Car Rental System

2 / 1 / 2024

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ERD Diagram

A diagram of a diagram

Description automatically generated

ERD To Relation Mapping

office

|  |  |  |
| --- | --- | --- |
| office\_id | city | country |

customer

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| user\_id | first\_name | last\_name | phoneNumber | email | password | isAdmin | gender | bDate |

car

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| num\_plate | letter\_plate | model | year | status | Image\_path | price | office\_id | color |

reservation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| num\_plate | letter\_plate | user\_id | pickup\_date | dropoff\_date | office\_id |

DDL

--CREATE DATABASE rentalSystem;

CREATE TABLE office (

    office\_id INT NOT NULL PRIMARY KEY AUTO\_INCREMENT,

    city VARCHAR(255),

    country VARCHAR(255)

);

CREATE TABLE car (

    num\_plate INT NOT NULL,

    letter\_plate VARCHAR(255) NOT NULL,

    model VARCHAR(255) NOT NULL,

    `year` INT NOT NULL,

    `status` VARCHAR(255) NOT NULL,

    image\_path VARCHAR(255) NOT NULL,

    price DECIMAL(10, 2),

    office\_id INT,

    color VARCHAR(255),

    PRIMARY KEY (num\_plate, letter\_plate),

    FOREIGN KEY (office\_id) REFERENCES office(office\_id) ON DELETE SET NULL

);

CREATE TABLE customer (

    user\_id VARCHAR(255) NOT NULL PRIMARY KEY,

    first\_name VARCHAR(255) NOT NULL,

    last\_name VARCHAR(255) NOT NULL,

    phone\_number VARCHAR(16) UNIQUE NOT NULL,

    email VARCHAR(255) UNIQUE NOT NULL,

    `password` VARCHAR(255) NOT NULL,

    isAdmin BOOLEAN DEFAULT FALSE,

    gender VARCHAR(1),

    Bdate DATE

);

CREATE TABLE reservation (

    num\_plate INT NOT NULL,

    letter\_plate VARCHAR(255) NOT NULL,

    user\_id VARCHAR(255) NOT NULL,

    pickup\_date DATE NOT NULL,

    dropoff\_date DATE NOT NULL,

    office\_id INT NOT NULL,

    PRIMARY KEY(num\_plate,letter\_plate,user\_id,pickup\_date),

    FOREIGN KEY (user\_id) REFERENCES customer(user\_id) ON DELETE CASCADE,

    FOREIGN KEY (num\_plate,letter\_plate) REFERENCES car(num\_plate,letter\_plate) ON DELETE CASCADE,

    FOREIGN KEY (office\_id) REFERENCES office(office\_id)

);

Sample Data

-- Office

INSERT INTO `office` (`city`, `country`) VALUES

('Alexandria', 'Egypt'),

('Cairo', 'Egypt'),

('Dahab', 'Egypt'),

('Sharm ElSheikh', 'Egypt'),

('Hurghada', 'Egypt'),

('Luxor', 'Egypt'),

('Aswan', 'Egypt'),

('Port Said', 'Egypt'),

('Makkah', 'Saudia Arabia'),

('Riyadh', 'Saudia Arabia'),

('Madina', 'Saudia Arabia'),

('Dammam', 'Saudia Arabia'),

('Khobar', 'Saudia Arabia');

--Car

INSERT INTO car (num\_plate, letter\_plate,model,year,status,image\_path,price,office\_id,color) VALUES

('2367','ABD','Series 7','2021','active','img/bmwseries\_7.png','5000','1','grey'),

('1234','ABC','Series 5','2013','active','img/black-bmw-m5-2013.png','3000','1','black'),

('7810','AEA','S','2013','active','img/tesla-modelS.png','4400','2','white'),

('7653','NSH','S','2017','active','img/mercedes-c-2017-blue.png','5100','2','blue'),

('7793','AAR','S4','2018','active','img/audi-s4-2018.png','5100','2','red');

--Customer

INSERT INTO Customer (user\_id, first\_name, last\_name, phoneNumber, email, `password`, isAdmin, gender, bDate) VALUES

