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CHAPTER 1

INTRODUCTION

As the name suggests “Semi-Automatic Toll Plaza” the key theme of our project is the semi-automation. So here we will just take the over look of what is mean by Semi-Automation.
So in very simple language the Semi-Automation means to replace the human being from the process with the machines upto a certain extent. Before moving further we will just take the overlook of history of the toll plazas. In early days toll booths means there are two people for opening & closing of the gate & another two are for reception of the money & data keeping etc.
But by using semi automatic toll plazas data is stored in computers only two personals are required for single booth.

1.1 MySQL and Relational DBMS

A Database is a separate application that stores a collection of data. Each database has one or more distinct APIs for creating, accessing, managing, searching and replicating the data it holds. Nowadays, we use relational database management systems (RDBMS) to store and manage huge volume of data. This is called relational database because all the data is stored into different tables and relations are established using primary keys or other keys known as Foreign Keys. Relational Database Management System (RDBMS) is a software that-
Enables you to implement a database with tables, columns and indexes.
Guarantees the Referential Integrity between rows of various tables.
Updates the indexes automatically.

1.2 PHP

PHP (PHP: Hypertext Preprocessor) is a scripting language that helps people make web pages more interactive by allowing them to do more things. Instead of lots of commands to output HTML (as seen in C or Perl), PHP pages contain HTML with embedded code that does "something". The PHP code is enclosed in special start and end processing instructions <? php and?> that allow you to jump into and out of "PHP mode."
What distinguishes PHP from something like client-side JavaScript is that the code is executed on the server, generating HTML which is then sent to the client. The client would receive the results of running that script, but would not know what the underlying code was. You can even configure your web server to process all your HTML files with PHP.A website programmed with PHP can have

pages that are password protected. A website with no programming cannot do this without other complex things.

1.3 HTML

Hypertext Mark-up Language (HTML) is the standard mark-up language for creating web pages and web applications. With Cascading Style Sheets (CSS) and JavaScript it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a web server or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects, such as interactive forms, may be embedded into the rendered page. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items.

