle-progress.min.js' %}"></script>
    <script src="{% static 'vendor/perfect-scrollbar/perfect-scrollbar.js' %}"></script>
    <script src="{% static 'vendor/chartjs/Chart.bundle.min.js' %}"></script>
    <script src="{% static 'vendor/select2/select2.min.js' %}">
    </script>
```

`

```html
    <!-- Main JS-->
    <script src="{% static 'js/main.js' %}"></script>

</body>

</html>
<!-- end document-->
{% ifequal error "no" %}
<script>
    alert('Category added successfully');
    window.location=('{% url 'manage_category' %}');
</script>
{% endifequal %}
{% ifequal error "yes" %}
<script>
    alert('Something Went Wrong. Please try again');
</script>
{% endifequal %}


  {% endblock %}
```

Manage_incoming vehicle page：

```html
{% load static %}

{% block body %}
<html lang="en">

<head>
    <!-- Required meta tags-->
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <meta name="description" content="au theme template">
    <meta name="author" content="Hau Nguyen">
    <meta name="keywords" content="au theme template">

    <!-- Title Page-->
    <title>CVMS Visitors</title>

    <!-- Fontfaces CSS-->
    <link href="{% static 'css/font-face.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/font-awesome-5/css/fontawesome-all.min.css' %}"
rel="stylesheet" media="all">
    <link href="{% static 'vendor/font-awesome-4.7/css/font-awesome.min.css' %}"


`
```

```html
rel="stylesheet" media="all">
    <link href="{% static 'vendor/mdi-font/css/material-design-iconic-font.min.css' %}"
rel="stylesheet" media="all">

    <!-- Bootstrap CSS-->
    <link href="{% static 'vendor/bootstrap-4.1/bootstrap.min.css' %}" rel="stylesheet"
media="all">

    <!-- Vendor CSS-->
    <link href="{% static 'vendor/animsition/animsition.min.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/bootstrap-progressbar/bootstrap-progressbar-3.3.4.min.css' %}"
rel="stylesheet" media="all">
    <link href="{% static 'vendor/wow/animate.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/css-hamburgers/hamburgers.min.css' %}" rel="stylesheet"
media="all">
    <link href="{% static 'vendor/slick/slick.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/select2/select2.min.css' %}" rel="stylesheet" media="all">
    <link href="{% static 'vendor/perfect-scrollbar/perfect-scrollbar.css' %}" rel="stylesheet"
media="all">

    <!-- Main CSS-->
    <link href="{% static 'css/theme.css' %}" rel="stylesheet" media="all">

</head>

<body class="animsition">
    <div class="page-wrapper">
        <!-- HEADER MOBILE-->
    {% include 'sidebar.html' %}
        <!-- END HEADER MOBILE-->

        <!-- MENU SIDEBAR-->

        <!-- END MENU SIDEBAR-->

        <!-- PAGE CONTAINER-->
        <div class="page-container">
            <!-- HEADER DESKTOP-->
            {% include 'header.html' %}
            <!-- END HEADER DESKTOP-->

            <!-- MAIN CONTENT-->
            <div class="main-content">
                <div class="section__content section__content--p30">
                    <div class="container-fluid">
                        <div class="row">
                            <div class="col-lg-12">
                                <div class="table-responsive table--no-card m-b-30">


`
```

```html
                    <h4 align="center">Manage Incoming Vehicle </h4>
                     <hr>
                     <table class="table table-borderless table-striped table-earning">
                        <thead>
                         <tr>
                            <tr>
            <th>S.NO</th>

            <th>Parking Number</th>

        <th>Owner Name</th>
        <th>Vehicle Reg No.</th>
            <th>Action</th>
         </tr>
                            </tr>
                            </thead>
                            {% for i in vehicle %}

         <tr>
          <td>{{forloop.counter}}</td>

          <td>{{i.parkingnumber}}</td>
          <td>{{i.ownername}}</td>
        <td>{{i.regno}}</td>
          <td><a href="{% url 'view_incomingdetail' i.id %}" ><i class="fa fa-edit fa-
1x"></i></a></td>
          </tr>


