# Technical Report – COURSEWORK 2

In Databases Coursework 2, we were asked to work on an end-to-end website such as the Nottingham Transport Council (NTC) Roadways Management system that we created, which includes various functionalities such as inserting new vehicles based on vehicle registration numbers, adding people, auditing, adding fines by the admin, and many more.
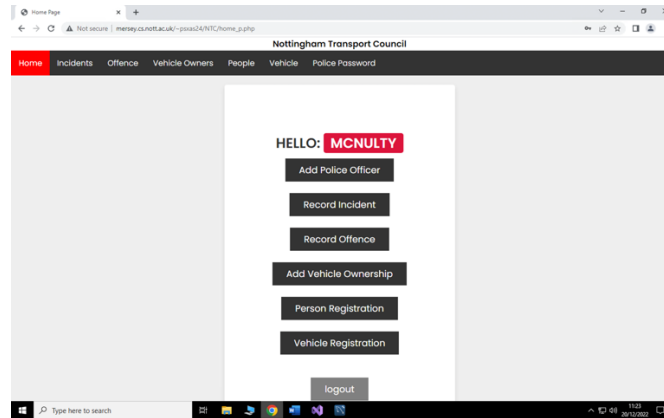

1) System Configurations: We assume that servers are activated on your system and that you have installed PHP and MySQL work Bench in order to complete the following project. Once you've completed your system configurations, let's set up the database that will be used in our website.

2) ER diagram of the database:

ERR diagram

3) To connect the website to the database, we will create a connection file that contains database information and allows access to the database used by all webpages. The configuration file contains database connection data as well as a session to record the user's history. .(config.php)

4) Now that you're familiar with the database. The police have access to all functions except changing fines, adding users, and auditing the website.
5) You can access the webpage (home p.php) in two ways: as an administrator or as a police officer. Logging in involves running a query to validate your username and password.
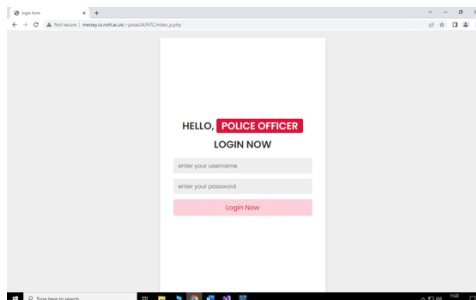
["SELECT * FROM police WHERE username='$username' AND password='$password'";]

By, the above query execution, if username matches with the password, you will enter to the home page. Once you have entered the website, you can change your password using the following query.

[" SELECT * FROM police WHERE username = '$username' && password = '$password' ";]

["UPDATE police SET password='$newpassword' where username='$username'";]

If the username is found in the system, the password will be changed; otherwise, an error message will be displayed. You can also redirect to the home page after the file has been executed.

6) The user can see the people present in the database by accessing the people's tab where data from the people's data would be display's as well you can search people using their licence and name as well.
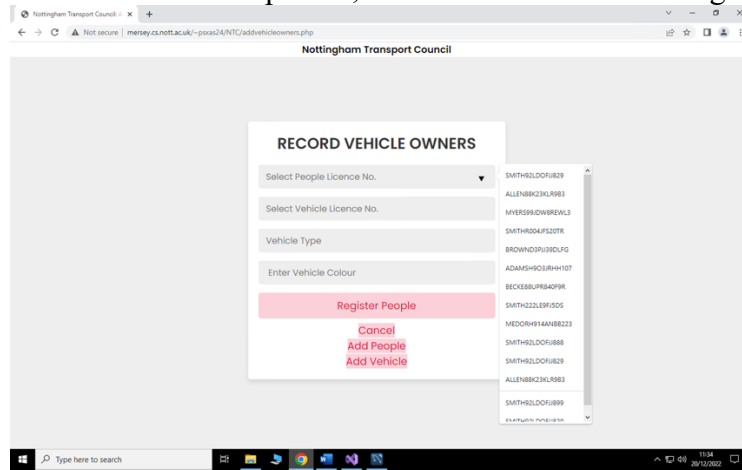

[$sql = "SELECT * FROM People";]
[$sql = "SELECT * FROM People WHERE lower(People_licence) LIKE lower('%$search%') OR lower(People_name) LIKE lower('%$search%')";]

7) By selecting the vehicle owners tab, the user can view the vehicle and person licence numbers. The query below joins the people and vehicle tables to access the information using the Ownership table.