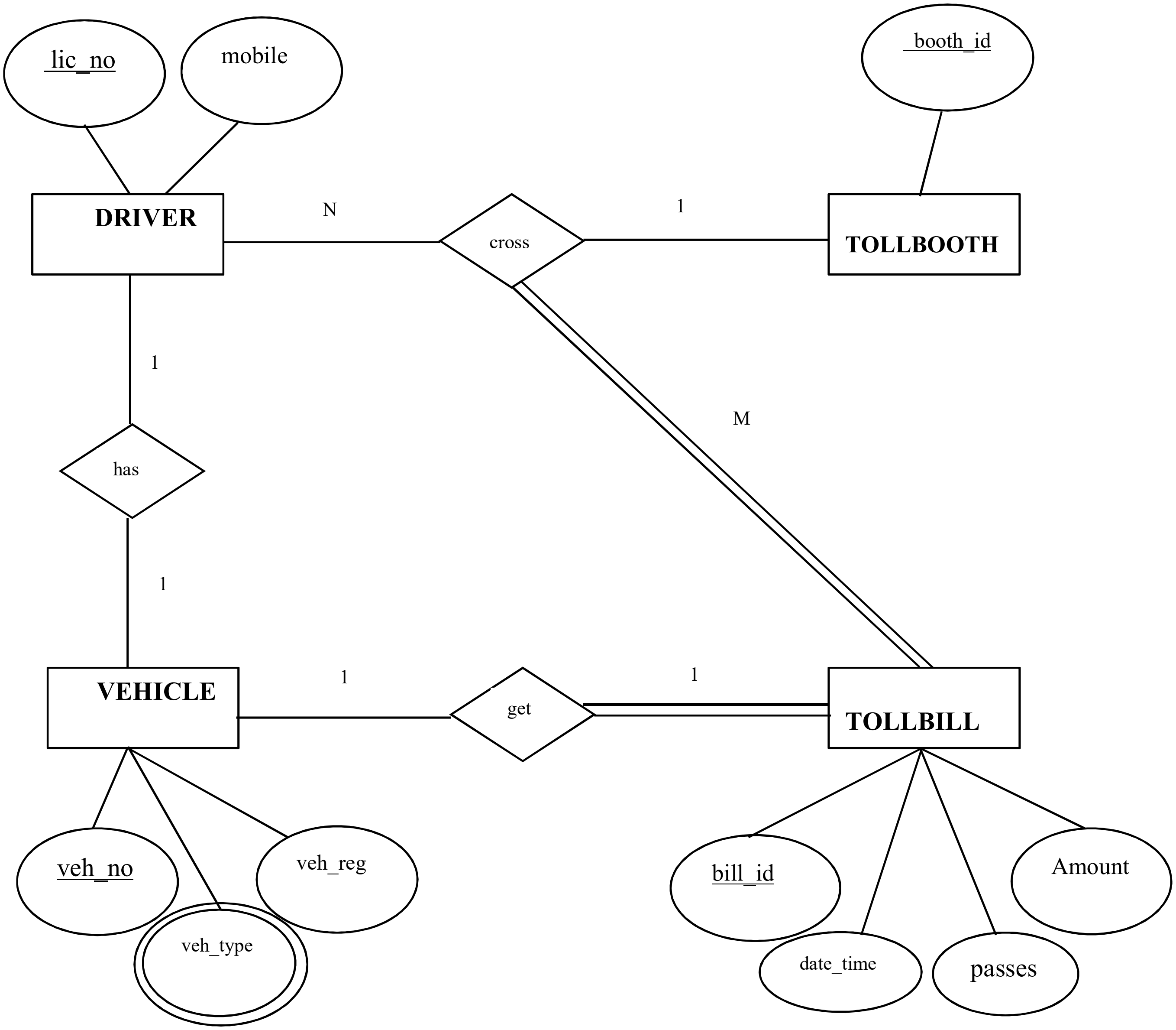
1.4 XAMPP

XAMPP is a free and open source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP stands for Cross-Platform (X), Apache (A), MariaDB (M), PHP (P) and Perl (P). It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well. Everything needed to set up a web server – server application (Apache), database (MariaDB), and scripting language (PHP) – is included in an extractable file. XAMPP is also cross-platform, which means it works equally well on Linux, Mac and Windows.