 {% endfor %}
                        </table>
                    </div>
                 </div>

             </div>


     </div>
         </div>
       </div>
     </div>

   </div>
  <!-- Jquery JS-->
   <script src="{% static 'vendor/jquery-3.2.1.min.js' %}"></script>
   <!-- Bootstrap JS-->
   <script src="{% static 'vendor/bootstrap-4.1/popper.min.js' %}"></script>


 `
```

```html
    <script src="{% static 'vendor/bootstrap-4.1/bootstrap.min.js' %}"></script>
    <!-- Vendor JS       -->
    <script src="{% static 'vendor/slick/slick.min.js' %}">
    </script>
    <script src="{% static 'vendor/wow/wow.min.js' %}"></script>
    <script src="{% static 'vendor/animsition/animsition.min.js' %}"></script>
    <script src="{% static 'vendor/bootstrap-progressbar/bootstrap-progressbar.min.js' %}">
    </script>
    <script src="{% static 'vendor/counter-up/jquery.waypoints.min.js' %}"></script>
    <script src="{% static 'vendor/counter-up/jquery.counterup.min.js' %}">
    </script>
    <script src="{% static 'vendor/circle-progress/circle-progress.min.js' %}"></script>
    <script src="{% static 'vendor/perfect-scrollbar/perfect-scrollbar.js' %}"></script>
    <script src="{% static 'vendor/chartjs/Chart.bundle.min.js' %}"></script>
    <script src="{% static 'vendor/select2/select2.min.js' %}">
    </script>

    <!-- Main JS-->
    <script src="{% static 'js/main.js' %}"></script>

</body>

</html>


{% endblock %}
```

WSGI config

```python
import os
from django.core.wsgi import get_wsgi_application
os.environ.setdefault('DJANGO_SETTINGS_MODULE', 'VehicleParkingManagement.settings')

application = get_wsgi_application()
```

ASGI config

```python
import os
from django.core.asgi import get_asgi_application
os.environ.setdefault('DJANGO_SETTINGS_MODULE', 'VehicleParkingManagement.settings')
application = get_asgi_application()
```

`

Urls.py

```python
from django.contrib import admin
from django.urls import path
from vehicle.views import *
from django.conf import settings
from django.conf.urls.static import static


urlpatterns = [
    path('admin/', admin.site.urls),
    path('',Index,name='index'),
    path('admin_home',admin_home,name='admin_home'),
    path('logout',Logout,name='logout'),
    path('changepassword',changepassword,name='changepassword'),
    path('search',search,name='search'),
    path('add_category',add_category,name='add_category'),
    path('manage_category',manage_category,name='manage_category'),
    path('delete_category/<int:pid>', delete_category,name='delete_category'),
    path('add_vehicle',add_vehicle,name='add_vehicle'),
    path('manage_incomingvehicle',manage_incomingvehicle,name='manage_incomingvehicle'),
    path('view_incomingdetail/<int:pid>',view_incomingdetail,name='view_incomingdetail'),
    path('manage_outgoingvehicle',manage_outgoingvehicle,name='manage_outgoingvehicle'),
    path('view_outgoingdetail/<int:pid>',view_outgoingdetail,name='view_outgoingdetail'),
    path('print/<int:pid>',print_detail,name='print'),
    path('betweendate_report',betweendate_report,name='betweendate_report'),
    path('betweendate_reportdetails',betweendate_reportdetails,name='betweendate_reportdetails'),

]
```

Settings.py

```python
import os

# Build paths inside the project like this: os.path.join(BASE_DIR, ...)
BASE_DIR = os.path.dirname(os.path.dirname(os.path.abspath(_file_)))


# Quick-start development settings - unsuitable for production
# See https://docs.djangoproject.com/en/3.0/howto/deployment/checklist/

# SECURITY WARNING: keep the secret key used in production secret!
SECRET_KEY = 'e8vf%ftehk=5964)^be^tv03hb^chtx6loxy6%6m8$8^$_pxbo'

