Mini Project Report

on

Parking Management System

Submitted by

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Abstract

Parking management system is made for managing the records of the incoming and outgoing vehicles in an parking house. It's an easy for Admin to retrieve the data if the vehicle has been visited through number he can get that data. Now days in many public places such as malls, multiplex system, hospitals, offices, market areas there is a crucial problem of vehicle parking. The vehicle parking area has many lanes/slots for car parking. So to park a vehicle one has to look for all the lanes. Moreover this involves a lot of manual labour and investment. Instead of vehicle caught in towing the vehicle can park on safe and security with low cost. Parking control system has been generated in such a way that it is filled with many secure devices such as, parking control gates, toll gates, time and attendance machine, car counting system etc. These features are hereby very necessary nowadays to secure your car and also to evaluate the fee structure for every vehicles entry and exit. The objective of this project is to build a Vehicle Parking management system that enables the time management and control of vehicles using number plate recognition.

The system that will track the entry and exit of cars, maintain a listing of cars within the parking lot, and determine if the parking lot is full or not. It will determine the cost of per vehicle according to their time consumption.

1. Introduction

The parking place is very important all over the world especially in the cities of the countries. Every day thousands of drivers spend a lot of the time to find where to park. The result of this situation is theft in urban areas, increasing traffic congestion and frustration of drivers. In order to solve this problem, the implementation of the Online Vehicle Parking System in this city for managing parking places is mandatory. It will allow the drivers to Reserve a parking place on the Platform of PMS anytime, anywhere. This chapter gives an overview of the background of the study, statement of the problems, objectives of the study, research questions, scope of the study and significance of the study.

Parking management system for managing the records of the incoming and outgoing vehicles in a parking house It's easy for Admin to retrieve the data if the vehicle has been visited through a number he can get that data.

Nowadays in many public places such as malls, multiplex systems, hospitals, offices, market areas there is a crucial problem of vehicle parking. The vehicle parking area has many lanes/slots for car parking. So to park a vehicle one has to look for all the lanes. Moreover this involves a lot of manual labour and investment. Instead of a vehicle caught in towing the vehicle can park on safe and security with low cost. These features are hereby very necessary nowadays to secure your car and also to evaluate the fee structure for every vehicle's entry and exit.

1.1 Purpose

The main aim is to establish possible solutions to improve on the current vehicle parking system. Instead of a manual record book ,use an online system vehicle parking system. To make a good research about people’s parks and gather all necessary information. Creating and designing the new parking management system.

1.2 Scope

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 details of vehicles to give the facility. These systems might be computerized or non-computerized. With the help of a computerized system we can deliver a good service to customers who want to park their vehicle into any organization's premises.

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

1.3 Definition, Abbreviations

- People have challenges concerning its safety of data in the store since they currently use paper based system,physical struggle for parking by drivers, wastage of time,congestion and collision. There was also a problem of monitoring the data of incoming and outgoing vehicle.

- Now a days in parking like vallet parking they maintain just with the tokens and they have records the vehicle details in books so that during some critical situations like police enquiry of terrorist car or vehicle roberrer that case it is difficult to find the details of particular vehicle but in this case is easy to find in 1 to 2 seconds

- By parking the vehicle in public place the vehicle can be claimed by towing person but in this case there is no towing problems and no need to give fine for anything we can park our vehicle with securely

Abbreviations Used -

PMS – Parking Management System

ISO- International Standards Organization

WWW -World Wide Web

HTML – Hypertext Markup language

SQL - Structural Query Language

CSS-Cascading Style Sheets

DBMS-Database Management System

GUI -Graphical User Interface

HTTP-Hypertext transfer protocol

JDBC-Java Database Connection

JSP – Java Sevlet Pages

1.4 Developers' Responsibilities: An Overview

- Perform project design and development activities according to customer specifications.
- Work with team in developing project plan, budget and schedule.
- Coordinate with management in preparing project proposals and contractual documents.
- Track project progress regularly and develop status reports to management.
- Ensure that project is completed within allotted budget and timelines.
- Follow company policies and safety regulations for operational efficiency.
- Research and recommend new technologies to carry out project development tasks.
- Provide assistance to other Developers, perform peer reviews and provide feedback for improvements.
- Develop cost reduction initiatives while maintaining quality and productivity.

General Description

2.1 Product Function Perspective

This parking management system contributes to stakeholders and user organizations by keeping their parking spaces more efficient and smooth functioning.

If the parking space is full, the system will notify the authorities about it and hence will save time.

Also, it will help the user know about how many vehicles are parked already and how many more can be accommodated.

The system is storing all the information related to all vehicles, so it will help to maintain records in case of some issues.

2.2 User Characteristics.

The users using this system would require a quick-response output on the parking update as when new vehicles are coming in, the system should immediately tell about the vacancy to reduce the waiting time.

The user would want a strong database which can store all data regarding the vehicles and their details.

The UI of this project must be user-friendly and easy to use without much complications.

The system should have a functionality of calculating the time the vehicle was parked for and calculate parking charges accordingly.

A comment and review section can be introduced to understand the experience of the users.

2.3 General Constraints

Constraints are the rules enforced on the data columns of a table. These are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the database.

The general constraints used in this project are:

1. DEFAULT Constraint − Provides a default value for a column when none is specified.
2. PRIMARY Key − Uniquely identifies each row/record in a database table.
3. FOREIGN Key − Uniquely identifies a row/record in any of the given database table.
4. NOT NULL Constraint − Ensures that a column cannot have NULL value.
5. Database: The database management system used is Mysql and is an RDBMS.
6. This is a web based application.

2.4 Assumptions and Dependencies

1. The organisation has enough trained members to use the system.
2. The stakeholder has enough computers to support this application for efficient usage.
3. The project depends on jsp pages and bootstrap for frontend and java and Mysql database in the backend.

3. Specific Requirements

3.1 Inputs and Outputs

Inputs

The input design is the link between the information system and the user. The design of input focuses on controlling the amount of input required, controlling errors, avoiding delay, avoiding extra steps and keeping the process simple. The system needs the data regarding the name, email ID, address, vehicle details for various validation, checking, calculation and report generation.. The error raising method is also included in the software, which helps to raise error message while wrong entry of input is done.

Outputs

Computer output is the most important and direct information source to the user. Output design is a process that involves designing necessary outputs in the form of reports that should be given to the users according to the requirements. Efficient, intelligible output design should improve the system's relationship with the user and help in decision making. Since the reports are directing referred by the management for taking decisions and to draw conclusions they must be designed with almost care and the details in the reports must be simple, descriptive and clear to the user. So while designing output the following things are to be considered.

1.Determine what information to present
2.Arrange the presentation of information in an acceptable format
3.Decide how to distribute the output to intended receipts
4.Depending on the nature and future use of output required, they can be displayed on the monitor for immediate need and for obtaining the hardcopy.

3.2 Functional Requirements

- User need to enter all details for registration.
- User need to insert all details about vehicle.
- User need to save all the details of vehicle.
- User can retrieve the details .
- Admin need to enter credentials for login.
- Admin can retrieve the details of customer.
- The application displays the availability of parking slot
- The application enables users to cancel a parking place.

3.3 Functional Interface Requirements

- The designed system should have little or no down time. It should always be up and running.
- The system should have a fast response time. System should not take more than 30 seconds minus loading
- The system should be secure. User should fill in his/her username and password so as to be authenticated to the system.
- The system should be scalable. Even with an increasing number of users, system should be able to perform effectively.
- The system should be user friendly with ability to show users where they are in the system and guide them on some processes through programmed controls.
- The system should be reliable. In case of system failure, the system should be able to recover quickly and continue working normally.

3.4 Design Constraints

This software provides security.The login form prevents the system from being misused by unauthorized users. Only an authorized operator will be granted rights to modify as per requirements. This software is also reliable and fault tolerant.The system developed is designed to handle invalid inputs. Since reliability is major area of concern the system has a backup to avoid data loss.

