INFORMATION TECHNOLOGY UNIVERSITY

Parking Management System

Semester Project

For

Database Management System (CE302)

Complex Engineering Problem Report

Presented By:

Akif Ejaz	BSCE 19042
Aatir Nadeem	BSCE19002

Table of Contents

1. Introduction

In this project we have build a simple system that keep track of vehicles for a particular parking place. From registering the user to storing its information in database, it is complete system that can be used easily and due to its friendly, attractive and user-friendly web application it becomes more simpler to use.

1.1 Motivation

In today's area, the parking management could be very hectic for someone as like let say in a parking, hundreds of cars come on daily basis. In that case it is important to have a nice simple system to store this huge data. So, using technology, our "Parking Management System" makes it easy to keep track of cars from the time they enter in parking to the time they leave. Businesses, government offices, public places, and municipalities in short everywhere this system could be very useful for handling the hundreds of vehicles at a time.

1.2 Problem Statement

The main goal in a parking management is to store the data of vehicles along with its owner (who is driving that to park). We also need to store the entrance time and the time of leave for every vehicle. That would help us calculate the fee per vehicle. There is also a need of something to interact with system, like we should have a simple GUI for the user and admin (parking owner) which would help both, user (at small level) and the admin (at full access) to interact with system.

2. Design

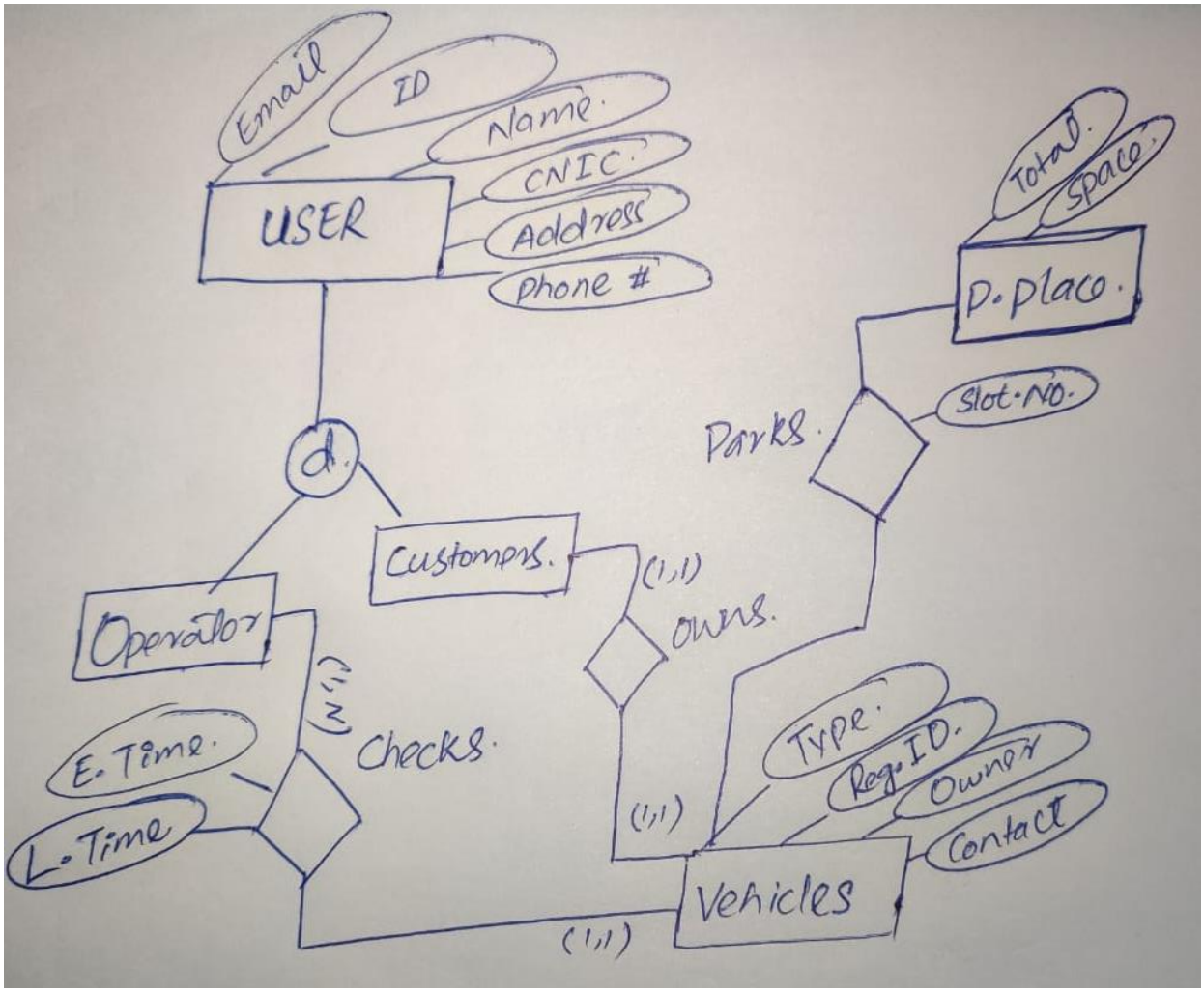
The design of this system includes the database (store the data of vehicles) and the GUI that would be for every user and admin to interact with system (parking management system).