('ayara','Aya','Ragaa','01234567890', 'aya.ra@hotmail.com', '123', '1' ,'F', '21-5-2002');

Home Page

A black car on a black background

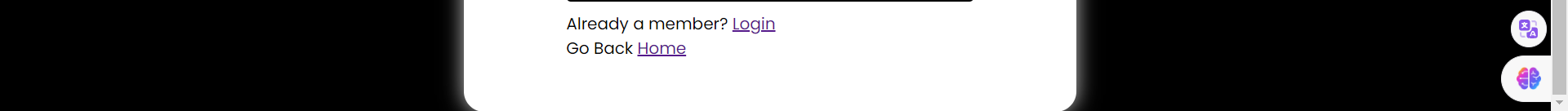
Description automatically generated

* Option 1: Click on Login
* Option 2: Click on Sign up

Sign Up

A screenshot of a computer

Description automatically generated



Validations

* In Javascript

<script type="text/javascript">

        function validate()

        {

            var email=document.getElementById("email").value;

            var password=document.getElementById("password").value;

            var newpass=document.getElementById("newPassword").value;

            var mailformat =  /^[a-zA-Z0-9.!#$%&'\*+/=?^\_`{|}~-]+@[a-zA-Z0-9-]+(?:\.[a-zA-Z0-9-]+)\*$/;

            var phoneNumber =  document.getElementById("phoneNumber").value;

            var gender = document.querySelector('input[name="gender"]:checked');

            if(!(email.match(mailformat)))

            {

                alert("Invalid Email Address");

                return false;

            }

            if (password != newpass){

                alert("Password Not Matching");

                return false;

            }

            if (Number(phoneNumber) !== parseInt(phoneNumber, 10)){

                alert("Invalid Phone Number");

                return false;

            }

            if (!gender) {

                alert("Please select your gender");

                 return false;

            }

            return true;

        }

    </script>

* Check if the email entered is a valid email
* Check if Password and Re Enter Password fields have different values
* Check if Phone Number is Valid
* Check if the user has chosen a gender
* In PHP

$email\_verify = mysqli\_query($con, "SELECT \* FROM customer WHERE email='$email' ");

        $username\_verify = mysqli\_query($con, "SELECT \* FROM customer WHERE user\_id='$username' ");

        $phoneNumber\_verify = mysqli\_query($con, "SELECT \* FROM customer WHERE phone\_number='$phoneNumber' ");

        if (mysqli\_num\_rows($email\_verify) != 0) {

            echo "<script type='text/javascript'>alert('Email Already Exists');window.location='reg.html';</script>";

        } elseif (mysqli\_num\_rows($username\_verify) != 0){

            echo "<script type='text/javascript'>alert('Username Already Exists');window.location='reg.html';</script>";

        } elseif (mysqli\_num\_rows($phoneNumber\_verify) != 0){

            echo "<script type='text/javascript'>alert('Phone Number Already Exists');window.location='reg.html';</script>";

        }

* Checks if the username is already taken.
* Checks if the email was registered before.
* Checks if the Phone Number was registered before.
* Assumption: two users cant have the same username, email, phone number.
* SQL Query Used:

INSERT INTO customer (user\_id, first\_name, last\_name, phone\_number, email, password, isAdmin, gender, Bdate) VALUES ('$username', '$firstName', '$lastName','$phoneNumber', '$email', '$encrypted', 'false', '$gender', '$bdate')

Login

A computer screen shot of a login screen

Description automatically generated

Validations

* In Javascript

function validate()

        {

* var userType = document.querySelector('input[name="userType"]:checked');

            if (!userType) {

                alert("Please select customer or admin");

                 return false;

            }

            return true;

        }

* Validate that the user has selected either customer or admin
* In PHP

$username\_verify = mysqli\_query($con, "SELECT \* FROM customer WHERE user\_id='$username' ");

        if ($userType == 'customer') {

            $login\_verify = mysqli\_query($con, "SELECT \* FROM customer WHERE user\_id='$username' AND password='$encrypted' AND isAdmin=0");

            if (mysqli\_num\_rows($username\_verify) == 0) {

                echo "<script type='text/javascript'>alert('This Username Doesnot Exist');window.location='login.html';</script>";