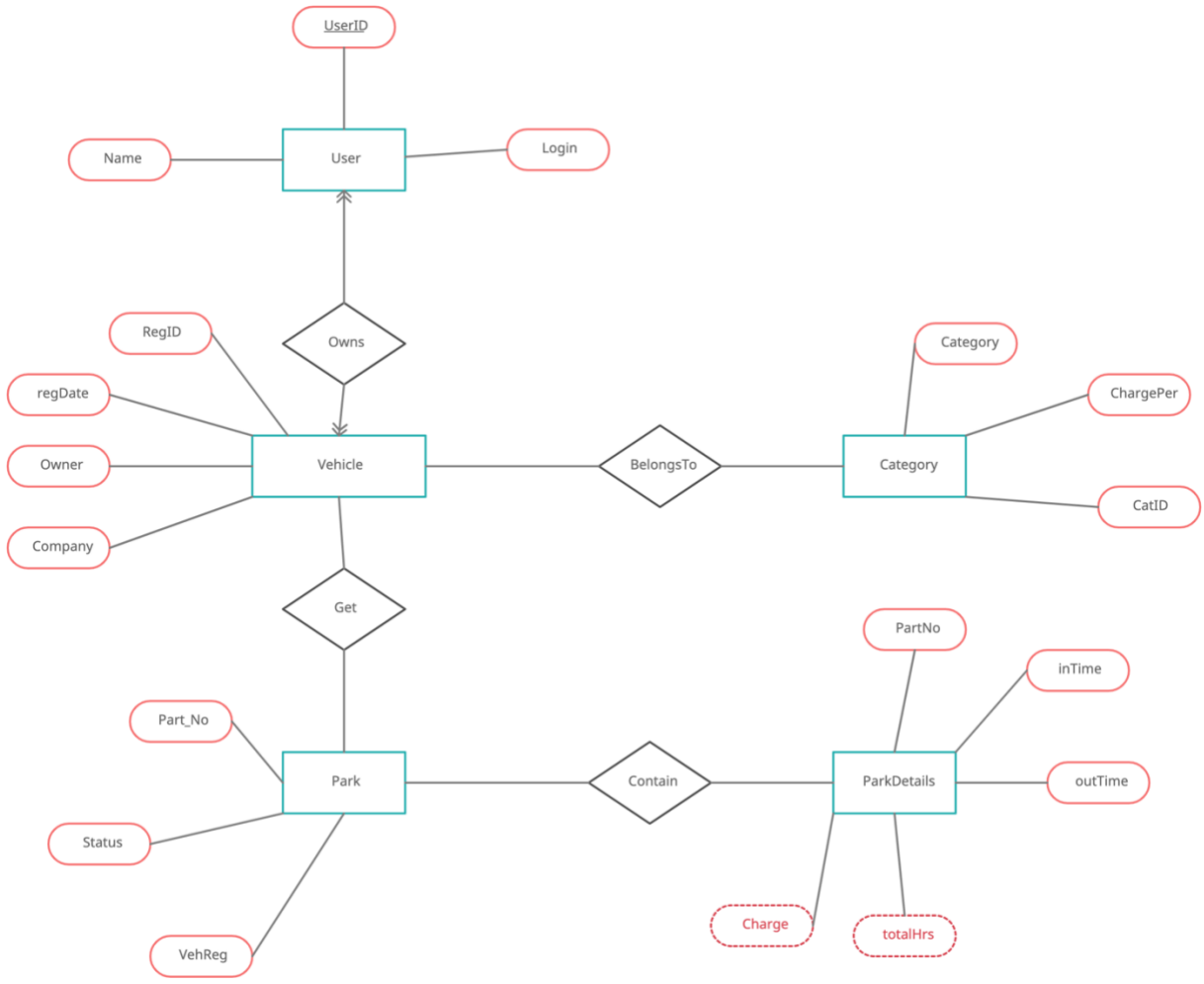
3.5 Acceptance criteria

- User can Login or registered.
- Admin can Login.
- User profile is visible to admin
- Admin profile is only visible to admin
- User can make changes in profile
- User can download report
- Parking details of Users are displayed
- Vacancy of parking slots are Displayed

4. System Design

The system has been designed understanding the fundamentals of Parking management. The Schema and Tables have been designed after studying the flow in the design phase. Details of the same have been mentioned below.

4.1 ER Model



4.2 Schema Description

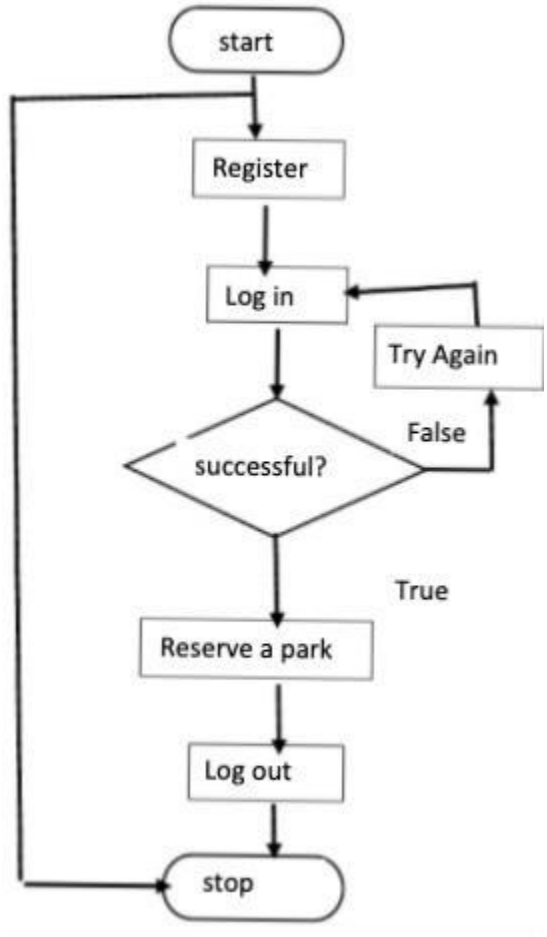
In our PMS we have one Schema called Vehicles. Under Vehicles we have many Tables , View and Triggers.

4.3 Tables Description

The Database has the Following Tables:

- User
- Category
- Status
- Park
- Park Details

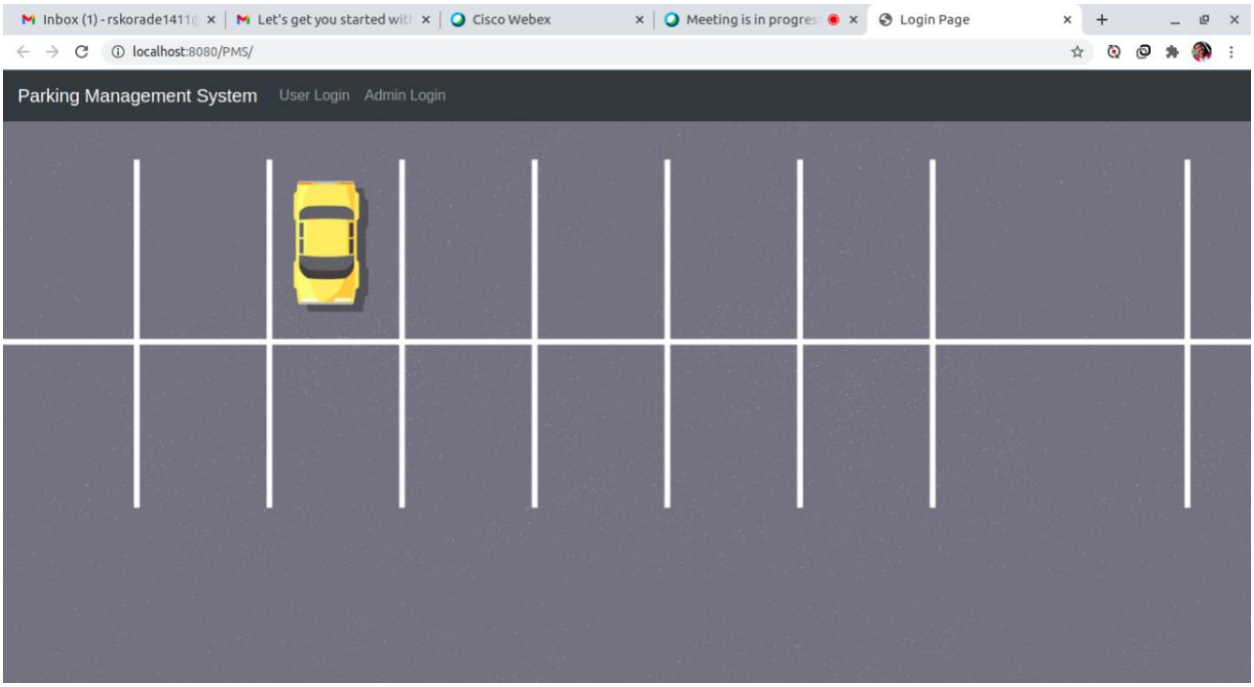
4.4 System Flow chart / Activity diagram



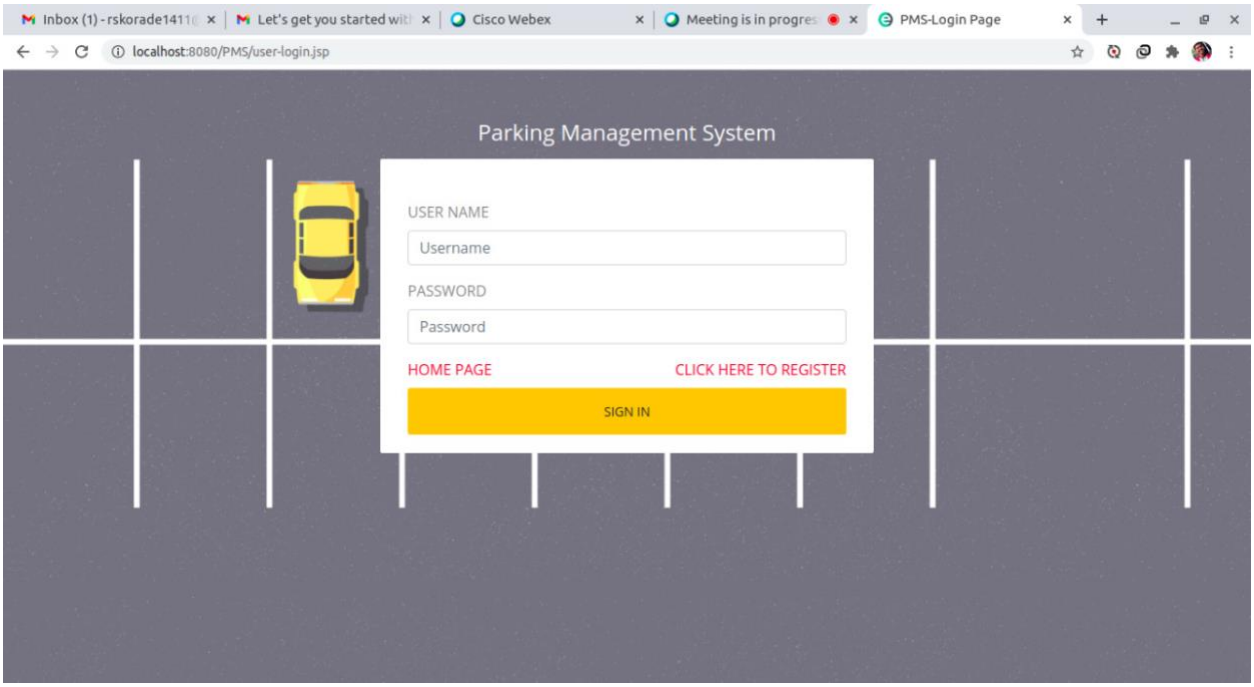
The figure above shows the Flowchart for the Client.