CHAPTER 2

DESIGN

2.1 ER-diagram:



2.2 RELATIONAL SCHEMA (E-R TO RELATIONAL SCHEMA)

STEP 1: MAPPING OF REGULAR ENTITY TYPES

VEHICLE

veh_no	veh_state	veh_type	lic_no	bill_id

DRIVER

lic_no	veh_no

TOLLBOOTH

booth_id	email	place	bill

VEHICLE_TYPE

type_id	cash

crosses

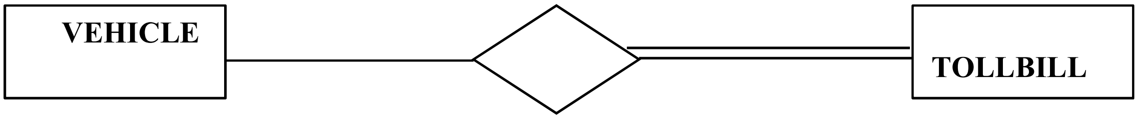
lic_no	booth_id	bill_id

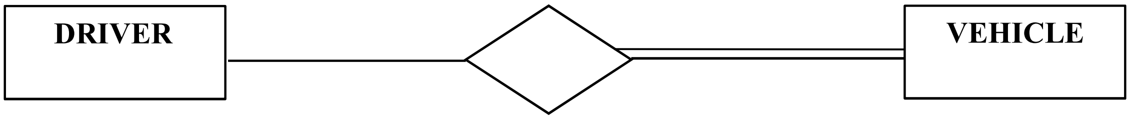
STEP 2: MAPPING OF WEAK ENTITY TYPES

TOLLBILL

bill_id	passes	amount	veh_no	lic_no	datetime

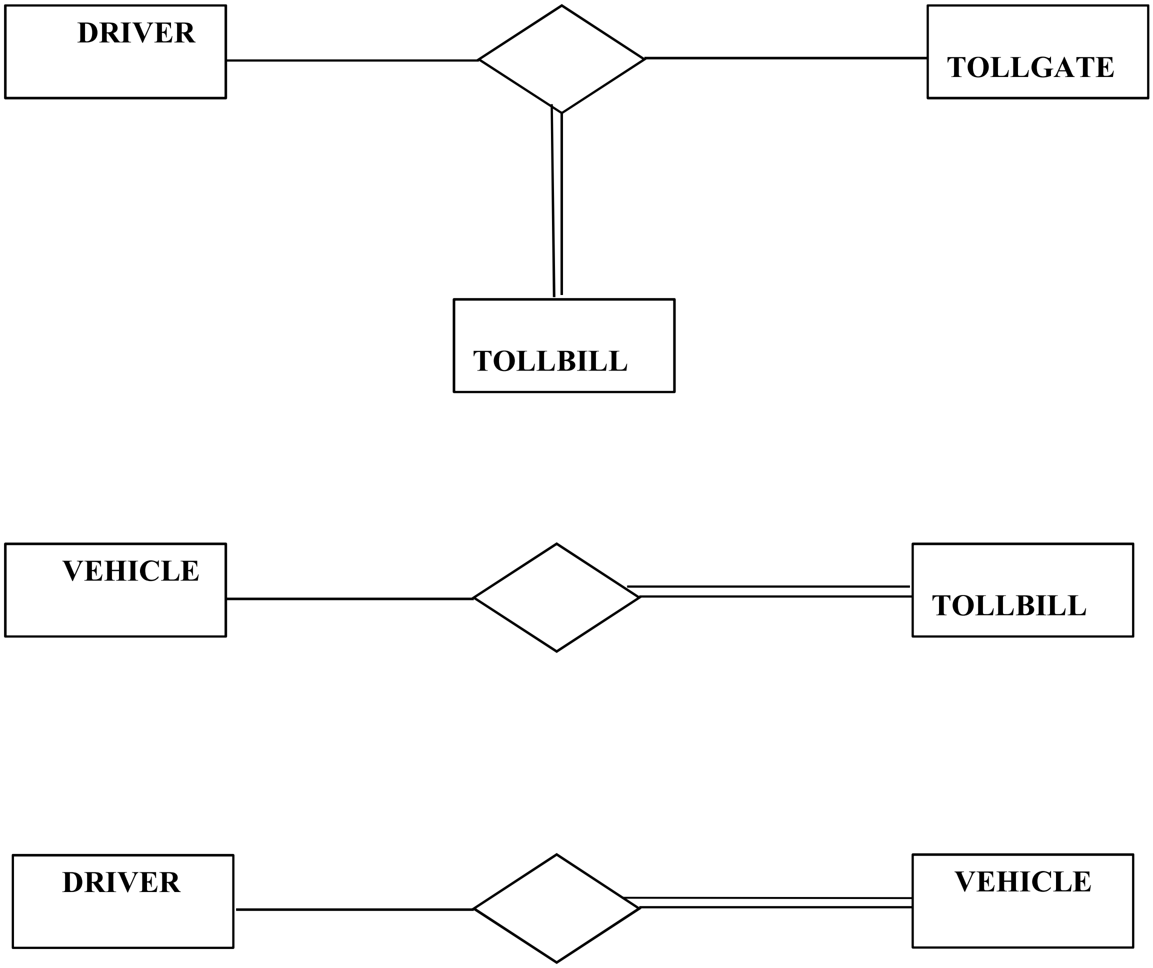
STEP 3: MAPPING OF BINARY ENTITY TYPES



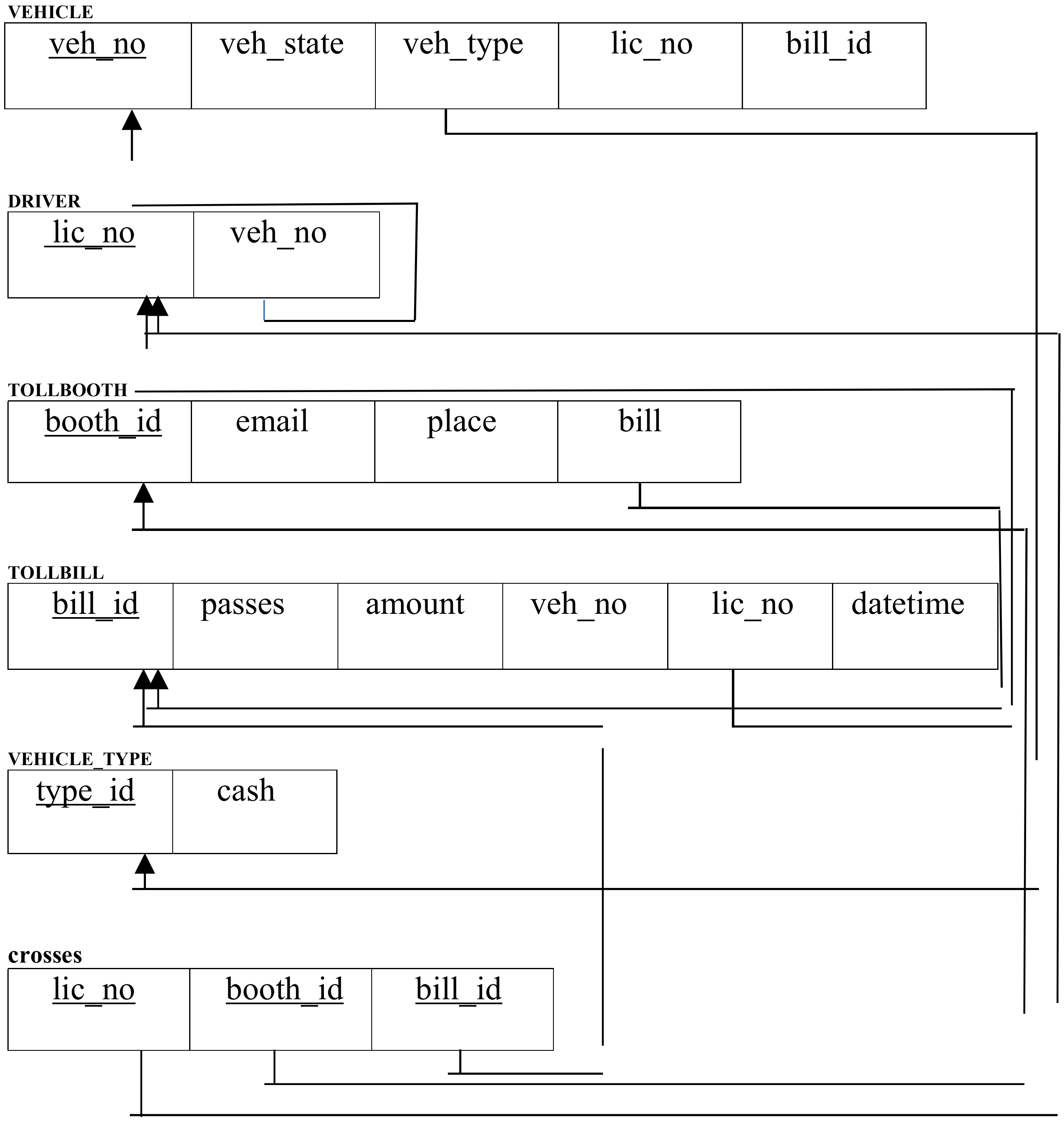


Mapping of

SCHEMA DIAGRAM:



RELATION SCHEMA:



VEHICLE

veh_no	veh_state	veh_type	lic_no	bill_id

DRIVER

lic_no	veh_no

TOLLBOOTH

booth_id	email	place	bill

TOLLBILL

bill_id	passes	amount	veh_no	lic_no	datetime

VEHICLE_TYPE

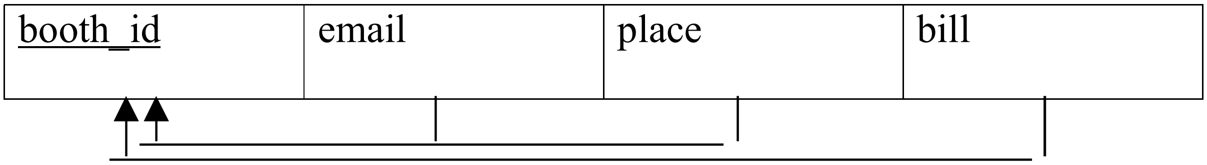
type_id	cash

crosses

lic_no	booth_id	bill_id

NORMALIZATION:

TOLLBOOTH



booth_id	email	place	bill

BOOTH_BILL

booth_id	bill

BOOTH_DETAIL

booth_id	email	place

CHAPTER 3

IMPLEMENTATION

COMPUTERIZED TOLL COLLECTION SYSTEM: SOFTWARE

System Requirements

Operating System: Windows XP/7/8/10 / MacOS / Linux (any distro).

Memory: Minimum of 256Mb of RAM, Minimum of 1GB harddisk space.

Software requirement: MySQL server 5.0 or above, php Web Browser (any).

3.1 Login

In proposed system, there is a provision of login for administrator and booth, admin and booths have to enter their ID and Password before entering to the database. If all the details match, then operator can login to the toll system. If a new booth has to register into the database, then it has to fill the registration form and need to login again.

3.2 Toll Operating Software

When vehicle enter in the toll plaza firstly the vehicle license plate number has to be entered along with other details. After filling the complete form, the toll operator submits the data to the database. This action will save all the information regarding the vehicle into the database and prints the bill. This data can be retrieved from the database by the authorized persons whenever needed.

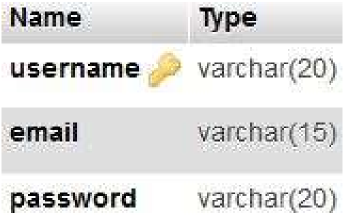
Database of toll system is divided into mainly two parts:

1. Database Admin
2. Booth database

The admin database contains details of all toll booths. The booth database includes all registered vehicles with details like vehicle number, driver license number, date and time of passing etc. Both the database admin and booth database is connected to a centralized database where all the data is saved. All toll-booths records stored at central server and these records could be seen and printed by day, date, month, and year. All these records are maintained at corresponding toll-booth.

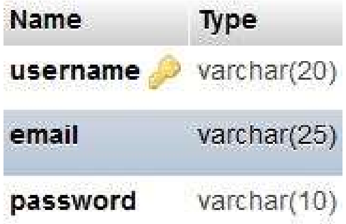
3.3 Table structure

ADMIN



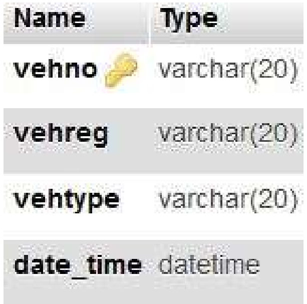
Name	Type
username 🔑	varchar(20)
email	varchar(15)
password	varchar(20)

BOOTH



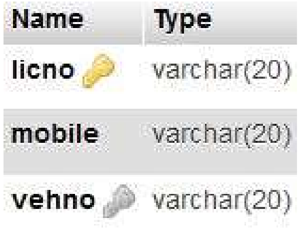
Name	Type
username 🔑	varchar(20)
email	varchar(25)
password	varchar(10)

VEHICLE



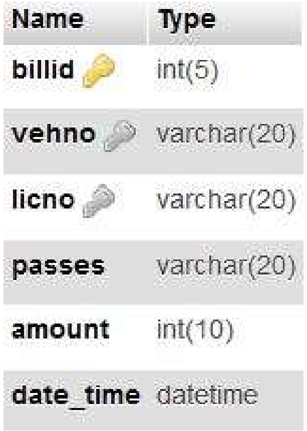
Name	Type
vehno 🔑	varchar(20)
vehreg	varchar(20)
vehtype	varchar(20)
date_time	datetime

DRIVER



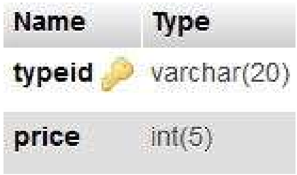
Name	Type
licno 🔑	varchar(20)
mobile	varchar(20)
vehno 🔑	varchar(20)

TOLL_BILL



Name	Type
billid 🔑	int(5)
vehno 🔑	varchar(20)
licno 🔑	varchar(20)
passes	varchar(20)
amount	int(10)
date_time	datetime

VEHICLE_TYPE



Name	Type
typeid 🔑	varchar(20)
price	int(5)