# SECURITY WARNING: don't run with debug turned on in production!
DEBUG = True

ALLOWED_HOSTS = []


`
```

```python
# Application definition

INSTALLED_APPS = [
    'vehicle',
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
]

MIDDLEWARE = [
    'django.middleware.security.SecurityMiddleware',
    'django.contrib.sessions.middleware.SessionMiddleware',
    'django.middleware.common.CommonMiddleware',
    'django.middleware.csrf.CsrfViewMiddleware',
    'django.contrib.auth.middleware.AuthenticationMiddleware',
    'django.contrib.messages.middleware.MessageMiddleware',
    'django.middleware.clickjacking.XFrameOptionsMiddleware',
]



ROOT_URLCONF = 'VehicleParkingManagement.urls'

TEMPLATES = [
    {
        'BACKEND': 'django.template.backends.django.DjangoTemplates',
        'DIRS': [],
        'APP_DIRS': True,
        'OPTIONS': {
            'context_processors': [
                'django.template.context_processors.debug',
                'django.template.context_processors.request',
                'django.contrib.auth.context_processors.auth',
                'django.contrib.messages.context_processors.messages',
            ],
        },
    },
]



WSGI_APPLICATION = 'VehicleParkingManagement.wsgi.application'




`
```

```python
DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.sqlite3',
        'NAME': os.path.join(BASE_DIR, 'db.sqlite3'),
    }
}




AUTH_PASSWORD_VALIDATORS = [
    {
        'NAME': 'django.contrib.auth.password_validation.UserAttributeSimilarityValidator',
    },
    {
        'NAME': 'django.contrib.auth.password_validation.MinimumLengthValidator',
    },
    {
        'NAME': 'django.contrib.auth.password_validation.CommonPasswordValidator',
    },
    {
        'NAME': 'django.contrib.auth.password_validation.NumericPasswordValidator',
    },
]


LANGUAGE_CODE = 'en-us'

TIME_ZONE = 'UTC'

USE_I18N = True

USE_L10N = True

USE_TZ = True

STATIC_URL = '/static/'




`
```

References:

[1] Lin Xiao; Xiaohong Chen; and Kaiguo Li,"Research on Airport parking characteristics"-A case study of Pudong International Airport in China", 15th COTA International Conference of Transportation Professionals,ASCE journal,2015

[2] Mehmet Emre Bayraktar, Ph.D., M.ASCE; Farrukh Arif, Ph.D., A.M.ASCE; Halit Ozen, Ph.D.; and Gorm Tuxen,2014, American Society of Civil Engineers, Smart Parking-Management System for Commercial Vehicle Parking at Public Rest Areas, DOI:10.1061/(ASCE)TE.1943-5436.0000756.

[3] Upendra singh dandotia , Rakesh Gupta , Mukesh Pandey A study of analysis and design of multi level parking2016 IJEDR | Volume 4, Issue 2 | ISSN: 2321- 9939.

[4] Vincent,2015, Car Parking in China - Issues and Solutions,ascelibrary.org by New York University.

[5] Wang Yan-ling, Wang Xin, Zhang Ming-chun,2016, ScienceDirect, Current Situation and Analysis of Parking Problem in Beijing.

[7]Yatin Jog, Anuja Sajeev, Shreyas Vidwans and Chandradeep Mallick," Understanding Smart and Automated Parking Technology ",International Journal of u- and e- Service, Science and Technology Vol.8, No.2 (2015), pp.251-262

[8]S.T. Bhosale , Miss. Tejaswini Patil, Miss. Pooja Patil.- IJCSMC, Vol. 4,Issue. 4, April 2015,pg882-885

 [9] Shaheen et al., (2005); Chinrungreung et al., (2007).Online Reservation Parking System (ORPS)

[10] Shem, S, S.Park and S.Hong (2006), Network Security.parking management system using Zigbee
(chap 6 ,p131-137)

[11] Planning SA (2001), Planning Bulletin: Parking provisions for selected land uses(Suburban Metropolitan Adelaide), Department for Transport, Urban Planning and the Arts, Government of South Australia, South Australia

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