            } elseif (mysqli\_num\_rows($login\_verify) != 1){

                echo "<script type='text/javascript'>alert('Wrong Password');window.location='login.html';</script>";

            } else {

                header("Location: yourhome.html?username=$username");

                mysqli\_close($con);

            }

        } else {

vWHERE user\_id='$username' AND password='$encrypted' AND isAdmin=1");

            if (mysqli\_num\_rows($username\_verify) == 0) {

                echo "<script type='text/javascript'>alert('This Username Doesnot Exist');window.location='login.html';</script>";

            } elseif (mysqli\_num\_rows($login\_verify) != 1){

                echo "<script type='text/javascript'>alert('Wrong Password');window.location='login.html';</script>";

            } else {

                header("Location: adminHome.html");

                mysqli\_close($con);

            }

        }

* Make sure that the username entered exists in the database
* Verify that the username and password match for the same user
* SQL Queries Used:

SELECT \* FROM customer WHERE user\_id='$username'

SELECT \* FROM customer WHERE user\_id='$username' AND password='$encrypted' AND isAdmin=0

SELECT \* FROM customer WHERE user\_id='$username' AND password='$encrypted' AND isAdmin=1

* A customer after logging in or signing in he is redirected to his home page.
* An admin after loggingis redirected to admin home page.

Customer Home Page

A black car on a black background

Description automatically generated

* SQL Query Used:

SELECT first\_name, last\_name FROM customer WHERE user\_id='$username'

* Used to get the user’s first and last name to be displayed in his home page

Offices

A computer screen shot of a car

Description automatically generated

* SQL Query Used:

SELECT city, country FROM office

* In Customer’s Home Page after entering pickupdate, dropoffdate, city, country.
* He is redirected to the page that shows all available cars in this period and in the same city and country.
* Validations used:

if ($pickupTimestamp > $dropoffTimestamp) {

        echo "<script type='text/javascript'>alert('Please Enter Valid Dates');window.location='yourhome.html?username=$username';</script>";

        exit(); // Stop further execution

    }

    $office\_verify = mysqli\_query($con, "SELECT \* FROM office WHERE city='$city' AND country='$country' ");

    if (mysqli\_num\_rows($office\_verify) != 1) {

        echo "<script type='text/javascript'>alert('Please Enter A Valid City And Country From One Of Our Offices');window.location='yourhome.html?username=$username';</script>";

        exit();

    }

* Makes sure that the pickupdate is before the dropoffdate
* Verify that the city and country entered are within one of out available offices
* SQL Query Used:

SELECT \* FROM office WHERE city='$city' AND country='$country'

Available cars

A screenshot of a computer

Description automatically generated

* SQL Queries Used:

SELECT office\_id FROM office WHERE city='$city' AND country='$country'

SELECT c.num\_plate, c.letter\_plate, c.model, c.year, c.status, c.image\_path, c.price, c.color

        FROM car c

        LEFT JOIN reservation r ON c.num\_plate = r.num\_plate AND c.letter\_plate = r.letter\_plate

        WHERE r.num\_plate IS NULL

            OR (r.pickup\_date > '$dropoffDate' OR r.dropoff\_date < '$pickupDate')

            OR r.office\_id != '$office\_id'

* After Renting a Car

A screenshot of a computer

Description automatically generated

* SQL Query Used:

INSERT INTO reservation (num\_plate, letter\_plate, user\_id, pickup\_date, dropoff\_date, office\_id)

                    VALUES ('$num\_plate', '$letter\_plate', '$username', '$pickupDate', '$dropoffDate', '$office\_id')

* Then the user is redirected to his home page.

A black car on a black background

Description automatically generated

* After entering the Pickup Date, Dropoff Date, City, Country

A screenshot of a computer

Description automatically generated

* Where you can search by color, model, year.
* After clicking on search this search bar appears.

