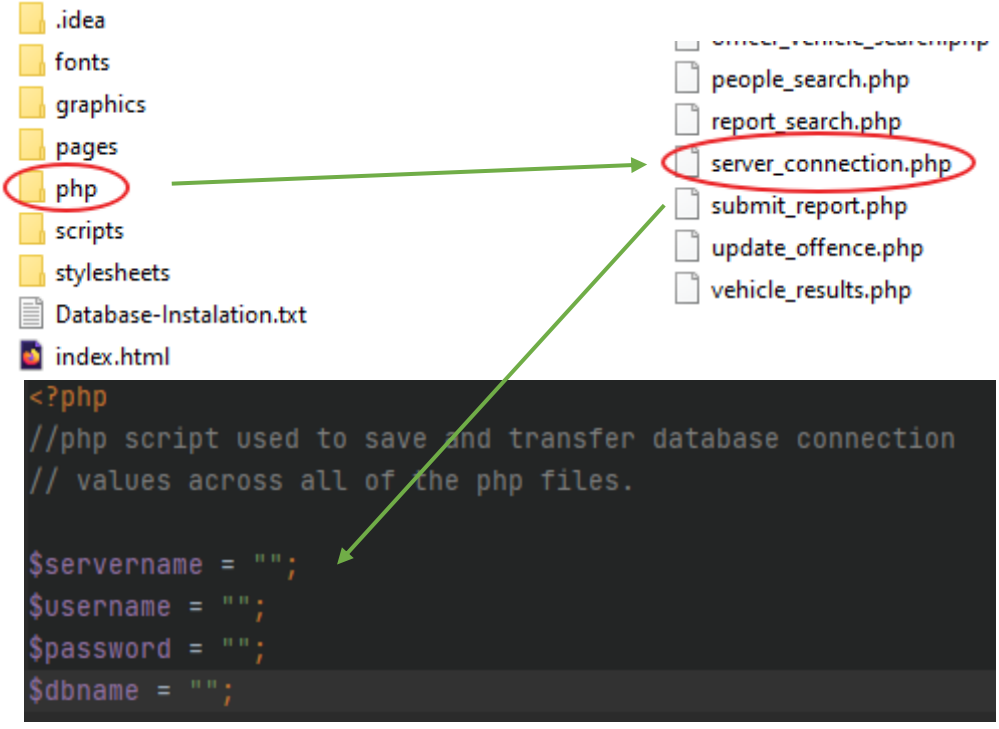
psxrd2_Technical manual for traffic police website.

1. How to instal software.

To install the website first you need to install the database for the website. Installation for the database is in the file called “Database-Instalation.txt”. You can find this file after unzipping “Installation_files.zip” file located in the “psxrd2_InstallationFiles”. After locating the “Database-Instalation.txt” copy all the commands from within the file and run it with in your mysql workbench or Php Admin to install it on your server!

After wards you can place all the contents of unzipped “Installation_files.zip” file into your server folder such as htdocs or public_html file where you run your websites from.

After placing the files into you online server folder between those files find a folder called “php”. In that folder locate a php file called “server_connection.php”. Open the file and enter your database details which contains the previously installed relations from the “Database-Instalation.txt” file. After this step your website should work. See the picture bellow how the php file location looks.



2. Design of the database and the rationale behind it.

To construct this database several relations where made which are:

- Admins

  A relation which stores Username and Password of administrators.

- Cars

  A relation which stores information about vehicles such as colour Brand, model, number plate and owner.

- Offences

  A relation which stores a maximum possible fine and penalty point Amount which a person can receive from a specific offence.
  A short description is also stored in this table.

- Officers

  A relation which stores Username and Password of officers.

- People

  A relation which stores information about offenders such as their first and last names, Licence numbers, date of birth and address.