CHAPTER 4

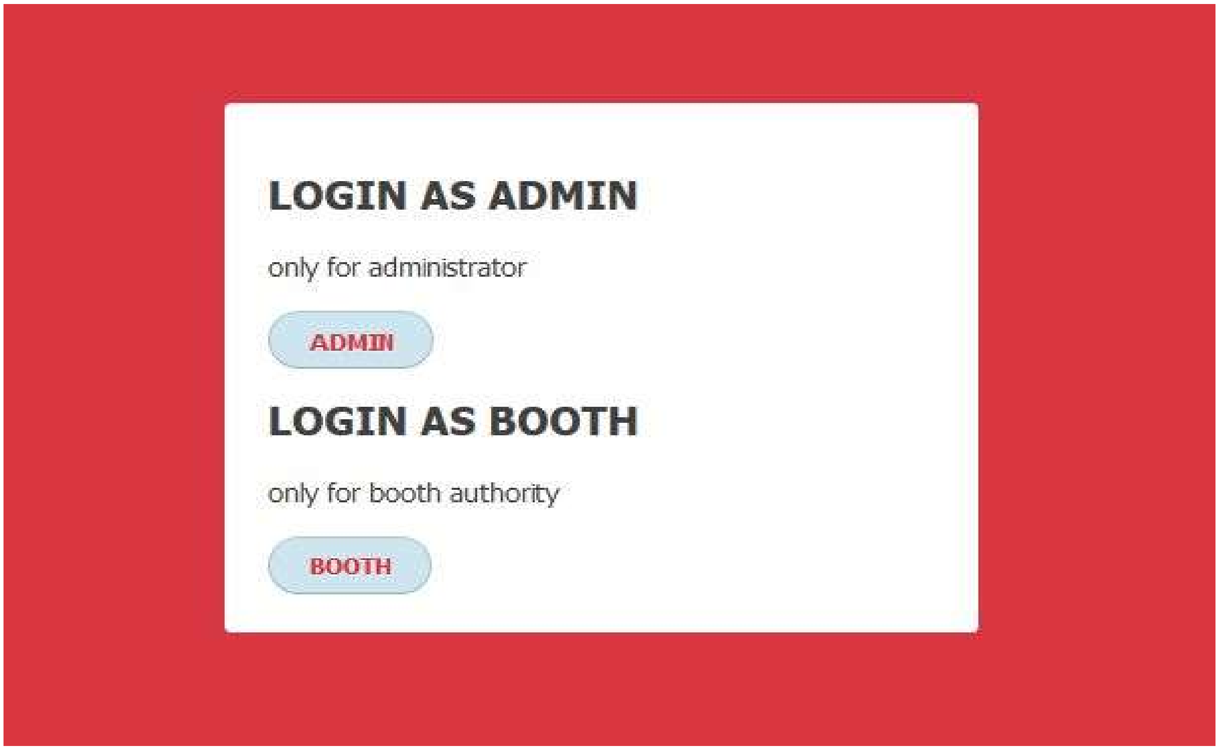
RESULTS

If we implement this method on toll plazas having traditional manual toll collecting method the whole time duration for payment of toll or retrieval of data will be less. We can also get vehicle information at customer account registration time and when vehicles crosses booth.

These records can be seen by using driver name or vehicle number. This computarized toll plaza system will also results in less usage of man power, fuel saving, reduced complexity in storing and retrieving data etc.

4.1 Login page

There is a login page for both admin and the booth.



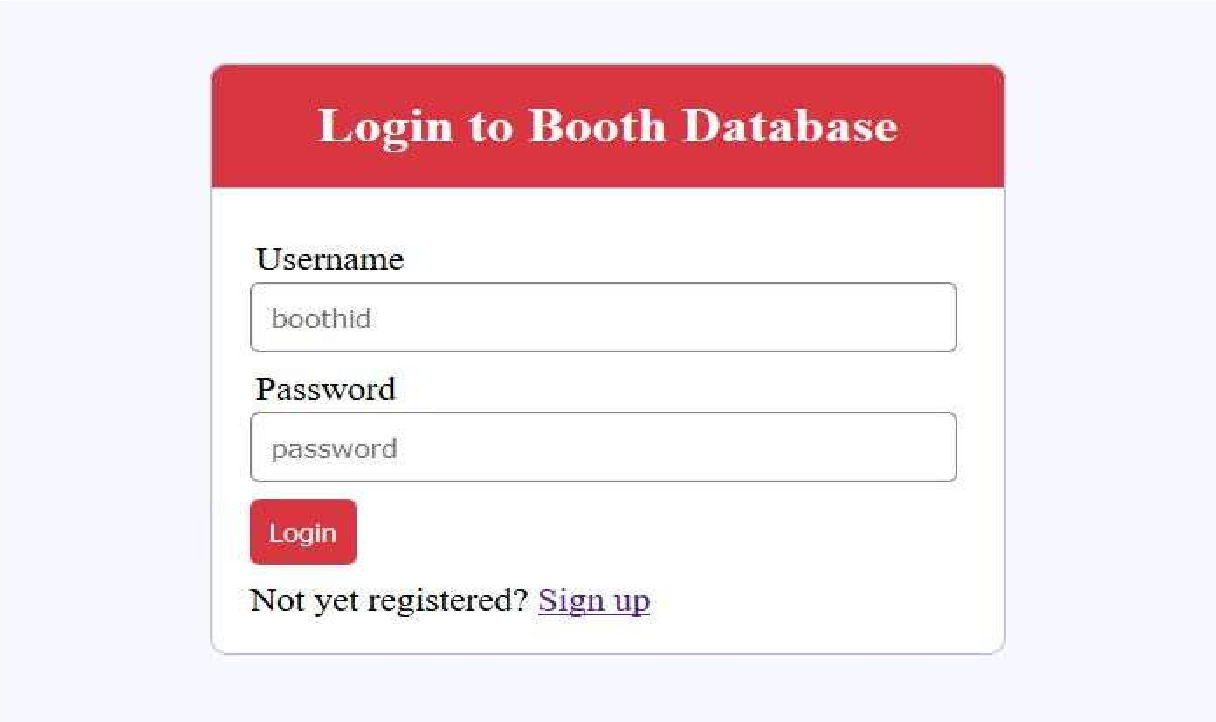
LOGIN AS ADMIN

only for administrator

LOGIN AS BOOTH

only for booth authority

Enter the correct username and password to continue.