A screenshot of a computer

Description automatically generated

* Search by color for blue cars

A screenshot of a computer

Description automatically generated

* Available Cars redirects the user to the previous page

A screenshot of a computer

Description automatically generated

* Search by model for S cars

A screenshot of a computer

Description automatically generated

* Search by year for 2013 cars

A screenshot of a computer

Description automatically generated

* SQL Queries Used:

SELECT office\_id FROM office WHERE city='$city' AND country='$country'

SELECT c.num\_plate, c.letter\_plate, c.model, c.year, c.status, c.image\_path, c.price, c.color

    FROM car c

    LEFT JOIN reservation r ON c.num\_plate = r.num\_plate AND c.letter\_plate = r.letter\_plate

    WHERE (r.num\_plate IS NULL

        OR (r.pickup\_date > '$dropoffDate' OR r.dropoff\_date < '$pickupDate')

        OR r.office\_id != '$office\_id')

        AND c.color = '$color'

SELECT c.num\_plate, c.letter\_plate, c.model, c.year, c.status, c.image\_path, c.price, c.color

    FROM car c

    LEFT JOIN reservation r ON c.num\_plate = r.num\_plate AND c.letter\_plate = r.letter\_plate

    WHERE (r.num\_plate IS NULL

        OR (r.pickup\_date > '$dropoffDate' OR r.dropoff\_date < '$pickupDate')

        OR r.office\_id != '$office\_id')

        AND c.model = '$model'

SELECT c.num\_plate, c.letter\_plate, c.model, c.year, c.status, c.image\_path, c.price, c.color

    FROM car c

    LEFT JOIN reservation r ON c.num\_plate = r.num\_plate AND c.letter\_plate = r.letter\_plate

    WHERE (r.num\_plate IS NULL

        OR (r.pickup\_date > '$dropoffDate' OR r.dropoff\_date < '$pickupDate')

        OR r.office\_id != '$office\_id')

        AND c.year = '$year'

Admin Home Page

A white and black sign with black text

Description automatically generated

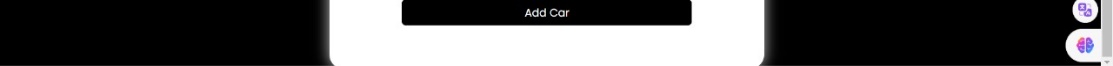
The admin’s role includes

1. Adding new cars
2. Adding newly employed admins
3. Updating car’s status
4. Viewing the details of all reservations
5. Viewing the details of all reservations within a specific period

A screenshot of a computer

Description automatically generated

Add Car



Validations Used:

* In PHP:

 $plateNum = $\_POST["plateNum"];

    $plateLetter = $\_POST["plateLetter"];

    if (!is\_numeric($plateNum)) {

        echo "<script type='text/javascript'>alert('Error: Plate Number should be numeric');window.location.href='addCar.html'</script>";

        exit; // Stop execution if the price is not numeric

    }

    if (!ctype\_alpha($plateLetter)) {

        echo "<script type='text/javascript'>alert('Error: Plate Letters should contain only letters');window.location.href='addCar.html'</script>";

        exit; // Stop execution if color contains non-letter characters

    }

    // Check if a car with the same plates already exists

    $checkQuery = "SELECT \* FROM car WHERE num\_plate = '$plateNum' AND letter\_plate = '$plateLetter'";

    $result = $con->query($checkQuery);

    if ($result->num\_rows > 0) {

        // Car with the same plates already exists

        echo "<script type='text/javascript'>alert('Error: Car with the same plates already exists');window.location.href='addCar.html'</script>";

    } else {

        // Car with the given plates doesn't exist, proceed with insertion

        $model = $\_POST["model"];

        $year = $\_POST["year"];

        $status = $\_POST["status"];

        $imagePath = $\_POST["imagePath"];

        $price = $\_POST["price"];

        $color = $\_POST["color"];