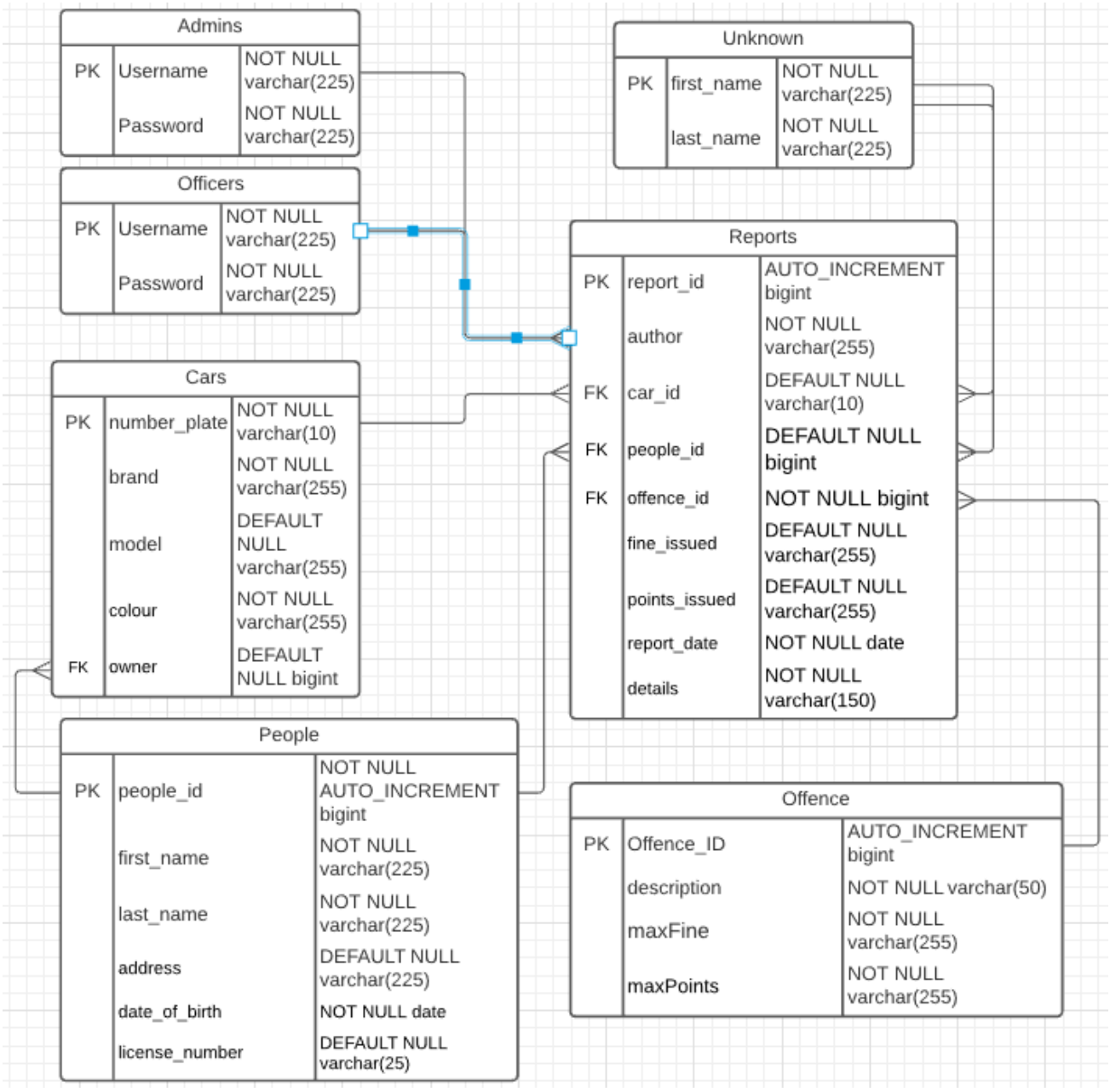
- Reports

  Main relation which stores information about offences that specific offenders or vehicles have been seen to committing.

- Unknown

  A relation which stores only two values which are both “unknown” strings. This relation is used when for example a report has a vehicle, but its owner is unknown. So instead of displaying empty names of the owner in the report unknown strings will be used.

To further showcase the design of the database I decided to draw an ER diagram showcasing how each table interacts with each other and what foreign and primary keys each relation has.



By inspecting the ER diagram, it is noticeable that all the relations have one to many relations with the Report relation. Such design choice was made to make the process of writing the reports simple. Such a design will allow officers and admins to select specific people, cars or offence types and add them to the report. This will also allow users to cross match the cars between the People existing in the database so not only the offenders could be stored in the database but also the owners of the cars who's vehicles may have been stolen by offenders or used by them without the owner's permission.

The People also relation has one to many connections with Cars relation. This so officers and administrators could see what and how many vehicles a specific person has in the database.

3. Files naming's.

Since the website has a big number of different php, html and JavaScript files it is important to know the file naming scheme of the website. The website is made from separate html, php and js files meaning that no html files for example contain considerable amount of <script> code. The only amount of <script> code contained in html files is references to specific JavaScript. Php files are also separate from html and JavaScript files. Each specific file is contained within their own respective folders.

The website has two colour theme each visible depending on if an administrator or an officer is logged in. This means that the file number is double in size than it would be if the site was only meant for the officer users.

To distinguished between the officer and admin themes html, php and JavaScript files have a slightly different name. Each file that is associated with the officer side of the website will either have "officer" written in front of the file or it will be just a usual name describing a specific function. Here are some examples: "officer_description_update.php", "report_results.html", "officer_report_results.js".

Each file which is associated with the admin side of the website will either have "admin" written in front of its name or will have a capital letter "A" in the name. Here are some examples: "Apeople_results.js", "admin_new_car.html"," admin_offender_cars.php".

4. Important Mysql queries

There are many mysql queries that are present in this specific website. Many of them are simple and are only used to either updated the <select> elements of the queries or to transfer relation ID values between files. Due to this reason I will only focus on the biggest and most sophisticated queries that are present in the website.