Login to Booth Database

Username

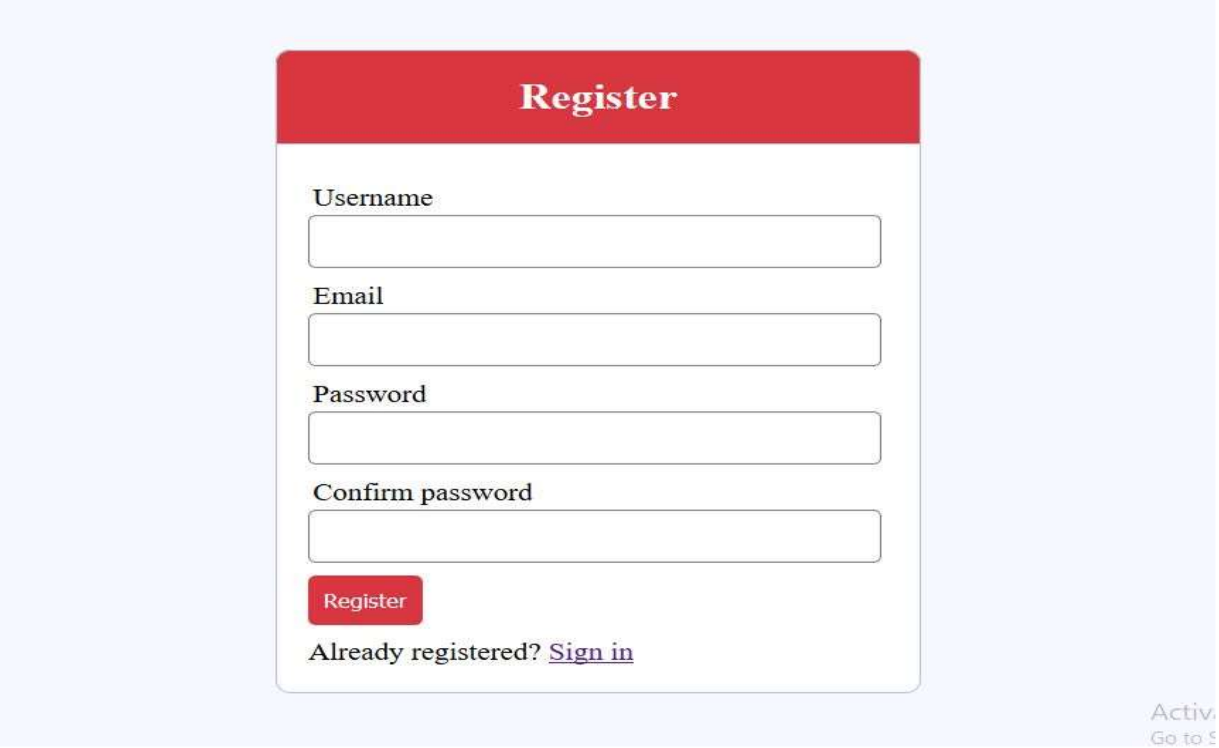
boothid

Password

password

Not yet registered? Sign up

New booth can register to the Database. Without logging in one can't move forward.



Register

Username

Email

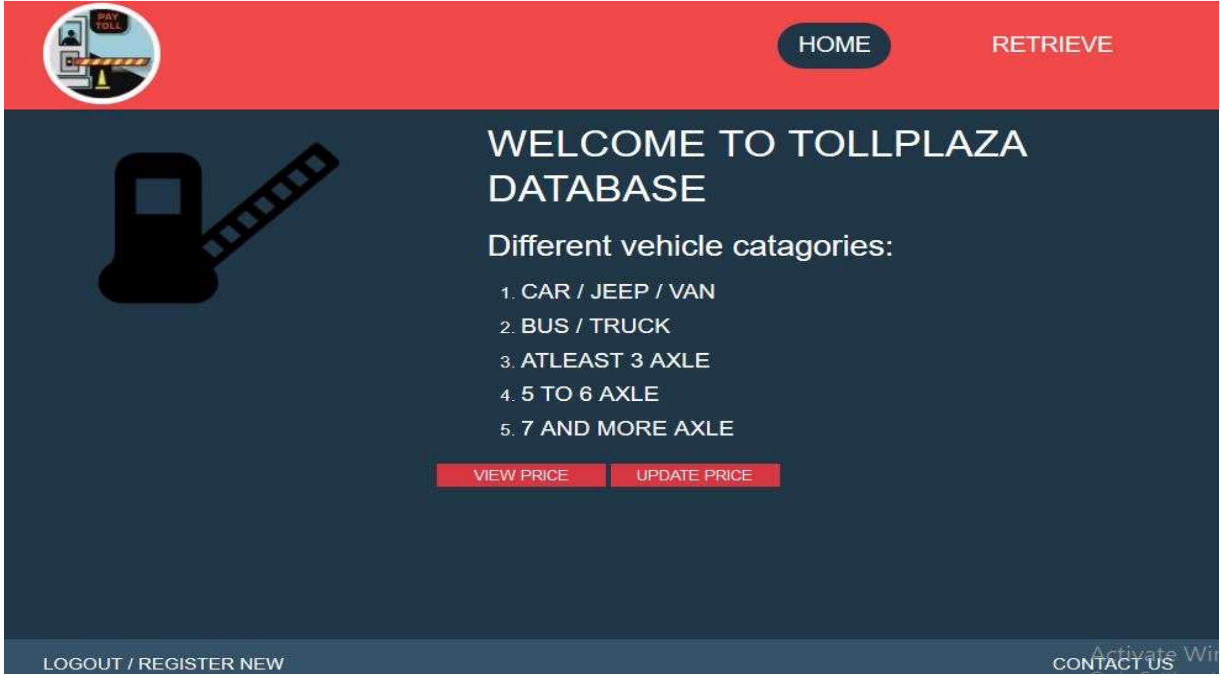
Password

Confirm password

Already registered? Sign in

4.2 Home page

Admin home page is provided with options for both viewing and updating different vehicle prices. But booth home page has only viewing option.