        $office = $\_POST["office"];

        if (!is\_numeric($price)) {

            echo "<script type='text/javascript'>alert('Error: Price should be numeric');window.location.href='addCar.html'</script>";

            exit; // Stop execution if the price is not numeric

        }

        if (!is\_numeric($office)) {

            echo "<script type='text/javascript'>alert('Error: Office Number should be numeric');window.location.href='addCar.html'</script>";

            exit; // Stop execution if the price is not numeric

        }

        if (!is\_numeric($year)) {

            echo "<script type='text/javascript'>alert('Error: Year should be numeric');window.location.href='addCar.html'</script>";

            exit; // Stop execution if the price is not numeric

        }

        if (!ctype\_alpha($color)) {

            echo "<script type='text/javascript'>alert('Error: Color should contain only letters');window.location.href='addCar.html'</script>";

            exit; // Stop execution if color contains non-letter characters

        }

        if (!ctype\_alpha($status)) {

            echo "<script type='text/javascript'>alert('Error: Status should contain only letters');window.location.href='addCar.html'</script>";

            exit; // Stop execution if color contains non-letter characters

        }

        $office\_verify = mysqli\_query($con, "SELECT \* FROM office WHERE office\_id='$office'");

        if (mysqli\_num\_rows($office\_verify) != 1) {

            echo "<script type='text/javascript'>alert('Please Enter A Valid Number Of One Of Our Offices');window.location='addCar.html';</script>";

            exit();

        }

* Makes sure that plate number, price ,office id, year are numeric values
* Makes sure that plate letters, colors, and status are alphabet letters.
* Verifies that the inserted office id is one of our offices.
* Verifies that a car with repeated plates can’t be added again.
* SQL Query Used:

$query = "INSERT INTO `car` (`num\_plate`, `letter\_plate`, `model`, `year`, `status`, `image\_path`, `price`, `office\_id`, `color`) VALUES

        ('$plateNum', '$plateLetter', '$model', '$year', '$status', '$imagePath', '$price', '$office','$color')";

* After adding a new car:

A screenshot of a computer

Description automatically generated

* Then the admin is redirected back to the admin home page.

Add Admin

Validations

* In Javascript

<script type="text/javascript">

        function validate()

        {

            var email=document.getElementById("email").value;

            var password=document.getElementById("password").value;

            var newpass=document.getElementById("newPassword").value;

            var mailformat =  /^[a-zA-Z0-9.!#$%&'\*+/=?^\_`{|}~-]+@[a-zA-Z0-9-]+(?:\.[a-zA-Z0-9-]+)\*$/;

A screenshot of a login form

Description automatically generated

var phoneNumber =  document.getElementById("phoneNumber").value;

            var gender = document.querySelector('input[name="gender"]:checked');

            if(!(email.match(mailformat)))

            {

                alert("Invalid Email Address");

                return false;

            }

            if (password != newpass){

                alert("Password Not Matching");

                return false;

            }

            if (Number(phoneNumber) !== parseInt(phoneNumber, 10)){

                alert("Invalid Phone Number");

                return false;

            }

            if (!gender) {

                alert("Please select your gender");

                 return false;

            }

            return true;

        }

    </script>

* Check if the email entered is a valid email
* Check if Password and Re Enter Password fields have different values
* Check if Phone Number is Valid
* Check if the user has chosen a gender
* In PHP

$email\_verify = mysqli\_query($con, "SELECT \* FROM customer WHERE email='$email' ");

        $username\_verify = mysqli\_query($con, "SELECT \* FROM customer WHERE user\_id='$username' ");

        $phoneNumber\_verify = mysqli\_query($con, "SELECT \* FROM customer WHERE phone\_number='$phoneNumber' ");

        if (mysqli\_num\_rows($email\_verify) != 0) {

            echo "<script type='text/javascript'>alert('Email Already Exists');window.location='reg.html';</script>";

        } elseif (mysqli\_num\_rows($username\_verify) != 0){

            echo "<script type='text/javascript'>alert('Username Already Exists');window.location='reg.html';</script>";

        } elseif (mysqli\_num\_rows($phoneNumber\_verify) != 0){

            echo "<script type='text/javascript'>alert('Phone Number Already Exists');window.location='reg.html';</script>";

        }

* Checks if the username is already taken.
* Checks if the email was registered before.
* Checks if the Phone Number was registered before.
* Assumption: two users can’t have the same username, email, phone number.
* SQL Query Used:

 INSERT INTO customer (user\_id, first\_name, last\_name, phone\_number, email, password, isAdmin, gender, Bdate) VALUES ('$username', '$firstName', '$lastName','$phoneNumber', '$email', '$encrypted', 'true', '$gender', '$bdate')