2.1 Requirements Constraints, and Consideration

Assuming a scenario of having a parking place, what information could be there that is needed to be store? The basic requirement is, every vehicle we have to store the owner details and the time of vehicle entrance and time of leave. Based on this we are having this simple schema below which is explaining the attributes and relations for the attributes/identities. For each Vehicles, it should contain the information of its TYPE (it can be truck, car, bicycle etc.), Registration ID (it can be multivalued), Colour, Owner Details, Contact Number etc. All the vehicles are under a Parking Place with attributes a specific Parking Slot Place (a unique slot that is for that vehicle) and whenever vehicles enter in parking location it should note its Entrance Time and when it leaves should note Time at Which Left. There is Staff in each Parking Place, with attributes Name, CNIC, Address, Phone. It can also be called as Operator as he would be responsible for entering the vehicles coming to him at the gate of parking.

2.2 ERD / EERD

Based on the given scenario building simple relations and making a clear ERD (Entity Relation Diagram) to understand the system more.



3. Implementation

In this part we are building the system that we have designed so far, the technology used in this as, the database is MYSQL, the Server (localhost) is Used provided by Xamp. The Application (web application) is designed with the HTML, CSS and Javascript. For the Data Sending and Retrieval from Website PHP is used along with Xamp.

3.1 Code Implementation

The Code part of this system is divided into two parts, one is Web application which is Using HTML, CSS and JavaScript mainly for the GUI. The other part is that Database creation with MYSQL (Using its provided software). The First part is just creating a static website initially with three pages, Admin, User & Operator Pages. These pages are used for different purposes. For the second part we are creating the database which includes the identities as described above in the ER diagram. Which incudes the three main tables for User, Vehicle and Parking Place Information, other are used just for extra information. Using the DDL, DML of Database to create and implementing CRUD for Our System.