[$sql = "SELECT Vehicle.Vehicle_ID, Vehicle.Vehicle_type,Vehicle.Vehicle_licence, People.People_licence, People_name FROM Vehicle JOIN Ownership ON Vehicle.Vehicle_ID= Ownership.Vehicle_ID JOIN People ON People.People_ID = Ownership.People_ID";]

8) The user can enter the details of the vehicle that the owner owns so that it can be added to the table. You will have access to a dropdown menu where people's licences will be displayed, allowing you to add a new vehicle with its owner's details. (addvehicleowners.php)

To add the data in people, vehicle and ownership table, we have to do the following sql steps given below.

[$sql = "INSERT INTO Vehicle (Vehicle_type, Vehicle_colour, Vehicle_licence)" .
" VALUES ('$Vehicle_type', '$Vehicle_colour', '$Vehicle_licence')";]

[$sql1 = "SELECT * FROM People WHERE People_licence='$People_licence'";]

[$sql2 = "SELECT * FROM Vehicle WHERE Vehicle_licence='$Vehicle_licence'";]

[$sql2 = "INSERT INTO Ownership (People_ID, Vehicle_ID) VALUES($People_ID, $Vehicle_ID)";
$result2 = $connection->query($sql2);]

9) The user can file an incident report in the database as well he can see the past incidents as well. To record incident, the user has to select the people's licence from the dialog box, vehicle's licence , date and incident report to file an incident against the people.

This would be done using the following sql queries(addincident.php)

[$sql1="select People_ID from People where People_licence like '$People_licence'";]

[$sql2="select Vehicle_ID from Vehicle where Vehicle_licence like '$Vehicle_licence'";]

[$sql="INSERT INTO
Incident(Vehicle_ID,People_ID,Incident_Date,Incident_Report)"."VALUES('$Vehicle_ID','$People_ID','$Incident_Date','$Incident_Rep
ort')";]

10) If the user is an admin, he will have access to record a fine as well to create new police users. The admin can add the fine using a similar query which was used before.(showfine.php)and (Fine.php)

To see fines:
*$sql = "SELECT * FROM Fines ";*
To record Fine:

$select = " SELECT * FROM Fines WHERE Incident_ID = '$Incident_ID'";]

[$insert = "INSERT INTO Fines (Fine_Amount, Fine_Points, Incident_ID)".
"VALUES ('$Fine_Amount', '$Fine_Points', '$Incident_ID')";
$result7 = mysqli_query($connection, $insert);]

11) The admins will be logged in with username "daniels " and password "cooper69".He will have access to add fine and create police accounts where the police account will only be created if the police officer's record is not present in the system. To check its working, The given queries are listed below.

[$select = " SELECT * FROM police WHERE username = '$username' && password = '$password' ";
$result = mysqli_query($connection, $select);
if(mysqli_num_rows($result) > 0){
$errorMessage = "user already present";
}else{
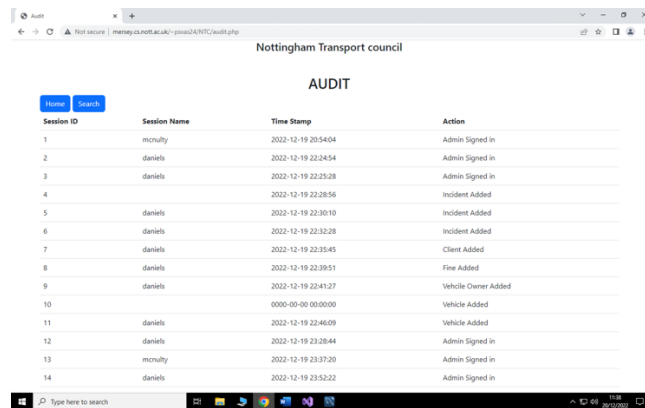*if($password != $confirmpassword){*
$errorMessage = "password not matched";

To access the log, it means to track all the working which are being made in the website, we have to make an audit table where we will store session name,(we will create a session), time stamp and action. To add information from other pages we have to call a query after all successful events. We will see this file in Audit tab and we can search by using session name.

Conclusion: More validations can be added, and more data about people and their vehicles can be retrieved. Additional enhancements may include making the website more secure in order to keep data confidential and safe from unauthorised access.

Website:http://mersey.cs.nott.ac.uk/~psxas24/DIS-COMP4039-CW2-psxas24-20478461/psxas24-20478461_InstallationFiles/user_page.html

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