A screen shot of a computer screen

Description automatically generatedUpdate Car Status

Validations

* In Javascript

<script>

function validateForm() {

            var plateNum = document.getElementById("plateNum").value;

            var plateLetter = document.getElementById("plateLetter").value;

            var radioButtons = document.getElementsByName("status");

            var radioButtonChecked = false;

            // Regular expressions for number and letter validation

            var numRegex = /^[0-9]+$/;

            var letterRegex = /^[a-zA-Z]+$/;

            // Validation for Plate's Number field

            if (plateNum === "" || !plateNum.match(numRegex)) {

                alert("Please enter a valid Plate's Number (numbers only).");

                return false;

            }

            // Validation for Plate's Letter field

            if (plateLetter === "" || !plateLetter.match(letterRegex)) {

                alert("Please enter a valid Plate's Letter (letters only).");

                return false;

            }

            // Validation for radio buttons

            for (var i = 0; i < radioButtons.length; i++) {

                if (radioButtons[i].checked) {

                    radioButtonChecked = true;

                    break;

                }

            }

            if (!radioButtonChecked) {

                alert("Please select the Car's Status.");

                return false;

            }

        }

    </script>

* Check if Plate Number is empty or contains non integer values.
* Check if Plate Letter is empty or contains values that aren’t letters.
* Check if the radio buttons is checked for changing the car status.
* In PHP

<?php

include("connect.php");

if ($conn->connect\_error) {

    die("Connection failed: " . $conn->connect\_error);

}

if ($\_SERVER["REQUEST\_METHOD"] == "POST") {

    // Collect form data

    $plateNum = $\_POST["plateNum"];

    $plateLetter = $\_POST["plateLetter"];

    $status = $\_POST["status"];

    // Check if the plate number and letter exist in the database

    $checkPlateQuery = "SELECT \* FROM car WHERE num\_plate='$plateNum' AND letter\_plate='$plateLetter'";

    $result = $conn->query($checkPlateQuery);

    if ($result->num\_rows == 0) {

        echo "<script type='text/javascript'>alert('Car with Plate Number: $plateNum and Plate Letter: $plateLetter does not exist.'); window.location.href = 'adminHome.html';</script>";

        exit;

    }

    // Update the car status in the database

    $updateQuery = "UPDATE car SET status='$status' WHERE num\_plate='$plateNum' AND letter\_plate='$plateLetter'";

    if ($conn->query($updateQuery) === TRUE) {

        echo "<script type='text/javascript'>alert('Car status updated successfully'); window.location.href='adminHome.html';</script>";

    } else {

        echo "<script type='text/javascript'>alert('Error updating car status: " . $conn->error . "');</script>";

    }

    $conn->close();

}

?>

* Checks if the plate numbers and the plate letters are present in the database.
* SQL Query Used:

UPDATE car SET status='$status' WHERE num\_plate='$plateNum' AND letter\_plate='$plateLetter'

A screenshot of a car reservation

Description automatically generated

* Sql query used:

SELECT r., c.\*, car.\*, o.

FROM reservation r

JOIN customer c ON r.user\_id = c.user\_id

JOIN car ON r.num\_plate = car.num\_plate AND r.letter\_plate = car.letter\_plate

SELECT r., c.\*, car.\*, o.

FROM reservation r

JOIN customer c ON r.user\_id = c.user\_id

JOIN car ON r.num\_plate = car.num\_plate AND r.letter\_plate = car.letter\_plate

JOIN office o ON r.office\_id = o.office\_id

A computer screen shot of a black screen

Description automatically generated

A screenshot of a computer

Description automatically generated

Start date 1-1-2024

End data 20-1-2024

* Sql query used:

SELECT r., c.\*, car.\*, o.

FROM reservation r

JOIN customer c ON r.user\_id = c.user\_id

JOIN car ON r.num\_plate = car.num\_plate AND r.letter\_plate = car.letter\_plate

JOIN office o ON r.office\_id = o.office\_id

WHERE r.pickup\_date >= '$startDate' AND r.dropoff\_date <= '$endDate'