3.2 Results (Screenshots)

Page 1: User Login & User View

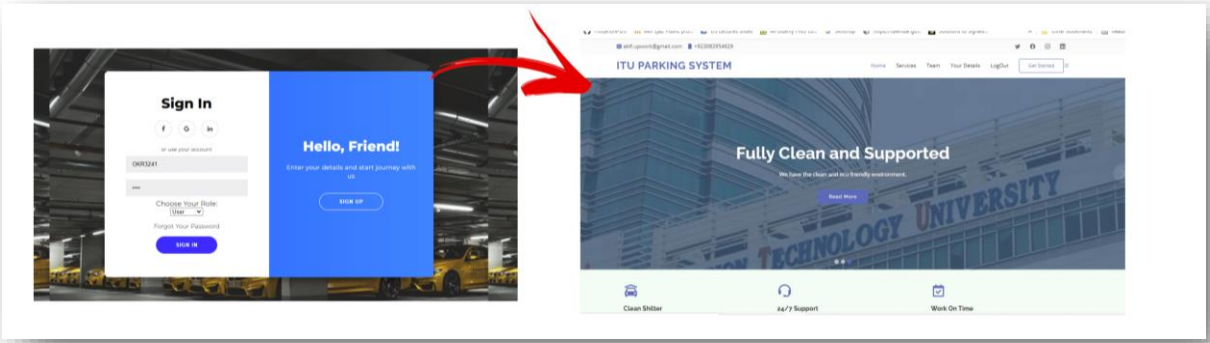


Figure 1: User Login & User View

Page 2: Admin Login & View

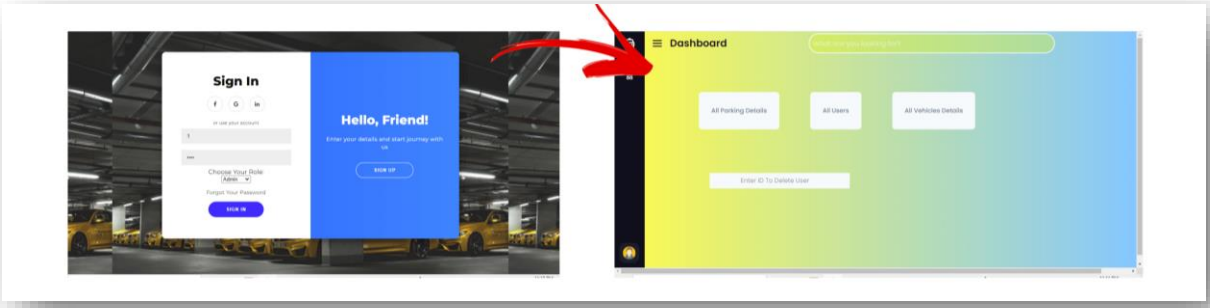


Figure 2: Admin Login & View

Page 3: Operator Login & View

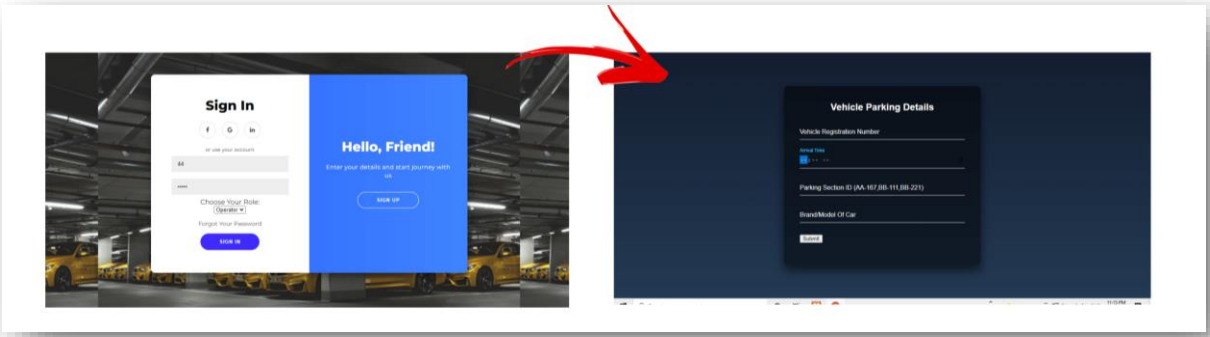


Figure 3: Operator Login & View

3.3 Analysis and Interpretation of Result

In this section lets try to run, a simple execution cycle like how in real life it will work. Starting from Creating a New User as, (**NOTE: Detail About Every Step Is in Caption**)