The first mysql query about to be discussed is in the “report_search.php” and “Areport_search.php” file. Here how the query looks like:

```
SELECT reports.report_id, reports.author, reports.car_id, reports.people_id,
reports.offence_id,
               IFNULL(reports.fine_issued, 'N/A') AS fine_issued,
IFNULL(reports.points_issued, 'N/A') AS points_issued,
               reports.report_date, reports.details, people.first_name,
people.last_name, people.date_of_birth,
               IFNULL(people.license_number, 'N/A') AS license_number,
IFNULL(people.address, 'N/A') AS address,
               cars.brand, IFNULL(cars.model, 'N/A') AS model, cars.colour,
offence.description
        FROM reports, offence, cars, people
        WHERE report_id = ?
        AND reports.car_id = cars.number_plate
        AND reports.people_id = people.people_id
        AND reports.offence_id = offence.Offence_ID
```

This specific query is looking into a few tables at the same time and building a full description of chosen report from them. The query also converts NULL values to ‘N/A’ strings if there are some null values in the specific report which is being looked at. This query also have several variations in the “report_search.php” and “Areport_search.php” because a report may not have an offender_id meaning that only a vehicle was reported and vice versa.

Here how the same mysql query looks like for selecting a report which has only an offender repoted.

```
SELECT reports.report_id, reports.author, IFNULL(reports.car_id, 'N/A') AS
car_id, reports.people_id, reports.offence_id,
           IFNULL(reports.fine_issued, 'N/A') AS fine_issued,
IFNULL(reports.points_issued, 'N/A') AS points_issued, reports.report_date,
           reports.details, people.first_name, people.last_name,
people.date_of_birth, IFNULL(people.license_number, 'N/A') AS license_number,
           IFNULL(people.address, 'N/A') AS address, Unknown.first_name AS
brand, Unknown.first_name AS model, Unknown.first_name AS colour,
           offence.description
    FROM reports, offence, Unknown, people
    WHERE report_id = ?
    AND reports.people_id = people.people_id
    AND reports.offence_id = offence.Offence_ID
```

The second mysql query which is important to look at is present with in “admin_report_search.php” and “officer_report_search.php” files. The query in question looks like this:

```
SELECT reports.report_id, people.first_name, people.license_number,
cars.number_plate, reports.report_date
        FROM reports, people, cars
        WHERE reports.report_id = ? AND people.people_id = reports.people_id
AND cars.number_plate = car_id
        OR people.first_name LIKE ? AND people.people_id = reports.people_id
AND cars.number_plate = car_id
        OR people.last_name LIKE ? AND people.people_id = reports.people_id
AND cars.number_plate = car_id
        OR people.license_number = ? AND people.people_id = reports.people_id
AND cars.number_plate = car_id
        OR cars.number_plate = ? AND people.people_id = reports.people_id AND
cars.number_plate = car_id
        OR reports.report_date LIKE ? AND people.people_id =
reports.people_id AND cars.number_plate = car_id
```

This specific query is used for the general search of reports. It takes in the key that the user inputs and compares/returns one or more results which match the key. It is noticeable that this query has several OR statement which take the search key and compare it in the different WHERE/OR clauses.

Since there are reports that can have no offender or no vehicle there are server variations of this mysql query. For example, if this previous query returns 0 results a different variation of this query will be executed to see if there are reports that match the search key which have no vehicles recorded. Here how that specific variation looks like:

```
SELECT reports.report_id, unknown.first_name AS first_name,
         unknown.first_name AS license_number, cars.number_plate,
         reports.report_date
         FROM reports, unknown, cars
         WHERE reports.report_id = ? AND cars.number_plate = car_id
         OR cars.number_plate = ? AND cars.number_plate = car_id
         OR reports.report_date LIKE ? AND cars.number_plate = car_id
```

The final query which is important to look at is used for finding full descriptions of vehicles in the vehicle search. If a user wants to look at a full description of a vehicle this query would be executed with in the “vehicle_results.php” file. Here is how the query looks like:

```
SELECT cars.number_plate, cars.brand, IFNULL(cars.model, 'N/A') AS model,
cars.colour,
        IFNULL(cars.owner, 'N/A') AS owner, people.first_name,
people.last_name
        FROM cars, people
        WHERE cars.number_plate = ?
        AND cars.owner = people.people_id
```

Again, since a vehicle can have an owner, or the owner can be anonymous this specific query also has more than one variation. Here how the mysql query looks like when an owner is anonymous:

```
SELECT cars.number_plate, cars.brand, IFNULL(cars.model, 'N/A') AS model,
cars.colour,
         IFNULL(cars.owner, 'N/A') AS owner, Unknown.first_name,
Unknown.last_name
         FROM cars, Unknown
         WHERE cars.number_plate = ?
```

In the query one can notice that the values which were supposed to be first name and last name of the owner are now replaced with the Unknown table values to represent that the owner of the vehicle is unknown!