Car Rental System

Project

Team

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Idea

Our website is well thought out and shows that we were determined to make the project as realistic as possible to a real life car rental system.
Our system supports multiple offices where offices can be located in different countries, cities.
Users in our system are only allowed if they're older than 18 years and have a valid national ID.
The system has a very strong search mechanism for free cars between dates.
And user can also filter the cars based on their needs (price, model, manufacturer, etc..)

We know how hard it is to see all your previous data as a user or as an admin, that's why we put a lot of thought into how to represent these data in an organized and pleasing to they eye manner.
We used tables with searches and sorting features so data seeking is a breeze.
Admins are humans 😅, that's why they also can make their own reservations and manage at the same time.

And most importantly our system proved to work on a remote mysql database and even the website is live at a server!

Division of labor

We started by a meeting call in which we discussed the problems, and how to approach solutions, we agreed on a certain program/database architecture.

We then split work between us, each of us had a part that he will dedicate himself to perfect it.

We first used whatsapp as a way of communicating and updating/informing each other of the progress each one of us made.

Then we discovered because of the large quantity of files each of us made, Whatsapp became very crowded because of these files, so we decided to move our work to Github.

Github helped us share our work with each other with ease and develop much faster because we all always had the newest updates of one another.

Features

Our project is packed with features, let's discuss them below.

Dynamic System

Our program is dynamic meaning that:

- User session is saved and heavily secured through server-side encryption/validation
- All our functions work asynchronously so nothing happens before it should happens
- Lack of asynchronous behaviour would not appear on a localhose website, that's why we tested our asynchronous system in a live server and made sure everything is perfected
- Not only the website was live on a server, but also the MySQL database was on a live server and connected to it remotely!

Efficient Queries

The implemented system utilizes search queries efficiently so that in most cases, all the information required by the page can be retrieved from the database using a single search query. This makes the system run much more smoothly which can help improve client satisfaction. The database schema is also designed to help retrieve important information easily.

The following are some samples of queries used:

- The admin can retrieve statistics about each car, including how many times it was reserved, the total prospective income from the car, total payments made for the car, total number of days it was reserved for, all using a single query.
- The customer can search for a car that is free in a specific time frame, is present in their desired location, and is not marked out of service by the admin, using advanced search filters that consider manufacturer, model year, and price. This is retrieved using 2 queries only.
- The admin can retrieve information about users including their personal information, total number of reservations made, total amount owed to the company, and total amount paid using 2 queries.
- The complete history of the car including the status at any given time can be retrieved by the admin using a single query.

Error Handling

We wanted to be very neat and organized for generated erros, so we gave each error an error code which describes it.

Some of these codes (definetley not all):

- Error 420
  -- Account with this email already exists
- Error 421
  -- Account with this national id already exists
- Error 422
  -- Wrong email and/or password
- Error 440
  -- A car already exist with the same plate
- Error 430
  -- No office with such ID
- Error 450
  -- An office exists in the same exact country and city and location

Remote Database

Our system is currently live and up and running all in cloud
MySQL is hosted on the cloud and a custom PHPMyAdmin is also set up just for it.
The website itself the HTML along with the PHP are also live and running.
Also the website has a SSL Certificate for extra security 😊

User

Login/Register Page

Welcome to Route 66

LOGIN   SIGN UP

E-mail

Password

Login

SIGN UP

E-mail

First Name Last Name
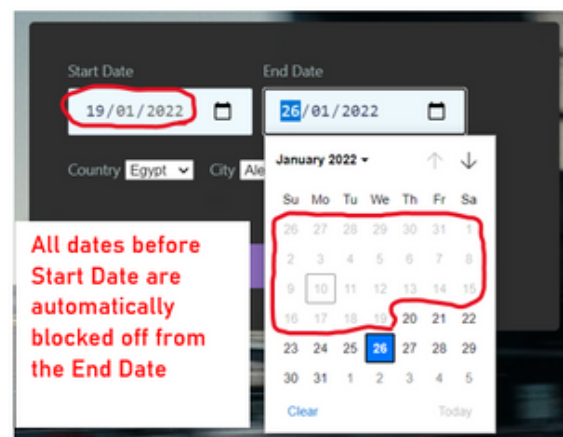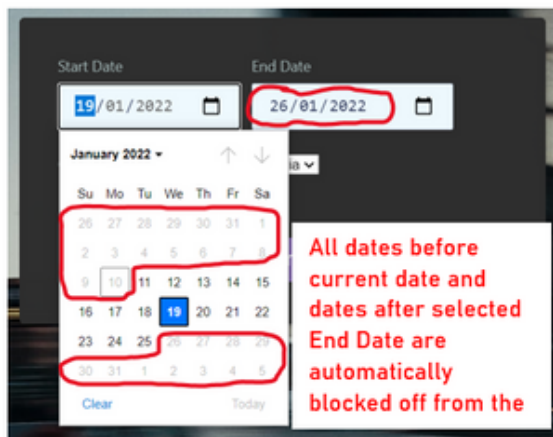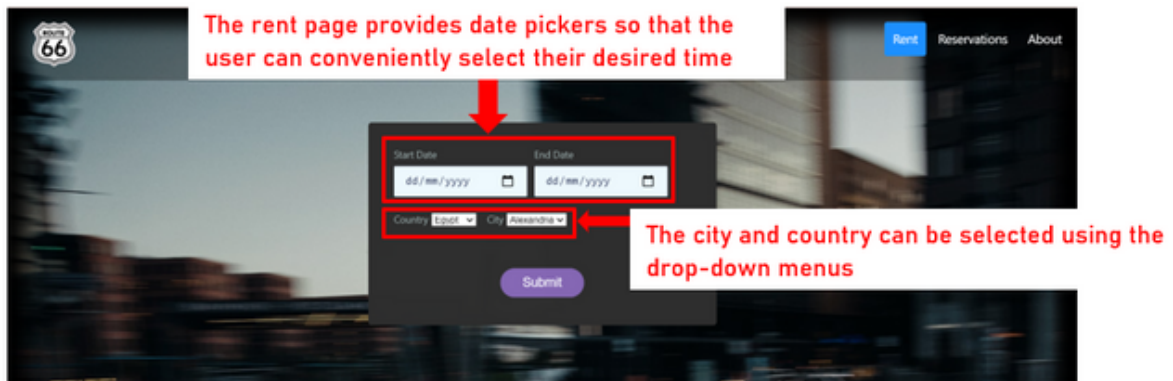
Phone number National ID