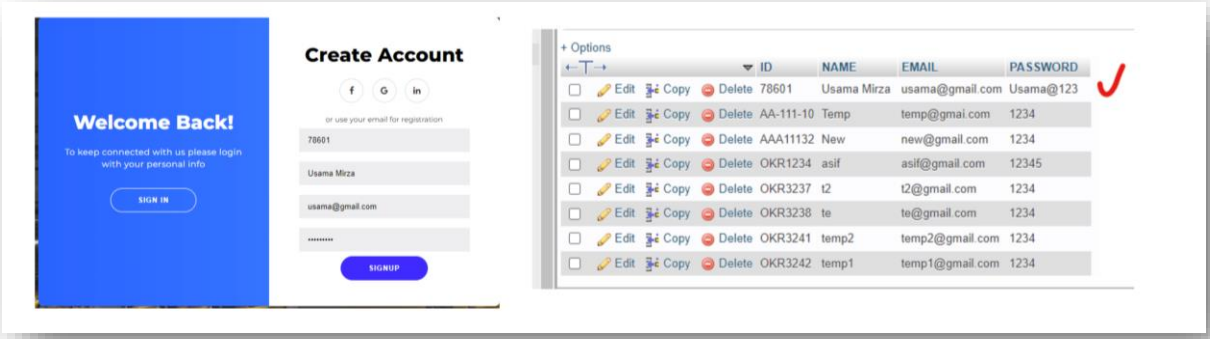


Figure 4: Creating New User and Showing results in DB

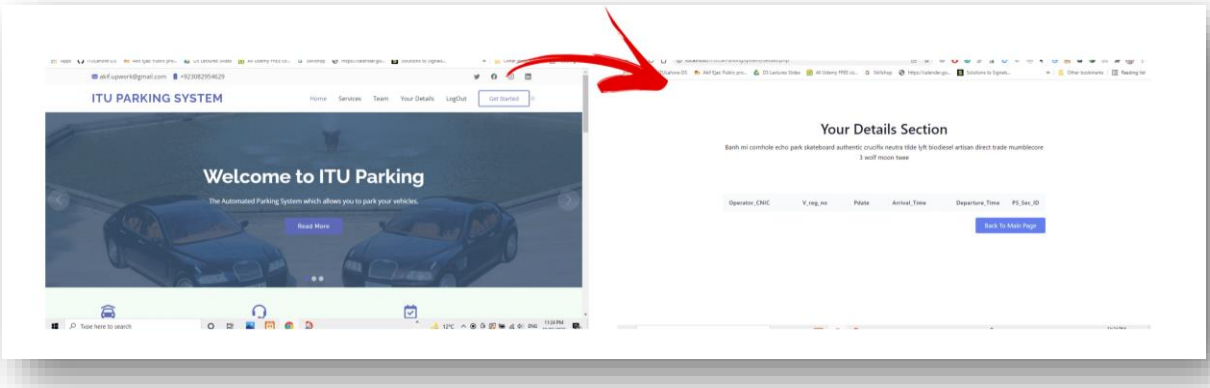


Figure 5: Login to Newly Created User, No Details Until Now (as just registered)