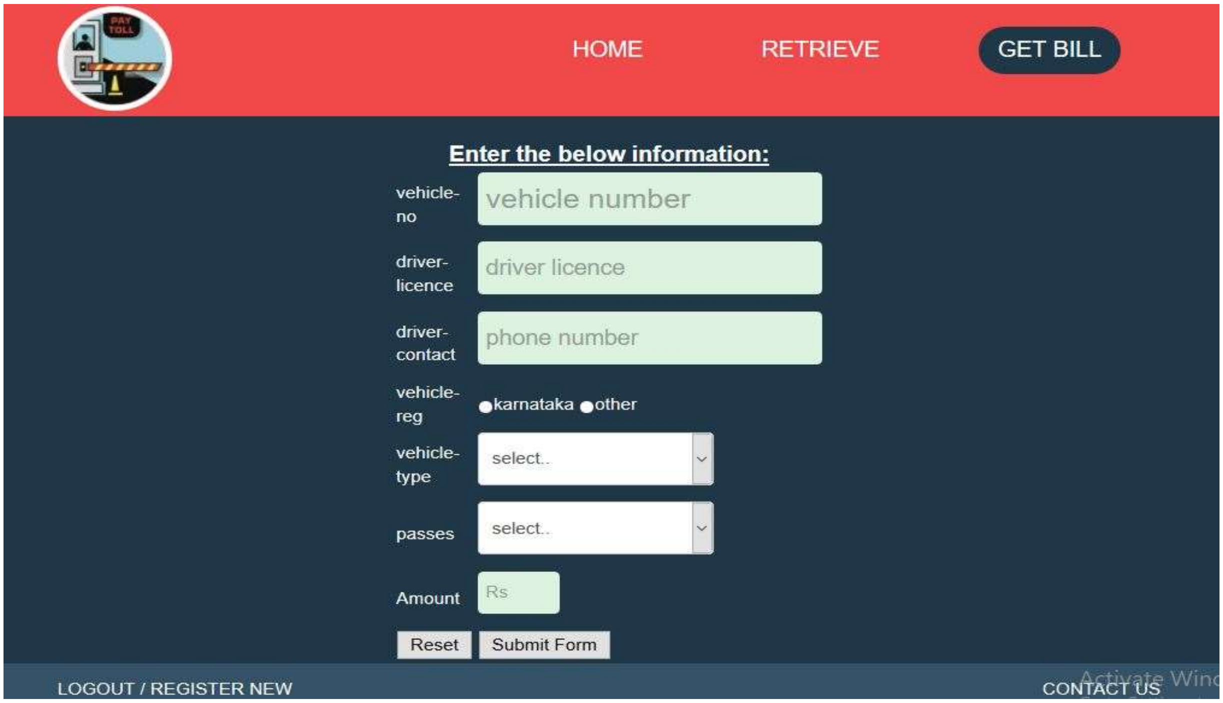
WELCOME TO TOLLPLAZA DATABASE

Different vehicle catagories:

1. CAR / JEEP / VAN
2. BUS / TRUCK
3. ATLEAST 3 AXLE
4. 5 TO 6 AXLE
5. 7 AND MORE AXLE

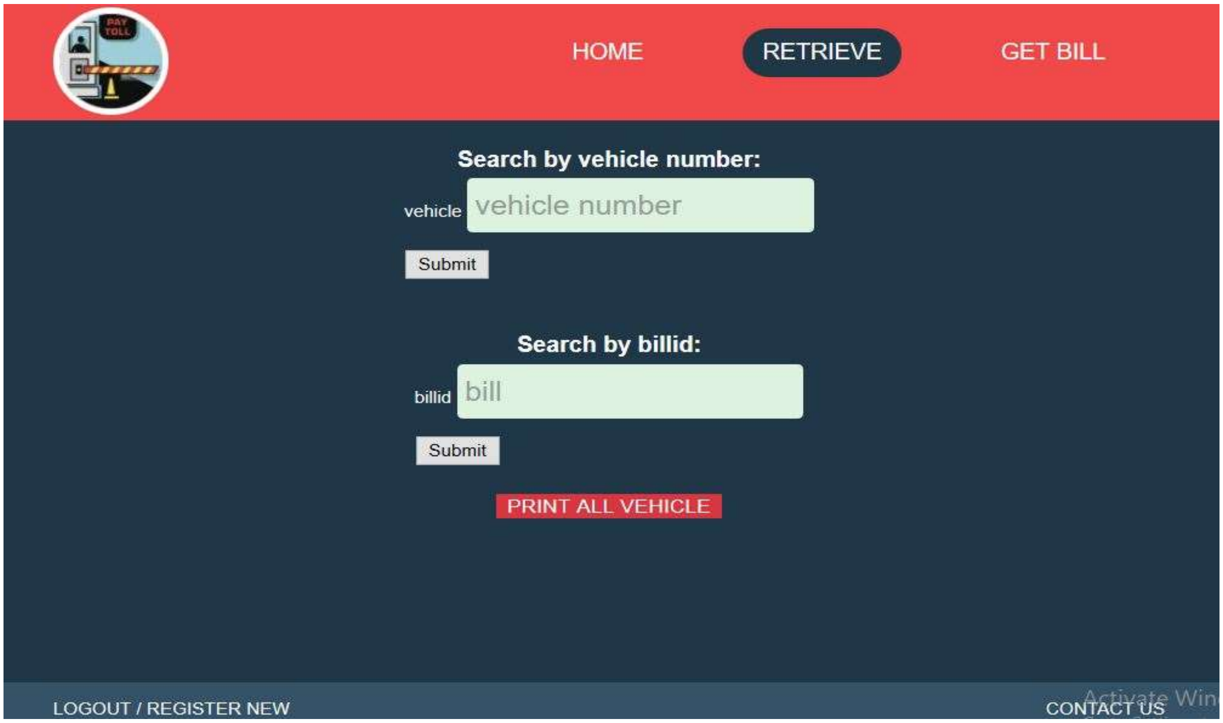
4.3 Get bill

This page is restricted only for booth. Different informations about the vehicle is entered into the database in this page.



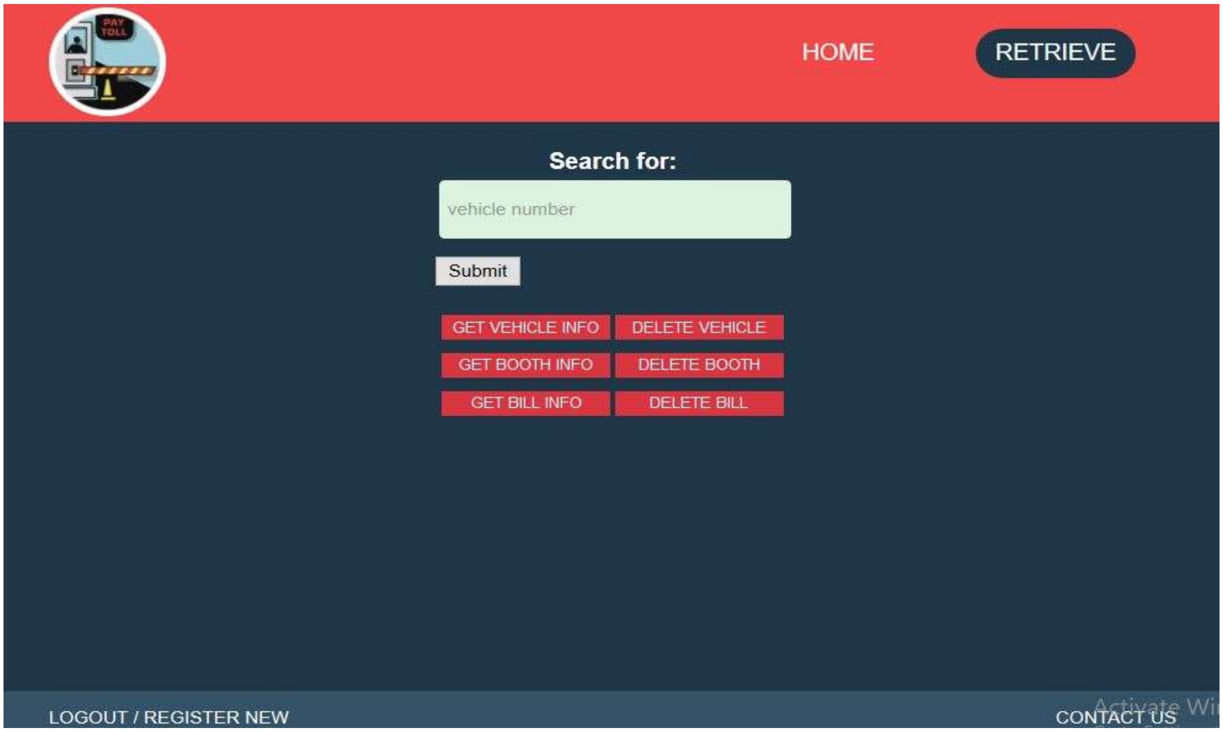
4.4 Retrieve data

Retrieval of the data from the database is possible for both admin and booth. Options to search by vehno and licno are provided in booth account.



4.5 Retrieve and modify

This page is accessible only for the admin. In this page the admin can view the details of all the information about the vehicles that are entered into the database by the booths. Admin can also delete the booths and other user information from the database.



CHAPTER 5

CONCLUSION

By doing semi-automation of toll plaza we can have the best solution over money loss at toll plaza by reducing the man power and also can reduce the traffic indirectly resulting in reduction of time at toll plaza.

In our project we have implemented the computarized way of storing the information regarding the vehicles that passes through the toll gate. By implementing this project the benefits include better audit control by centralizing accounts, expand capacity without building more infrastructures, easy way to retrieve vehicle data.

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2. Php Documentation:http://php.net/manual/en/book.com.php
3. Vehicle_Registration_Plates_of_India.Available:http://en.wikipedia.org/wiki/Vehicle_registration_plates_of_India.