4.5 User Interface Design

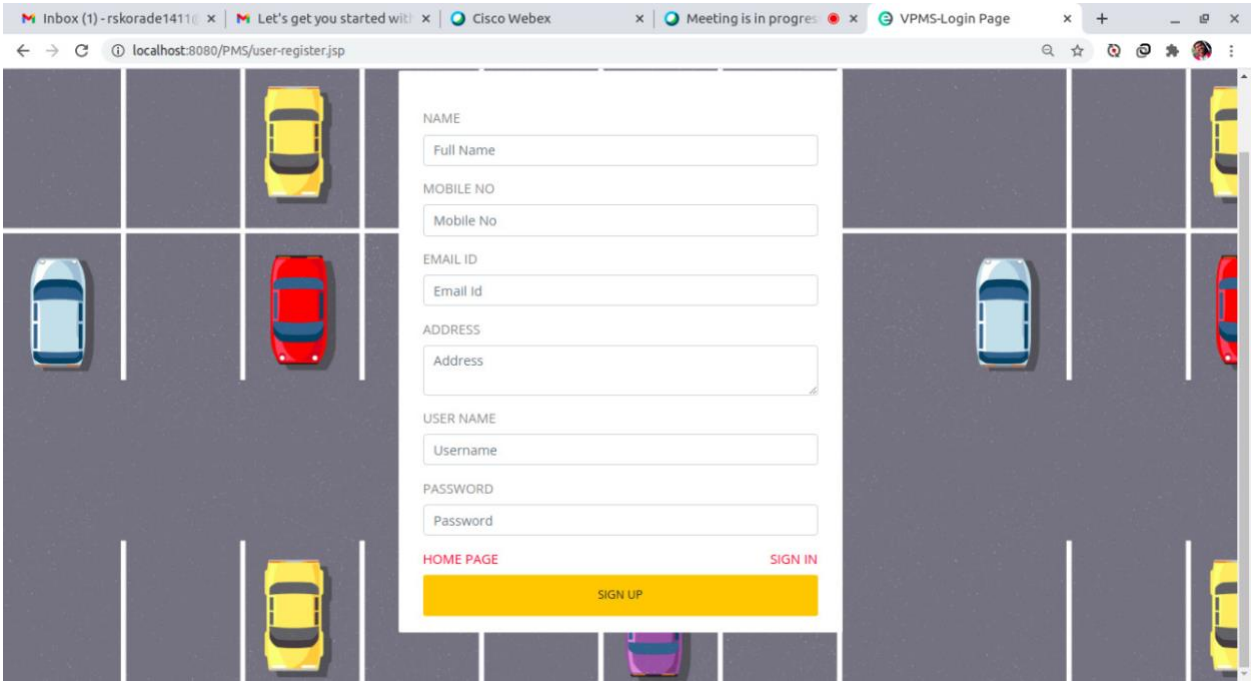
Landing Page:



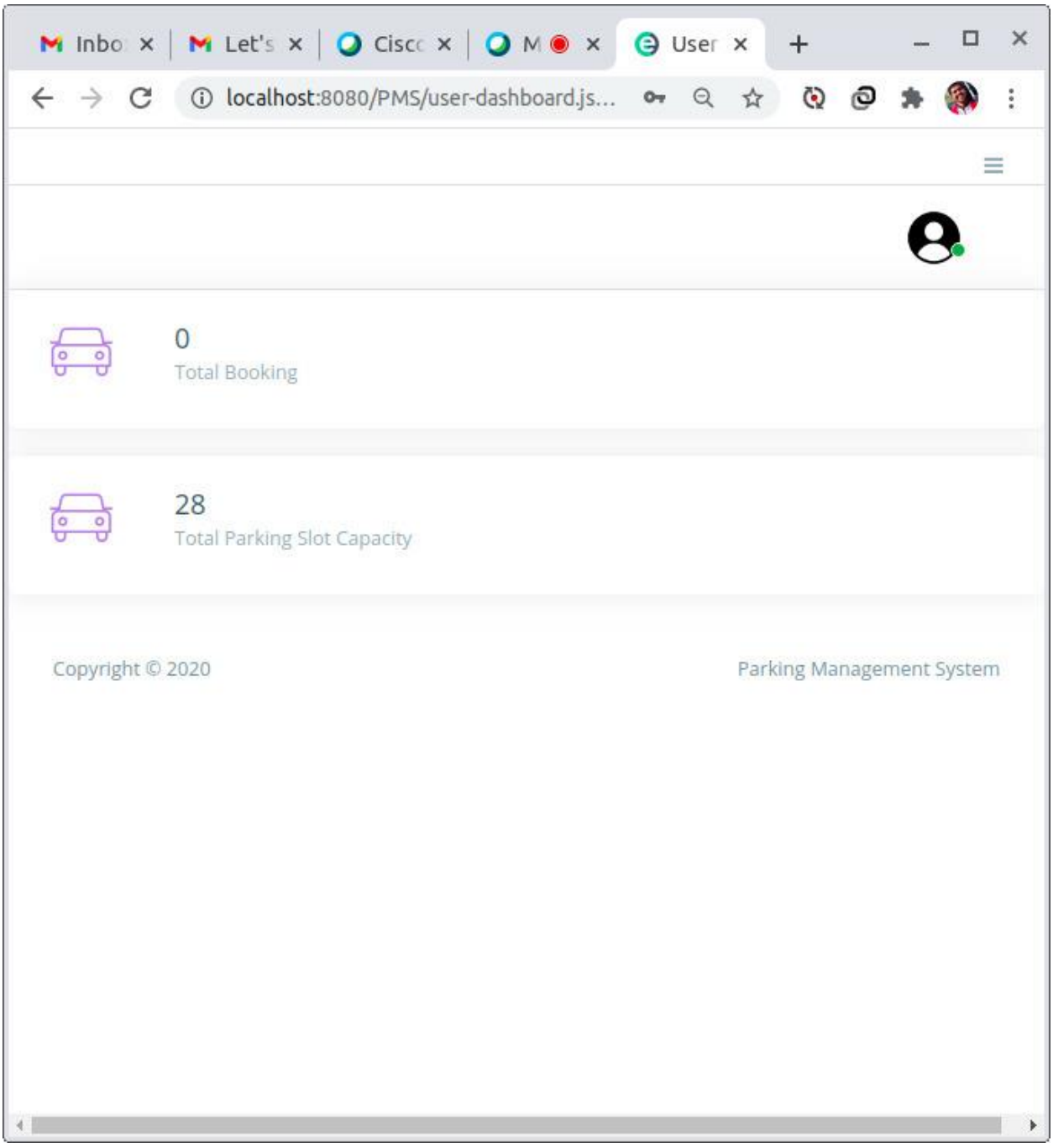
Login Page:



Registration Page:



Dashboard:


localhost:8080/PMS/user-dashboard.js...
0
Total Booking
28
Total Parking Slot Capacity
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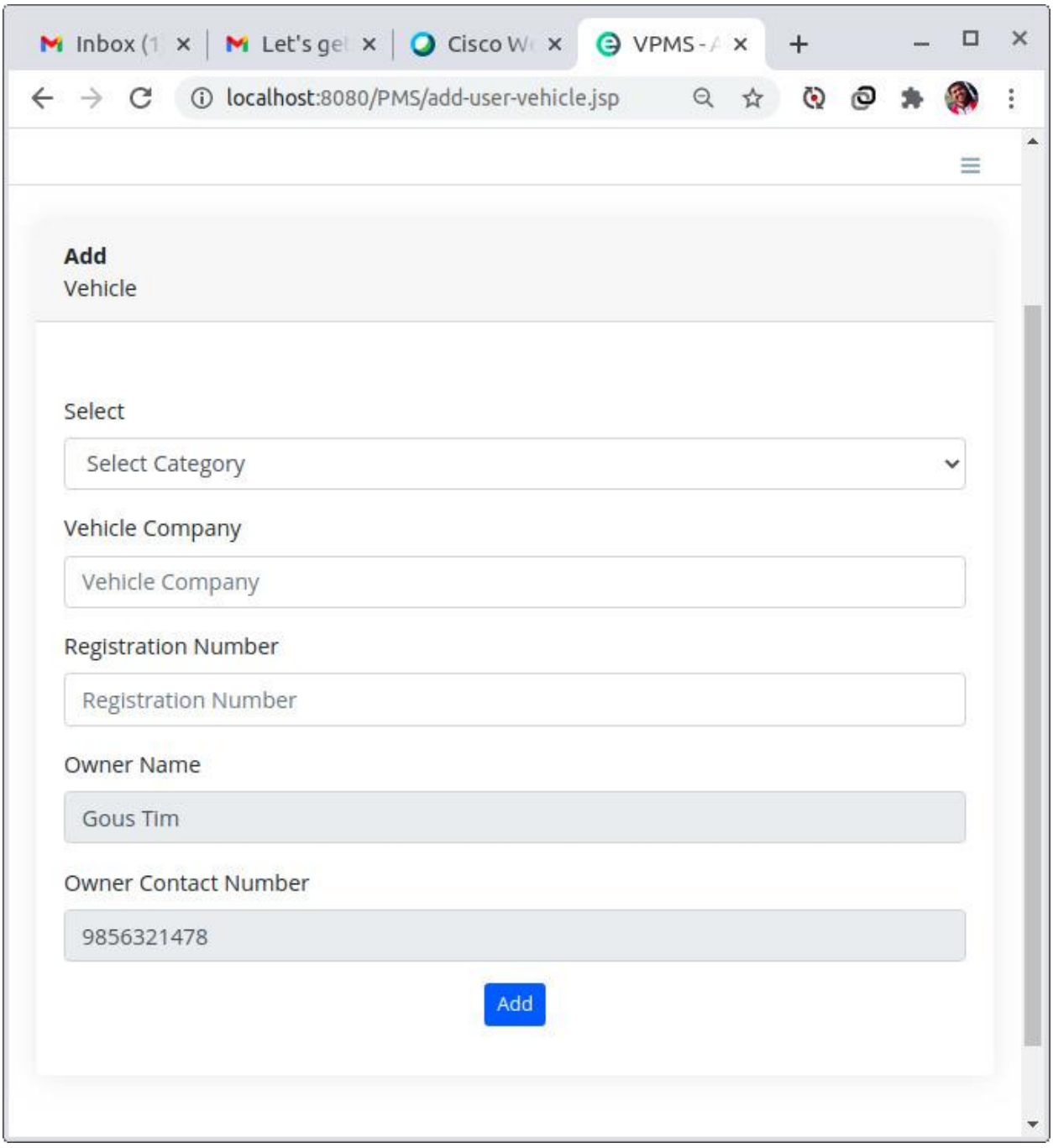
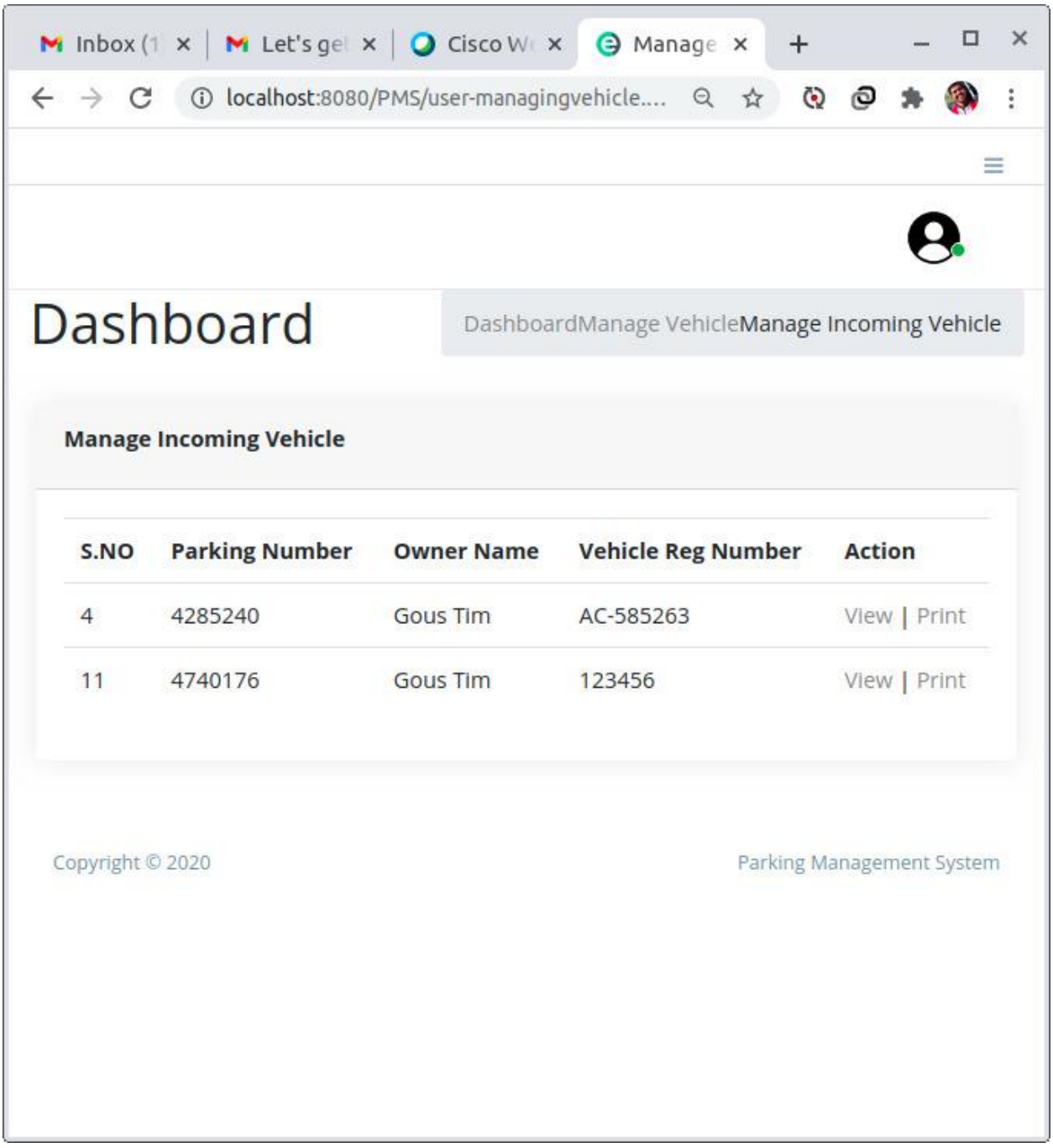
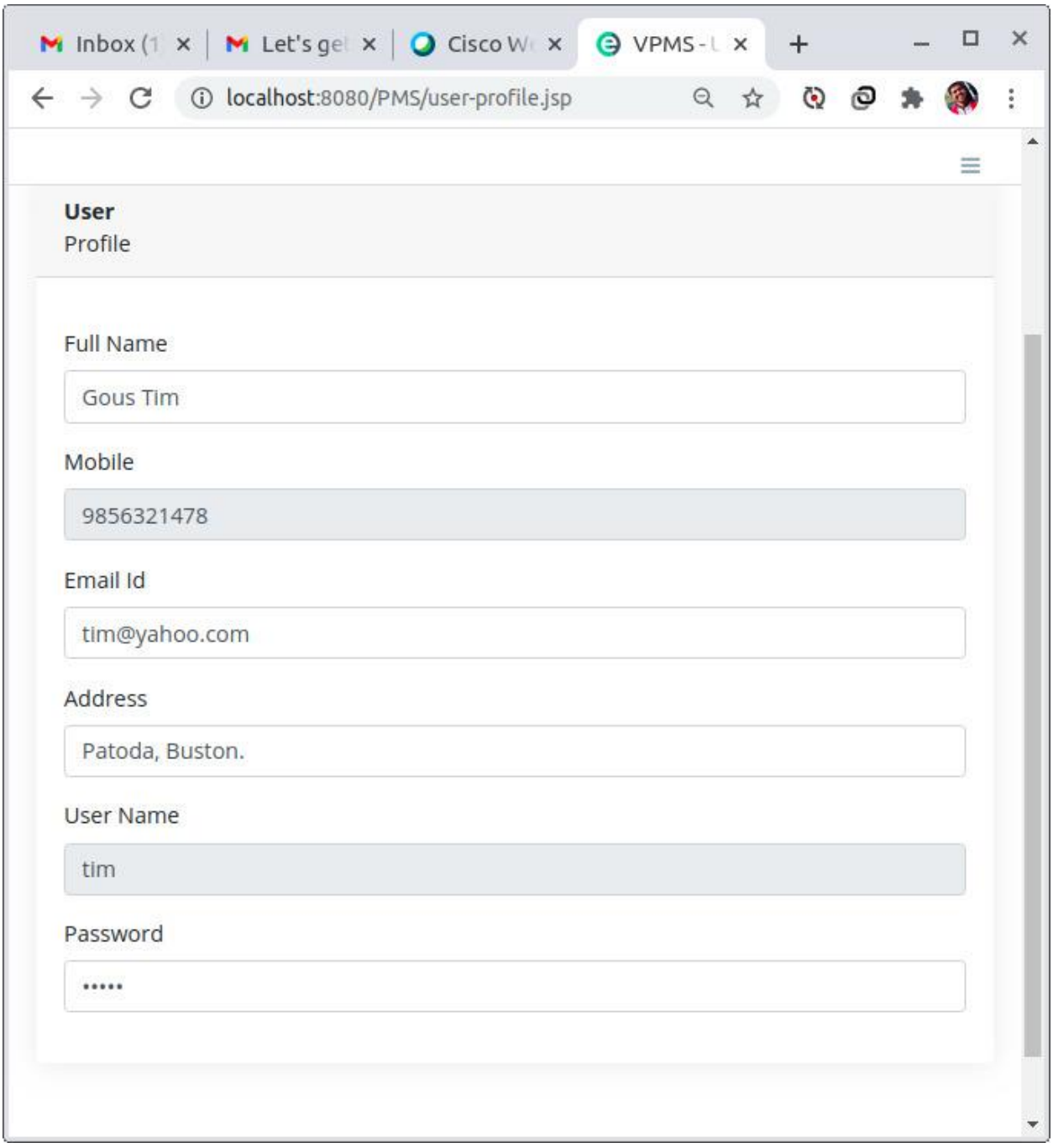
Park Vehicle:



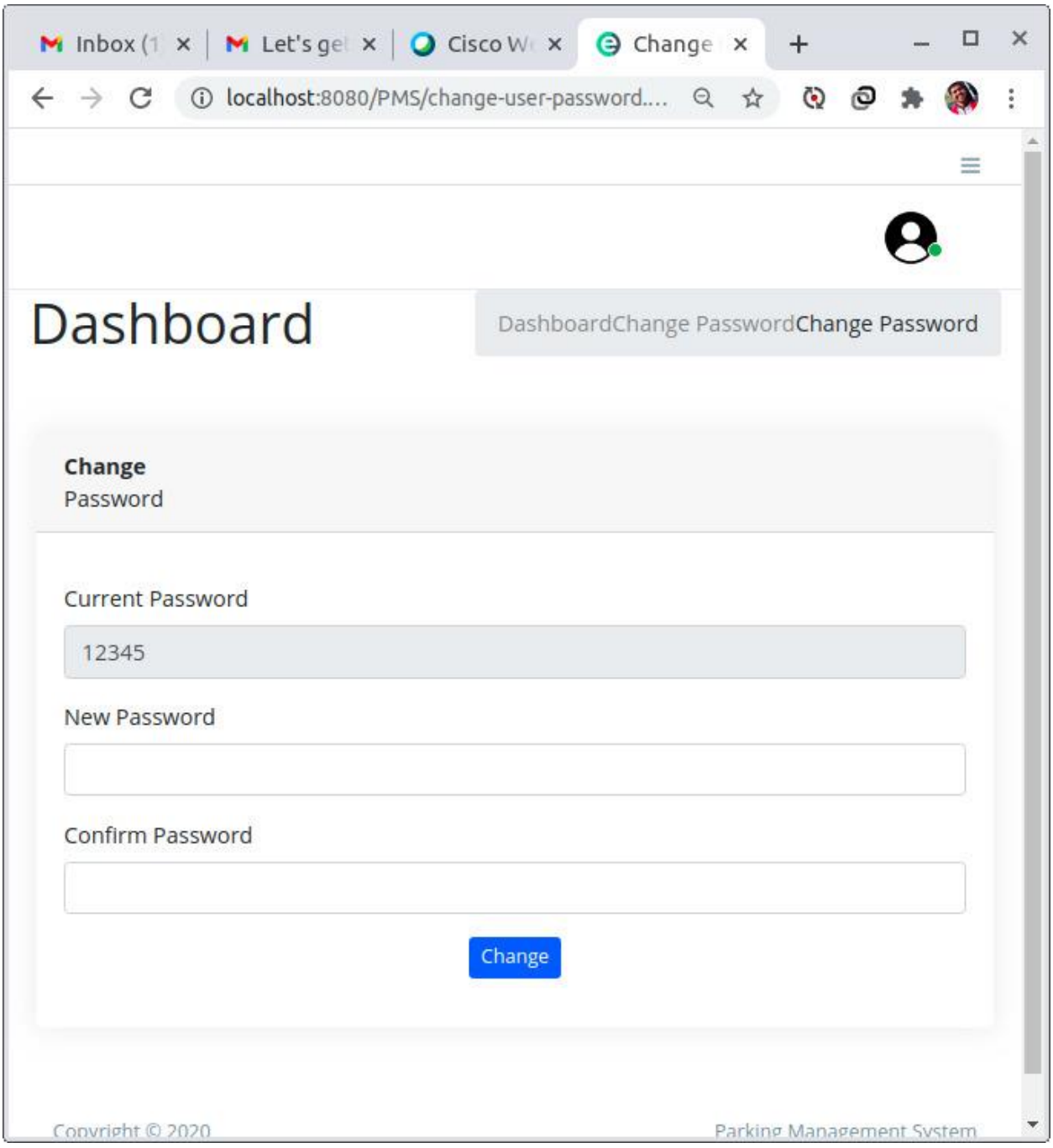
Parking Details:



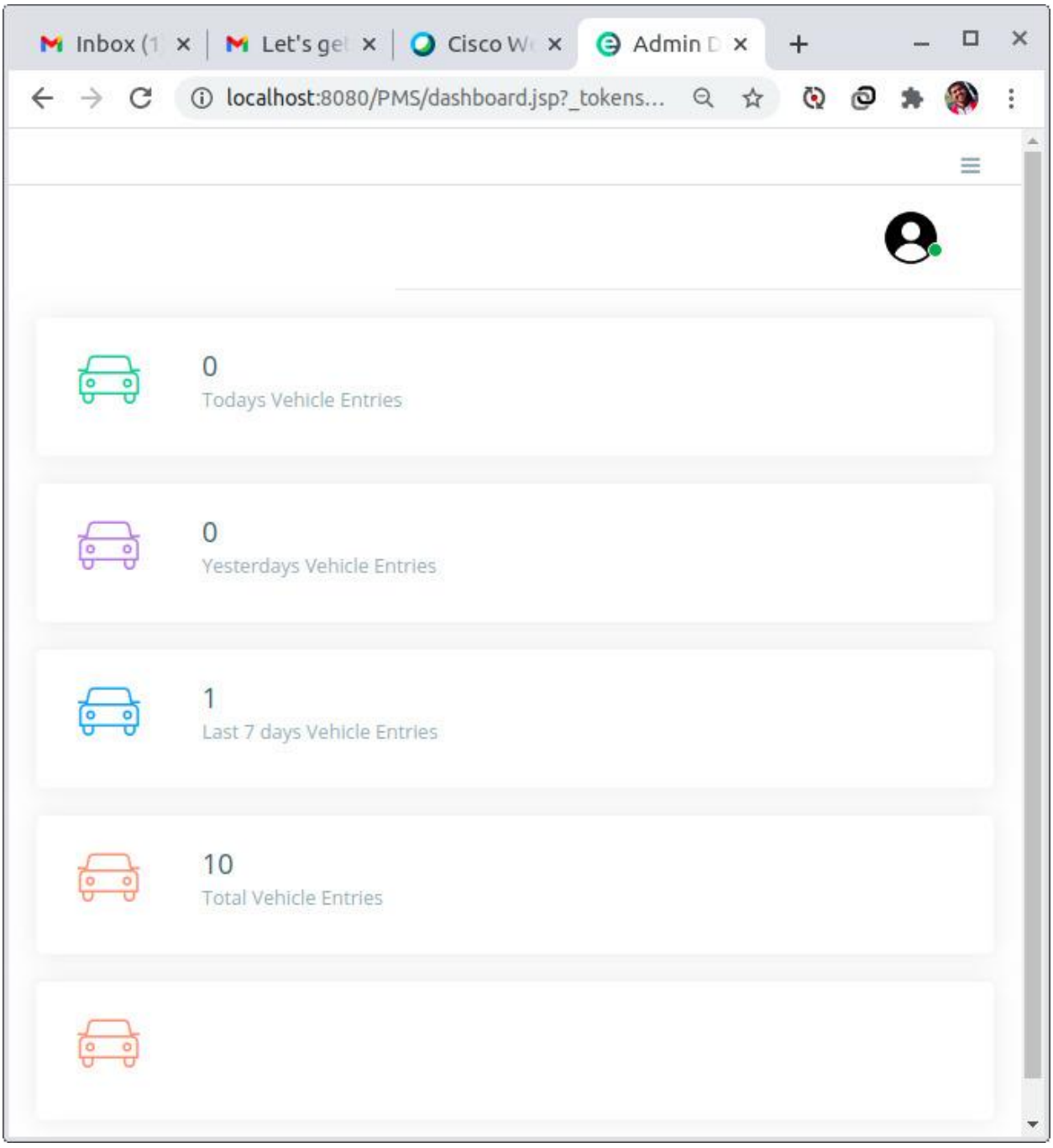
User Profile:



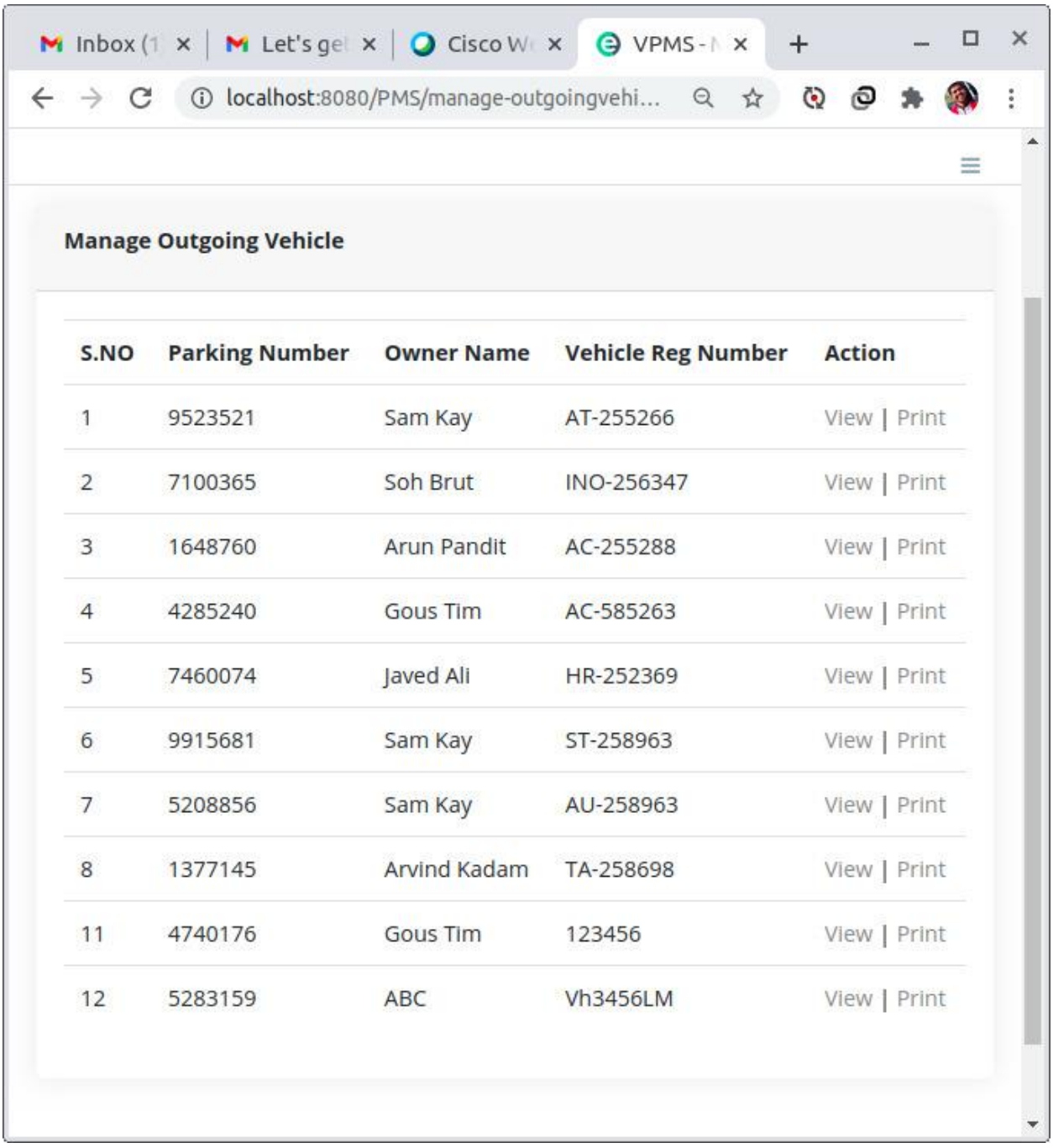
Change Password:



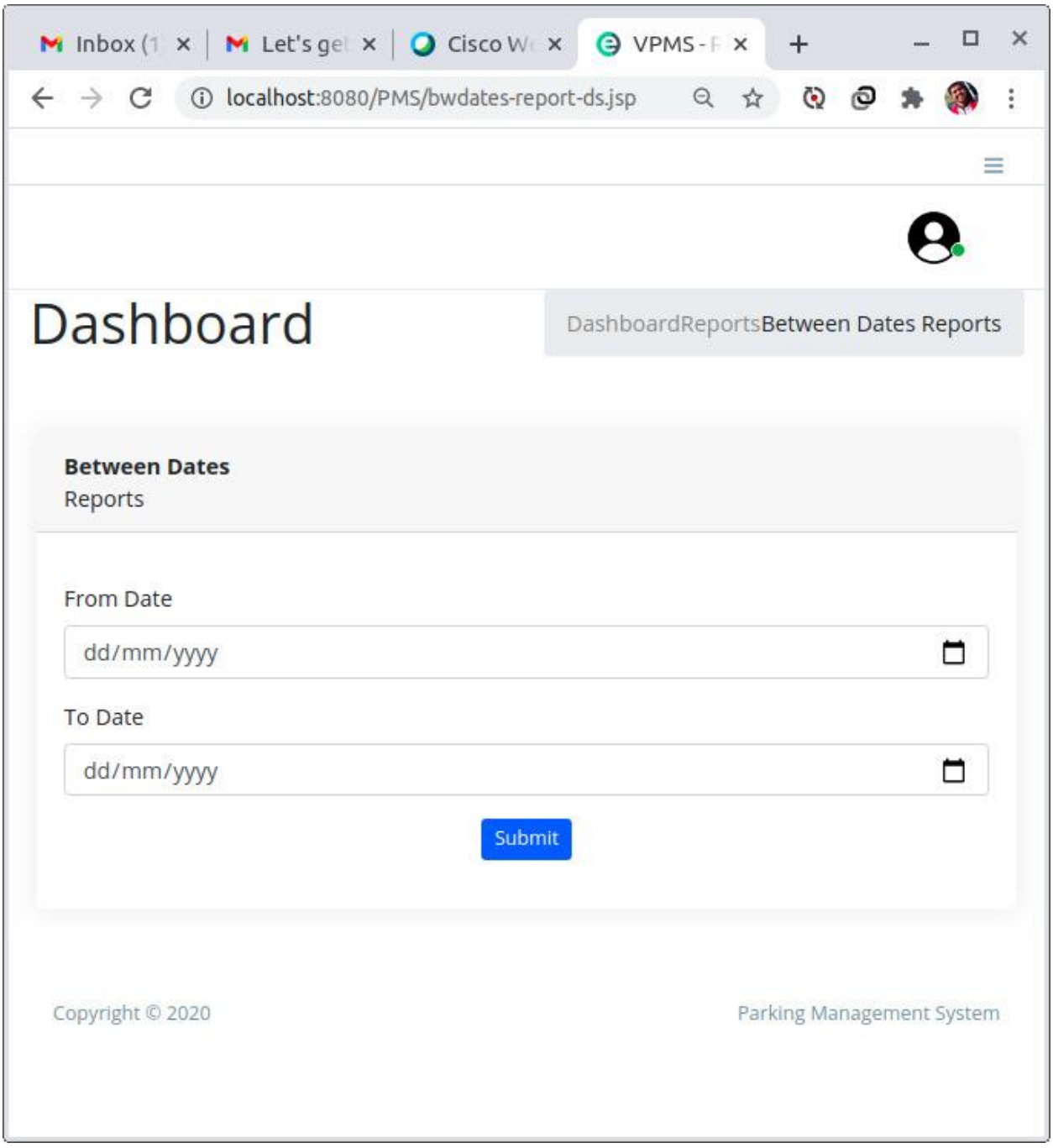
Admin Dashboard:



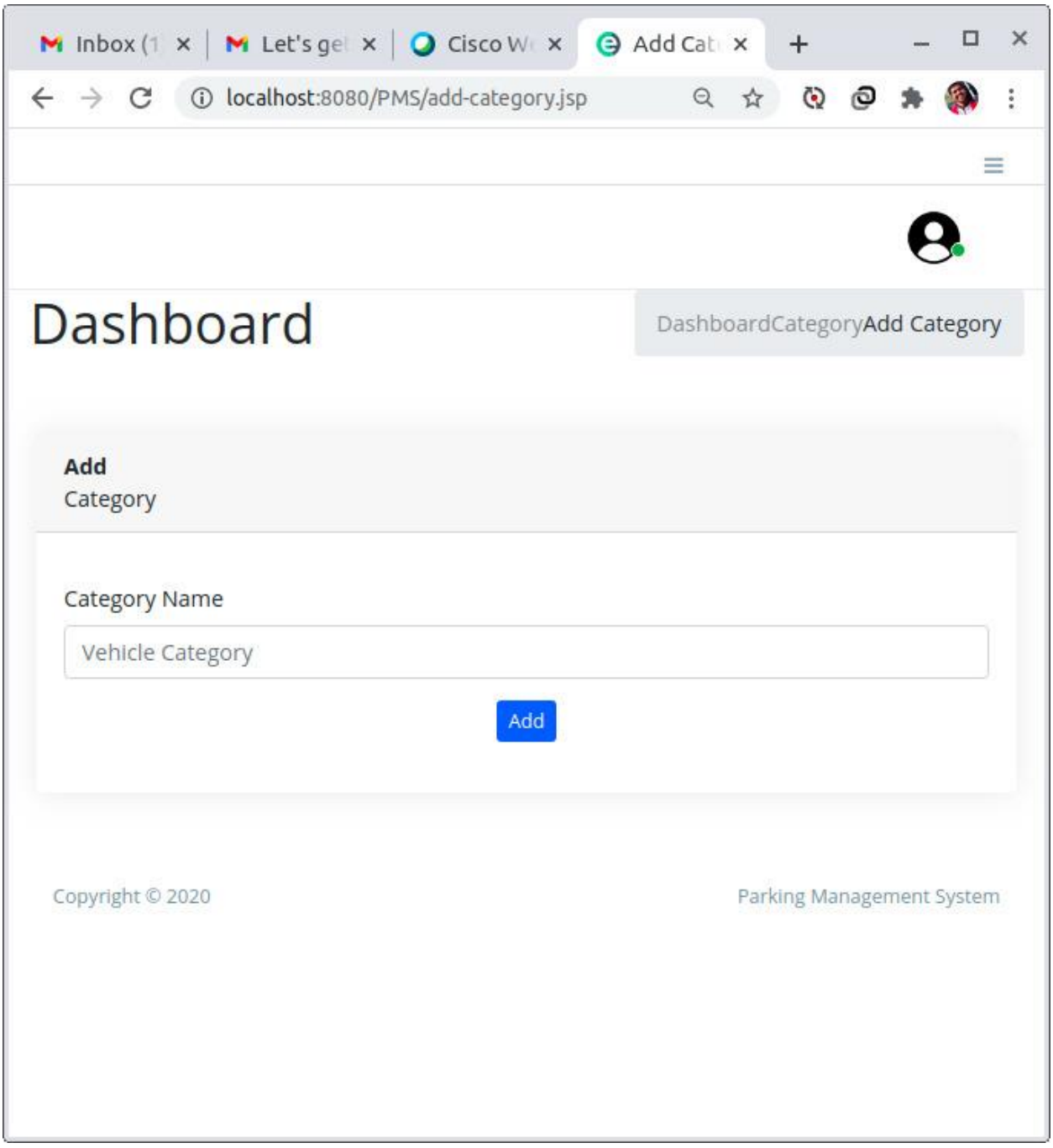
Vehicles List:



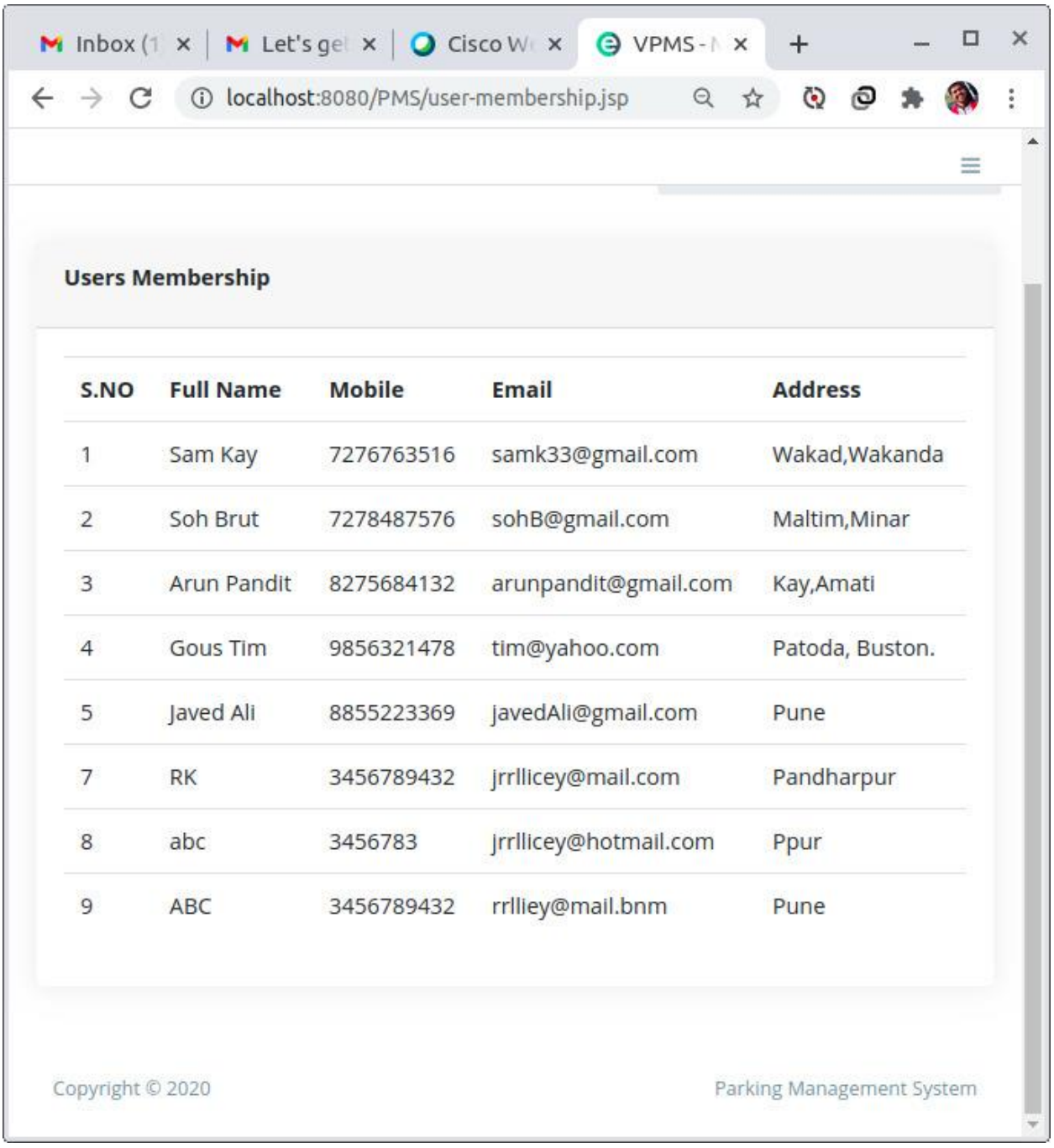
See Reports of Dates:



Add Category:



All Users:


Inbox (1
Let's ge
Cisco W
VPMS - M
localhost:8080/PMS/user-membership.jsp
Users Membership
S.NO Full Name Mobile Email Address
1 Sam Kay 7276763516 samk33@gmail.com Wakad,Wakanda
2 Soh Brut 7278487576 sohB@gmail.com Maltim,Minar
3 Arun Pandit 8275684132 arunpandit@gmail.com Kay,Amati
4 Gous Tim 9856321478 tim@yahoo.com Patoda, Buston.
5 Javed Ali 8855223369 javedAli@gmail.com Pune
7 RK 3456789432 jrrllicey@mail.com Pandharpur
8 abc 3456783 jrrllicey@hotmail.com Ppur
9 ABC 3456789432 rrlliey@mail.bnm Pune
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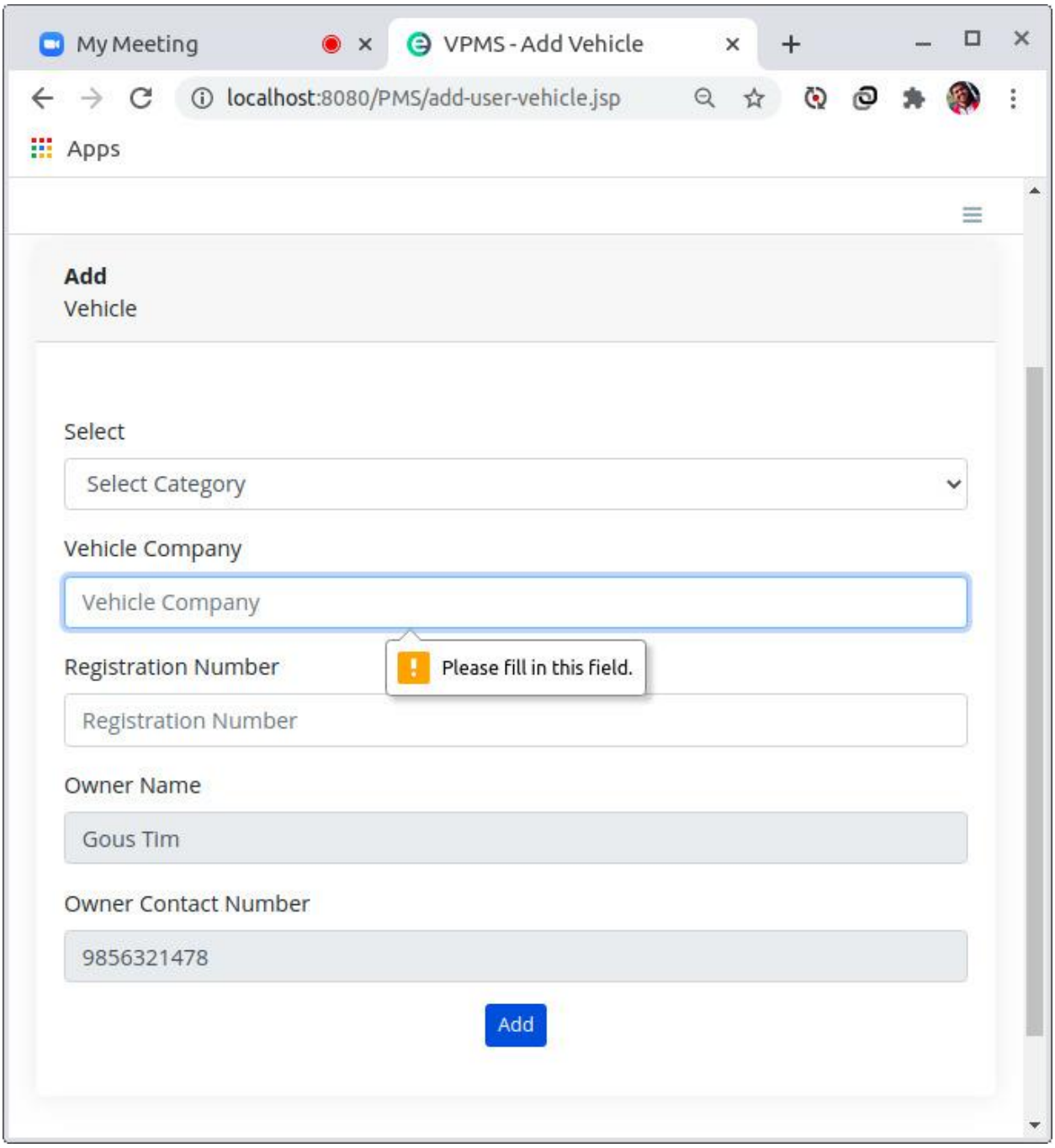
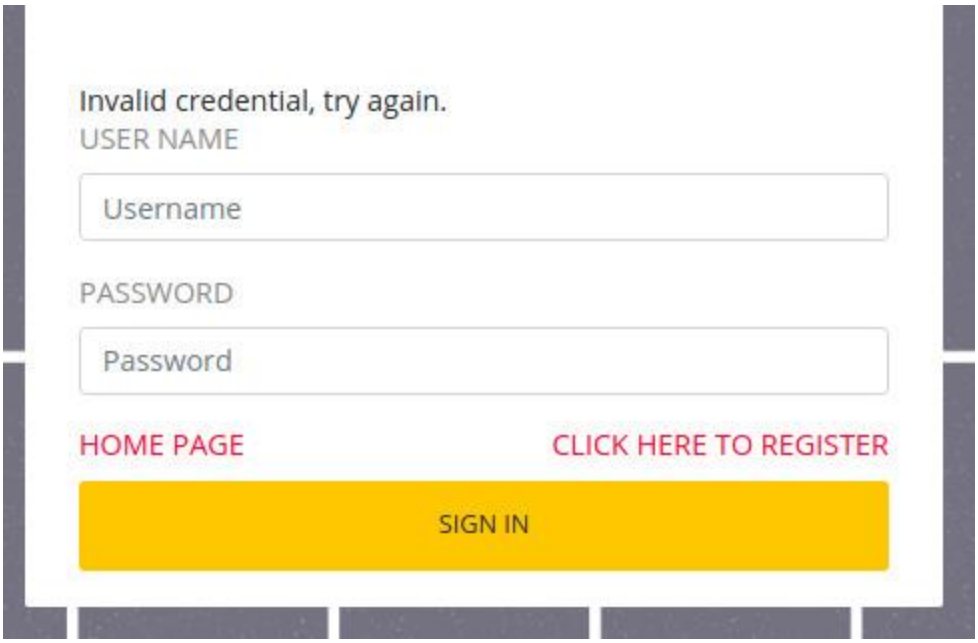
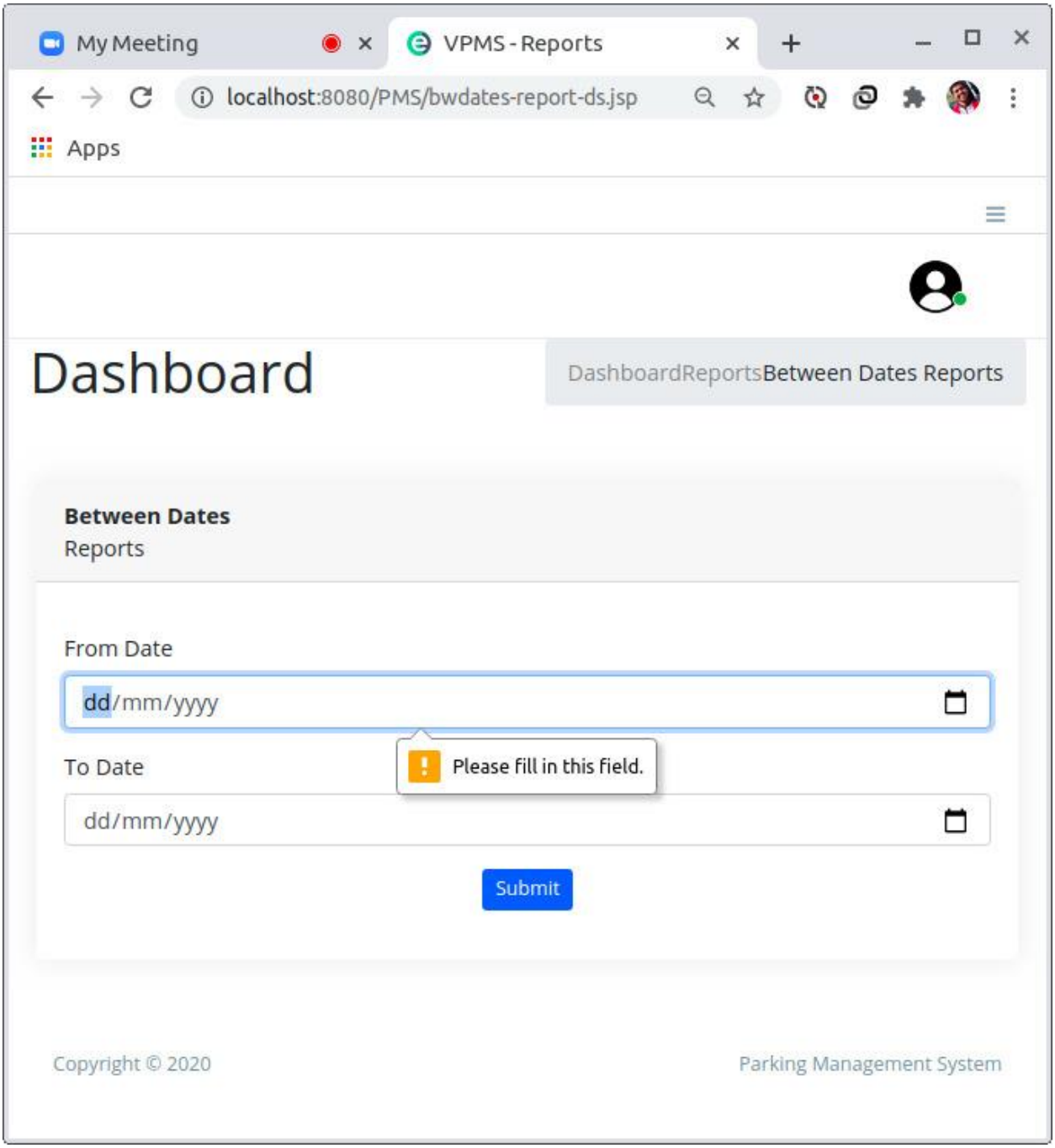
4.6 Error Messages / Alerts Design