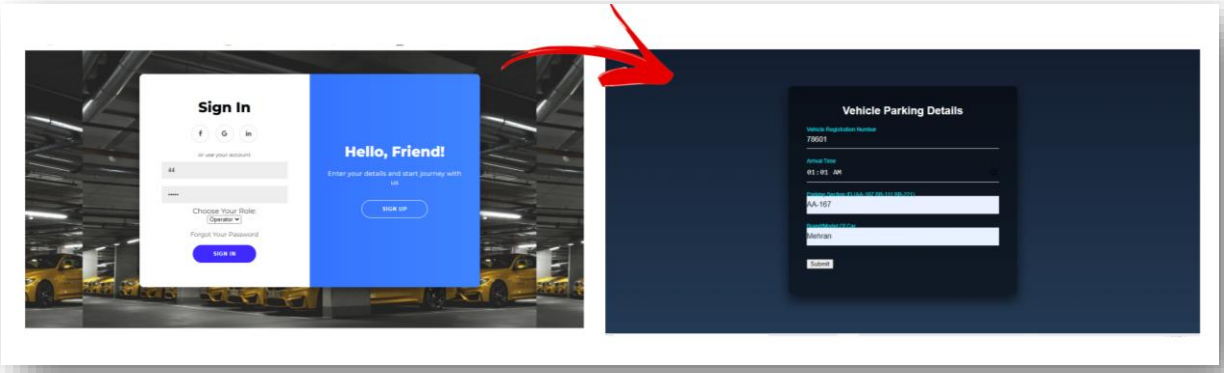


Figure 6: Operator Login & Adding Parking To newly created User by this Operator

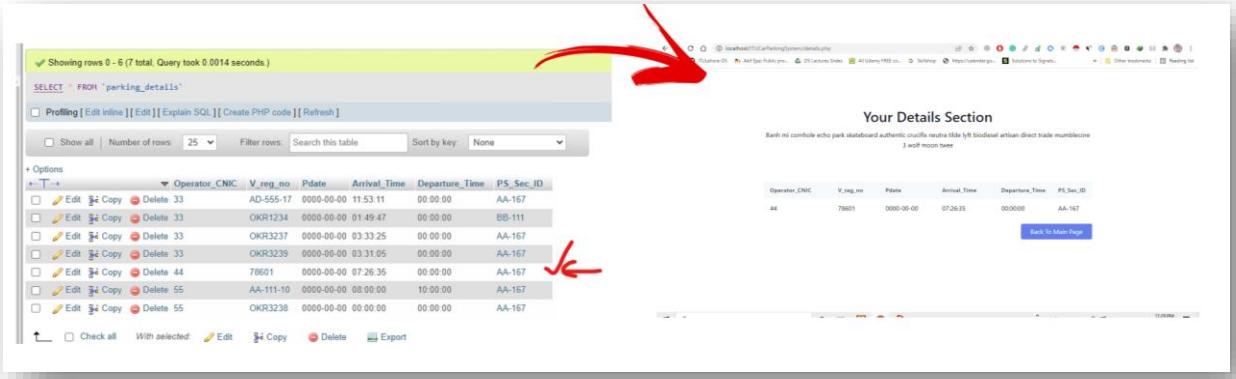


Figure 7: Showing Details for newly created User

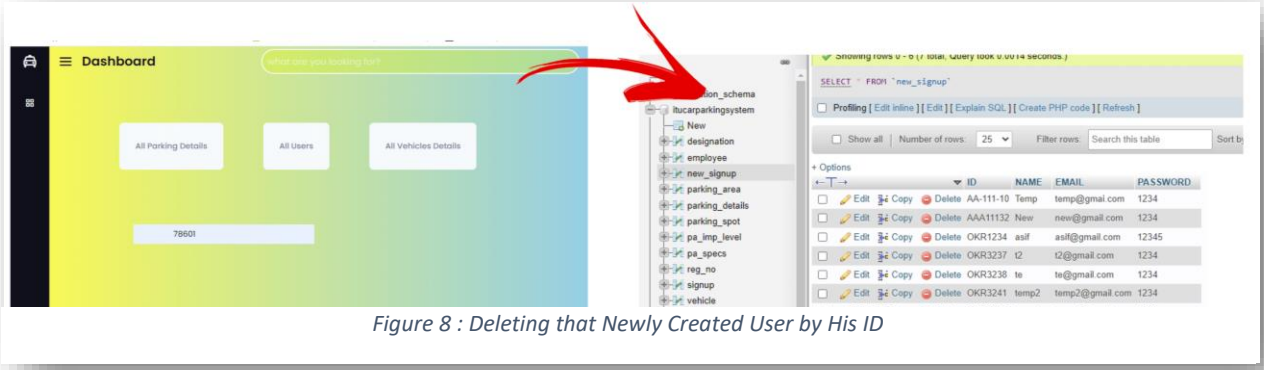


Figure 8 : Deleting that Newly Created User by His ID

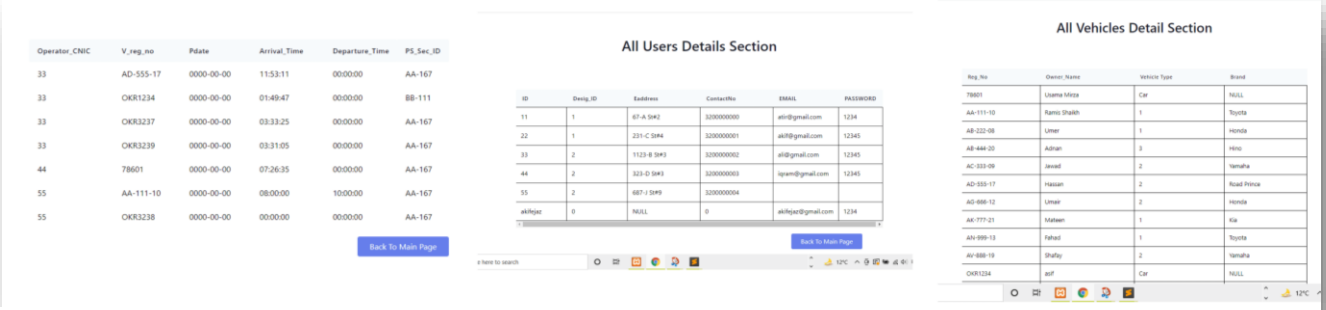


Figure 9 : 1st page: All Parking Details, 2nd Page: All Users Details, 3rd Page: All Registered Vehicles

In the Above detailed execution cycle, we can see that how a new user is created and have registered his vehicle and then admin can delete him or view all of them.

