

CAR RENTAL SYSTEM

Done By:

Hana Waleed Farouk 7599

Yassin Medhat Helmy 7574

Hassan Tamer 7405

2.1.2024

Database Systems

INTRODUCTION

It was required to implement a car rental system that allows users to rent cars.

Pages


Login Registration


☐ Admin ☐ Customer

Login

Don't have an account? [Register](#)

Login Registration

☐

☐

Register

Have an account? [login now](#)

This is the login and register pages , the login is for both admins and customers while registration is for customer only.

Customer

On login , redirected to profile page


My Profile



Name: Alice Johnson

Email: alice@example.com


SSN: SSN001


Phone Number: 1234567890

 Profile

 Procedures 

Rent

 Trips History

 Logout

This shows the basic info of the Customer. There is a sidebar used for navigation in all pages.

Rent is used to reserve (rent) a car.

Available Cars Today

Rent	Model	Color	year	District	Country	City
Rent	SUV	Red	2018	Central Business	United States	New York
Rent	Sedan	black	2020	Financial	United States	San Francisco
Rent	SUV	hana_blue	2017	Downtown	Australia	Sydney
Rent	Sedan	yellow	2022	Central Business	United States	New York
Rent	Truck	white	2023	Tech Hub	United Kingdom	London
Rent	Hatchback	yassin_green	2019	Downtown	Australia	Sydney
Rent	Sedan	hana_blue	2022	Central Business	United States	New York
Rent	SUV	hana_blue	2020	Business Park	Canada	Toronto
Rent	Sedan	white	2021	Downtown	Australia	Sydney

Filter By

Model


YYYY


Color

District

Country

City

mm/dd/yyyy 

mm/dd/yyyy 

Apply

This shows a part of the page , on the left is a list of all available cars that fit the criteria that will be filled in the right section of the page. To rent a car , the green “Rent” button on the left is clicked. A car can’t be rented without setting the dates first and pressing apply.

Rent History

Car Plate	Model	Year	Start Date	End Date	Amount	City	Country
CAR011	Sedan	2022	2024-01-15	2024-01-26	319000.00	New York	United States
CAR006	Sedan	2022	2024-01-23	2024-01-24	30000.00	New York	United States
CAR036	Truck	2020	2024-01-23	2024-01-25	66000.00	New York	United States
CAR036	Truck	2020	2024-01-16	2024-01-23	231000.00	New York	United States
CAR036	Truck	2020	2024-02-01	2024-02-17	528000.00	New York	United States
CAR039	Sedan	2022	2024-01-24	2024-01-27	90000.00	Toronto	Canada
CAR035	Sedan	2017	2024-01-24	2024-01-27	93000.00	Sydney	Australia

The trips history tab shows the rent history of all cars done by this specific customer.

The logout tab returns to the first login / registration page.

Admin

The admin tab has more functionality than the customer , but after login it is also redirected to a profile and also has a sidebar.

Admin Data

Name: John Doe

Email: johndoe@example.com

SSN: SSN001

Office Id: 1

Country: United States

City: New York

Profile

Manage Cars

Add

View

Update

Customers Reports

Reservations

Car Reservations

Car Status

Customer Reservation

Payements History

Users

Add Office

Logout

Register

Add a Car

Plate Number:	<input type="text"/>
Office ID:	<input type="text" value="Office"/>
Year:	<input type="text" value="YYYY"/>
Model:	<input type="text"/>
Color:	<input type="text"/>
Price:	<input type="text"/>
Status:	<input type="text" value="Status"/>

Add Car

Add car adds new car to the database

Advanced Search

OFFICE	COLOR	year
Model	Plate Numbe	Status
Price	Search	

This is the advanced search window for cars. It shows cars according to a variety of specs. On clicking search , redirected to a page that views cars as shown in the figure below:

Back
Number of queries: 51

Office ID	Color	Year	Model	Plate	Price	Status
2	Magenta	2019	Mod	111111	4000.00	busy
1	Red	2018	SUV	CAR001	25000.00	available
2	black	2020	Sedan	CAR002	28000.00	available
3	white	2019	Truck	CAR003	32000.00	out_of_service
4	silver	2021	Hatchback	CAR004	20000.00	busy
5	hana_blue	2017	SUV	CAR005	27000.00	available
1	yellow	2022	Sedan	CAR006	30000.00	available
2	hassan_turquoise	2018	Hatchback	CAR007	22000.00	out_of_service
3	white	2023	Truck	CAR008	35000.00	available
4	silver	2020	SUV	CAR009	26000.00	busy
5	yassin_green	2019	Hatchback	CAR010	23000.00	available
1	hana_blue	2022	Sedan	CAR011	29000.00	available
2	black	2018	Truck	CAR012	33000.00	out_of_service
3	Red	2017	Hatchback	CAR013	24000.00	busy
4	hana_blue	2020	SUV	CAR014	28000.00	available
5	white	2021	Sedan	CAR015	27000.00	available
1	black	2019	Truck	CAR016	31000.00	out_of_service
2	silver	2023	Hatchback	CAR017	19000.00	busy

The update window updates or deletes a car with a certain plate number.

Update Car Status

Plate Number:

Plate Number: ▼

Status:

Status ▼

Update

Plate Number:

Plate Number: ▼

Delete

There are five customer reports available.

1- Reservations : this shows all reservations in a certain time limit

Start Date01/01/2023End Date04/01/2023Apply

Number of queries: 3
Reservation Between 2023-01-01 AND 2023-04-01

Procedure ID	Name	SSN	Phone Number	Email	Plate Number	Year	Model	Color	Price	Office ID	Country	City	District	Start Date	End Date
1	Alice Johnson	SSN001	1234567890	alice@example.com	CAR001	2018	SUV	Red	25000.00	1	United States	New York	Central Business	2023-01-01	2023-01-07
2	Bob Smith	SSN002	9876543210	bob@example.com	CAR002	2020	Sedan	black	28000.00	2	United States	San Francisco	Financial	2023-02-15	2023-02-22
3	Charlie Williams	SSN003	5551234567	charlie@example.com	CAR003	2019	Truck	white	32000.00	3	United Kingdom	London	Tech Hub	2023-03-10	2023-03-17

2- Car Reservations: this shows car reservations by both time and car plate number

Start Datemm/dd/yyyyEnd Datemm/dd/yyyyCAR006Apply

Number of queries: 1
Reservation Between AND

Procedure ID	Office ID	Plate	Year	Model	Price	Color	Status	Country	City	District	Start Date	End Date
6	1	CAR006	2022	Sedan	30000.00	yellow	available	United States	New York	Central Business	2023-06-11	2023-06-18

3-Car Status: this shows all car statuses in a specific day

Datemm/dd/yyyyApply

Number of queries: 1

Office ID	Plate	Year	Model	Price	Color	Status	Country	City	District	Date
2	111111	2019	Mod	4000.00	Magenta	busy	United States	San Francisco	Financial	2023-12-30 00:00:00

4- Customer Reservations: this shows reservations of a customer by searching on any of customer attributes

alQReset

Number of queries: 8

Name	SSN	Procedure ID	Office ID	Plate	Year	Model	Price	City	District
Alice Johnson	SSN001	1	1	CAR001	2018	SUV	25000.00	New York	Central Business
Alice Johnson	SSN001	111	5	CAR005	2017	SUV	27000.00	Sydney	Downtown

5-Payments: This shows all payments done in a specific time period

Start Date01/01/2024End Date01/04/2024Apply

Number of queries: 2
Payments Between 2024-01-01 AND 2024-01-04

Day	Total
2024-01-01	243000.00
2024-01-03	225000.00

The Users tab shows a list of all users and a search bar for any user as well

Search users

Reset

First Name	Last Name	SSN	Phone Number	Email
Alice	Johnson	SSN001	1234567890	alice@example.com
Bob	Smith	SSN002	9876543210	bob@example.com
Charlie	Williams	SSN003	5551234567	charlie@example.com
David	Brown	SSN004	4442223333	david@example.com
Emma	Davis	SSN005	3331114444	emma@example.com
Frank	Miller	SSN006	2225556666	frank@example.com

The logout redirects to the first login/ register page.

The register tab is for admin registration.