Invalid credential, try again.
USER NAME
Username
PASSWORD
Password
HOME PAGE
CLICK HERE TO REGISTER
SIGN IN


My Meeting
VPMS - Reports
localhost:8080/PMS/bwdates-report-ds.jsp
Apps
Dashboard
DashboardReportsBetween Dates Reports
Between Dates
Reports
From Date
dd/mm/yyyy
Please fill in this field.
To Date
dd/mm/yyyy
Submit
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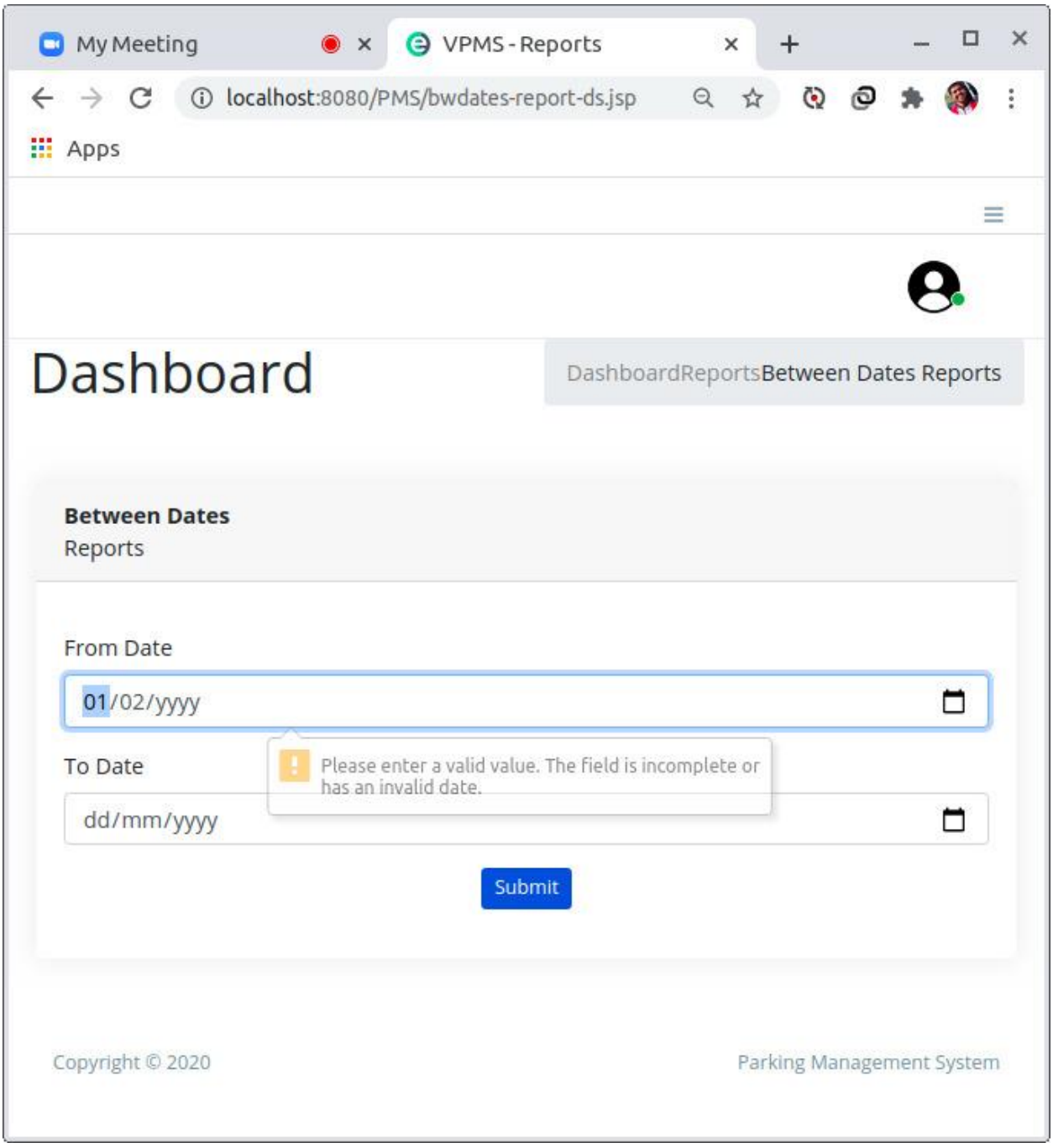
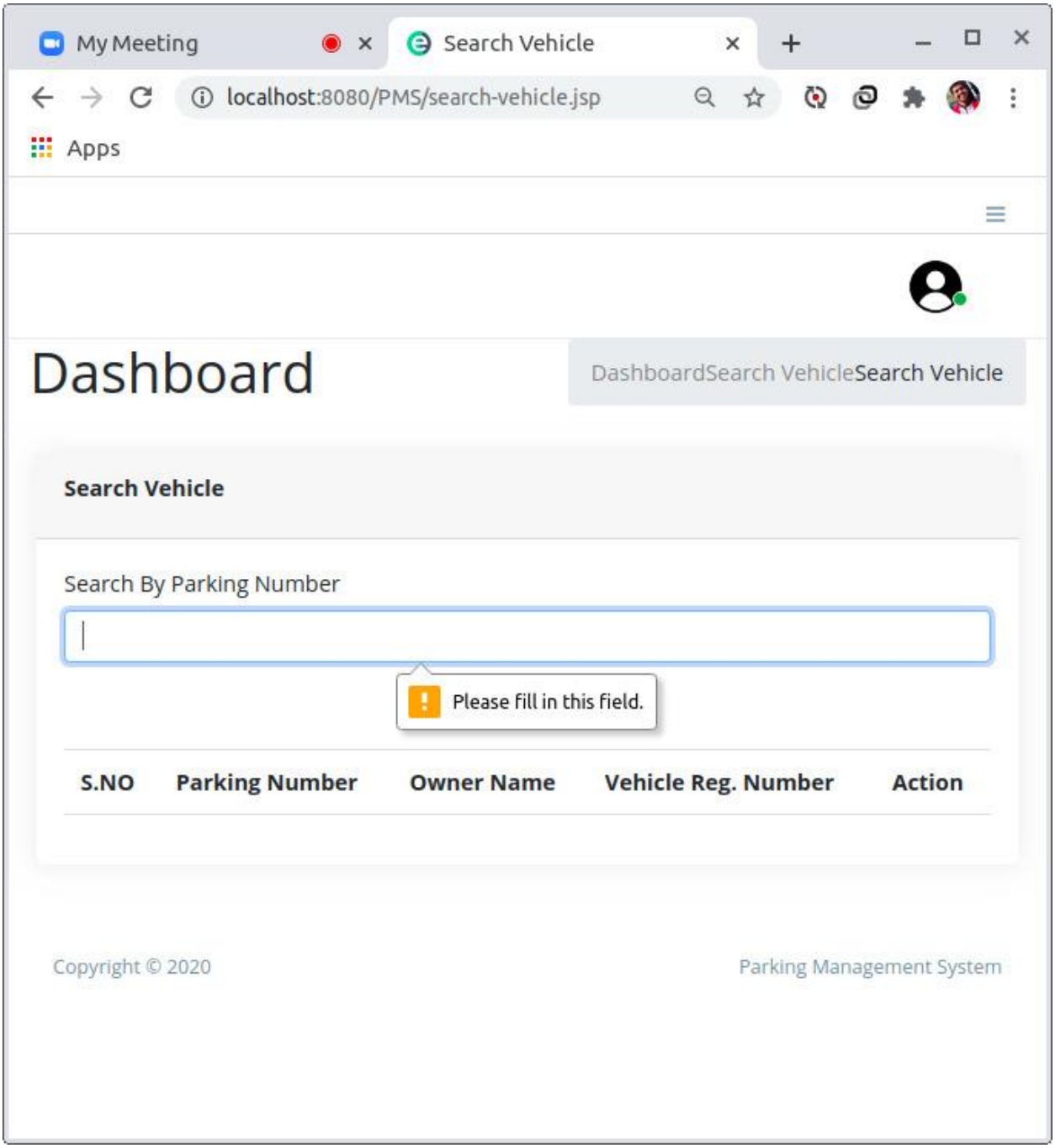
Data Validataion




My Meeting
Search Vehicle
localhost:8080/PMS/search-vehicle.jsp
Apps
Dashboard
DashboardSearch VehicleSearch Vehicle
Search Vehicle
Search By Parking Number
Please fill in this field.
S.NO
Parking Number
Owner Name
Vehicle Reg. Number
Action
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5. System Implementation

5.1 Hardware and Software Platform description

The system requires basic hardware (Available on all devices) and Software to run. The requirements have been added below:

Software	Minimum requirement
Operating System for computer	Window 7 windows 8.1,Linux,Mac Os ,Windows 8,windows xp
Database Management System	MySql
Browser	Opera,Google Chrome,IE,Mozilla Firefox

5.2 Tools used

- **MySQL**
- **Java**
- **JSP**
- **JDBC Driver**
- **Servlet**
- **HTML**
- **CSS**
- **Bootstrap**
- **Apache Tomcat v8.5**

5.3 System Verification and Testing (Test Case Execution)

Cross browser testing was done by the researcher to ensure that the web application looks the same in major browsers that is Google chrome, Mozilla Firefox, Opera and Internet explorer.
The web project is consistent (looks exactly the same) in Google chrome, Mozilla Firefox and Opera but the looks vary slightly in internet explorer.

5.4 Future work / Extension

As we proceed, many features can be added to the project. One of them would be to automate the system by having camera capture the vehicle details and store them in the database. An automated system would be more accurate and efficentto work with. But for all those things to happen, step one is to check is customers want a product like this and what is actually required in the real world.

5.5 Conclusion

Online vehicle parking reservation system improves the existing system since we are in computerized world. With this new system as mandatory, it enables the user of the system (client, employee, System administrator) to reserve a parking lot online and this reduces the wasting of time of the clients looking for where to park, increase the safety of the property since the parking lot is numbering.

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https://www.researchgate.net/publication/330242183_A_Novel_Parking_Management_System_for_Smart_Cities_to_save_Fuel_Time_and_Money

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