NOTE: Details abput every step is in caption

4. Conclusion

To Conclude, this system “Parking Manangment System” is simple and easy way to handle the problem of parking as mentioned in motivation section. It can be used and interpret easily using the GUI or the Web Application we have build. The information stored in the database is linked in such a way that in later on we can get our desire informtion such that if let’s say want to check if perticular vehicle is present in parking I can just check that by its Reg. ID. IN this way this makes it easy to use and handle the burden of large parking.

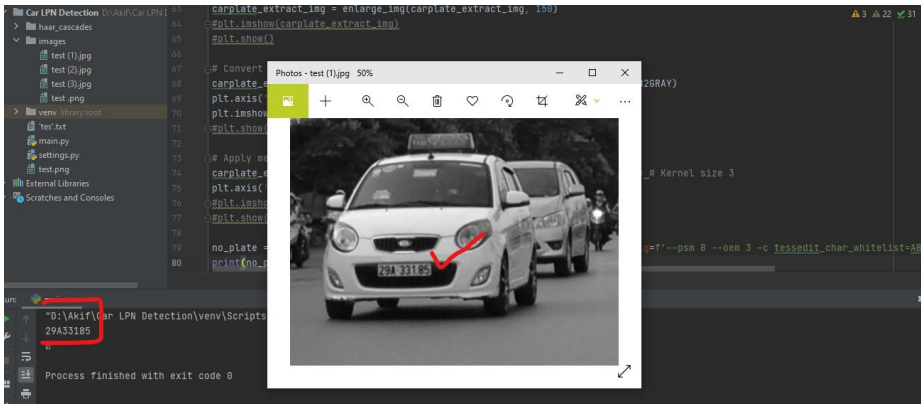
4.1 Summary

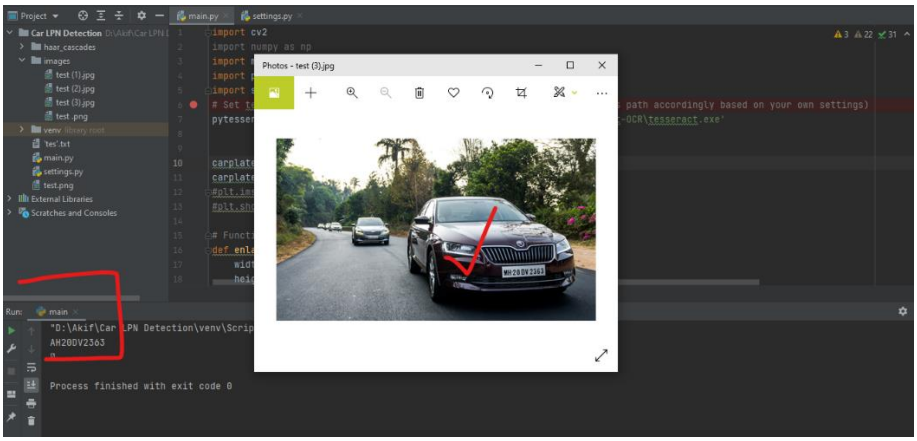
In a short note, I would say this system is saving the informtion of vehicles along with the time of entrance and time of leave, the system is developed with the help of following technilogies, HTML, CSS, JavaScript, PHP, MYSQL, XAMP etc.

4.2 Future Improvements

There is a plan of me to improve it further and scale it and make it more automate. Like I have tried to remove the Operator role by automating the Reg. No fetch and registring him/her or giving him parking slot. The same task as Operator is doing right now. I have completed a lot in this regard, actually I’m trying the Machine Learning with Python to detect the Licence Plate Number of Vehicle based on that the further process will be done, like Enter Parking Details or Register etc.

Some Working SS are Here,





4.3 Lessons Learned

Yea, this would be really interesting to tell, this project tought more than enough. I always love to do practicle things rather than theory. It gives the glims of real life probles and gives the exposure to the broad learning. Like the Course is related to DataBase, but rather then Databse we have learned a lot, like other languages such as HTML, CSS, JavaScript, PHP, XAMP and much more. I was really a pleasure to work on this project and I hope it would help me in future as well as.