Admin Registration

first Name

last Name

Office ID

ssn

Email

password

confirm password

Register

Add office to add new office

Add Office

Country:	<input type="text" value="Country"/>
City:	<input type="text" value="city"/>
District:	<input type="text" value="District"/>

Some of the Used Queries

```
$update_car_query = "UPDATE car SET current_status = ? WHERE plate_number = ? ";  
DB::update($update_car_query, [$stat, $car_plate]);
```

```
$delete_car_query = "DELETE FROM car WHERE plate_number = ?";  
$res = DB::delete($delete_car_query, [$request->input('plateNumber_delete')]);
```

```

$query_car = "INSERT INTO car (plate_number, year, model, color, office_id, price, current_status)
VALUES (?, ?, ?, ?, ?, ?, ?)";

$query_car_status = "INSERT INTO car_status (plate_number, `date`, `status`)
VALUES (?, ?, ?)";

$res = DB::insert($query_car, [
    $request->plateNumber,
    $request->year,
    $request->model,
    $request->color,
    $request->office_id,
    $request->price,
    $request->current_status
]);

$res2 = DB::insert($query_car_status, [
    $request->plateNumber,
    Carbon::now(),
    $request->current_status
]);

```

```

$searchQuery = '%' . $srch . '%';

$query = "SELECT * FROM customer WHERE (fname LIKE ?
OR lname LIKE ? OR email LIKE ? OR phone_number LIKE ?
OR SSN LIKE ?)";
$users = DB::select($query, [$searchQuery, $searchQuery, $searchQuery, $searchQuery, $searchQuery]);

```

```

$query = "SELECT * FROM car
NATURAL JOIN rent
NATURAL JOIN customer
NATURAL JOIN office
WHERE start_date >= '$start_date' AND end_date <= '$end_date'";

```

```

$query = "Select * from car join office on car.office_id = office.office_id";
$query .= " where current_status = 'available'";

if ($model) {
    $query .= " and model LIKE :model";
}

if ($color) {
    $query .= " and color LIKE :color";
}

if ($year) {
    $query .= " and year = :year";
}

if ($district) {
    $query .= " and district LIKE :district";
}

if ($country) {
    $query .= " and country LIKE :country";
}

if ($city) {
    $query .= " and city LIKE :city";
}

$query2 = " EXCEPT (SELECT car.* , office.* FROM car join office on car.office_id = office.office_id join rent
on car.plate_number = rent.plate_number WHERE rent.start_date <= :start_date AND rent.end_date >= :end_date) ";
$query = $query . $query2;

```

CODE DDL

```
use Car_Rental;

CREATE TABLE office (

    office_id INT AUTO_INCREMENT PRIMARY KEY,

    district VARCHAR(50),

    country VARCHAR(50),

    city VARCHAR(50)

);

CREATE TABLE car (

    plate_number VARCHAR(20) PRIMARY KEY,

    year INT,

    model VARCHAR(50),

    color VARCHAR(50),

    office_id INT,

    price DECIMAL(10, 2),

    current_status VARCHAR(50),

    FOREIGN KEY (office_id) REFERENCES office(office_id)

);

CREATE TABLE admin (

    fname VARCHAR(50),
```

```

    lname VARCHAR(50),

    SSN VARCHAR(20) PRIMARY KEY,

    office_id INT,

    password VARCHAR(100),

    email VARCHAR(100),

    FOREIGN KEY (office_id) REFERENCES office(office_id)
);

```

```

CREATE TABLE customer (

    SSN VARCHAR(20) PRIMARY KEY,

    fname VARCHAR(50),

    lname VARCHAR(50),

    phone_number VARCHAR(20),

    email VARCHAR(100),

    password VARCHAR(100),

    card_number VARCHAR(20)

);

```

```

CREATE TABLE rent (

    SSN VARCHAR(20),

    plate_number VARCHAR(20),

    procedure_id INT AUTO_INCREMENT PRIMARY KEY,

```

```

    start_date DATE,

    end_date DATE,

    amount_paid DECIMAL(10, 2),

    FOREIGN KEY (SSN) REFERENCES customer(SSN) ON DELETE CASCADE,

    FOREIGN KEY (plate_number) REFERENCES car(plate_number) ON DELETE
CASCADE
);

CREATE TABLE car_status (

    plate_number VARCHAR(20),

    status VARCHAR(50),

    date TIMESTAMP,

    PRIMARY KEY (plate_number, date),

    FOREIGN KEY (plate_number) REFERENCES car(plate_number) ON DELETE
CASCADE
);

```

ER DIAGRAM