Birthdate

dd/mm/yyyy

Password

••••

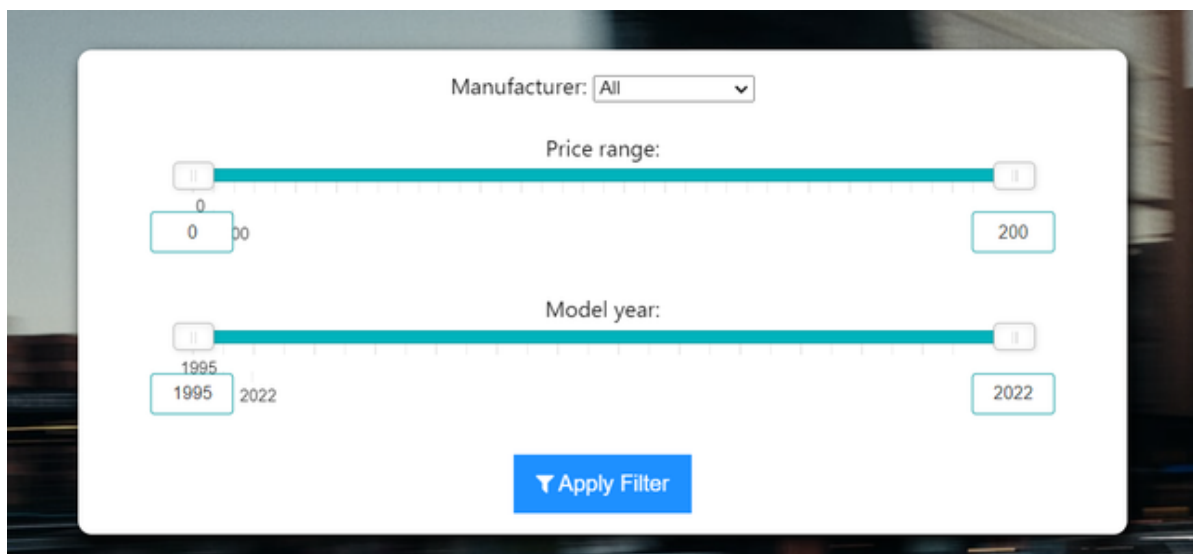This is a top-100 common password Add another word or two. Uncommon words are better.

Confirm Password

••••••

Passwords do not match!

Search Page

The rent page provides date pickers so that the user can conveniently select their desired time

The city and country can be selected using the drop-down menus

All dates before current date and dates after selected End Date are automatically blocked off from the

All dates before Start Date are automatically blocked off from the End Date

Results Page

when car is hovered more details are visible like price per day and total price for duration

User reservations page

Pay: Submit an amount for payment (will refuse if all is paid)
Cancel: Cancels reservation totally

User reservations table, which also includes the last status for this reservation, due amount, and paid amount

Clicking this button will show you this reservation payment history

Reservations

Show 10 entries

ID	Car	Start Date	End Date	Status	Due Amount	Paid Amount	Payment History	Actions	
1	TYY 120	2021-10-15	2021-10-18	RETURNED	80	80	Check	Pay	Cancel
5	CVV 140	2021-12-02	2021-12-06	RETURNED	60	60	Check	Pay	Cancel
9	JEP 160	2022-01-08	2022-01-12	PICKED UP	300	100	Check	Pay	Cancel

Showing 1 to 3 of 3 entries

Search:

Previous 1 Next

?

How much do you want to pay ?

Amount in EGP

65

OK

Payment History
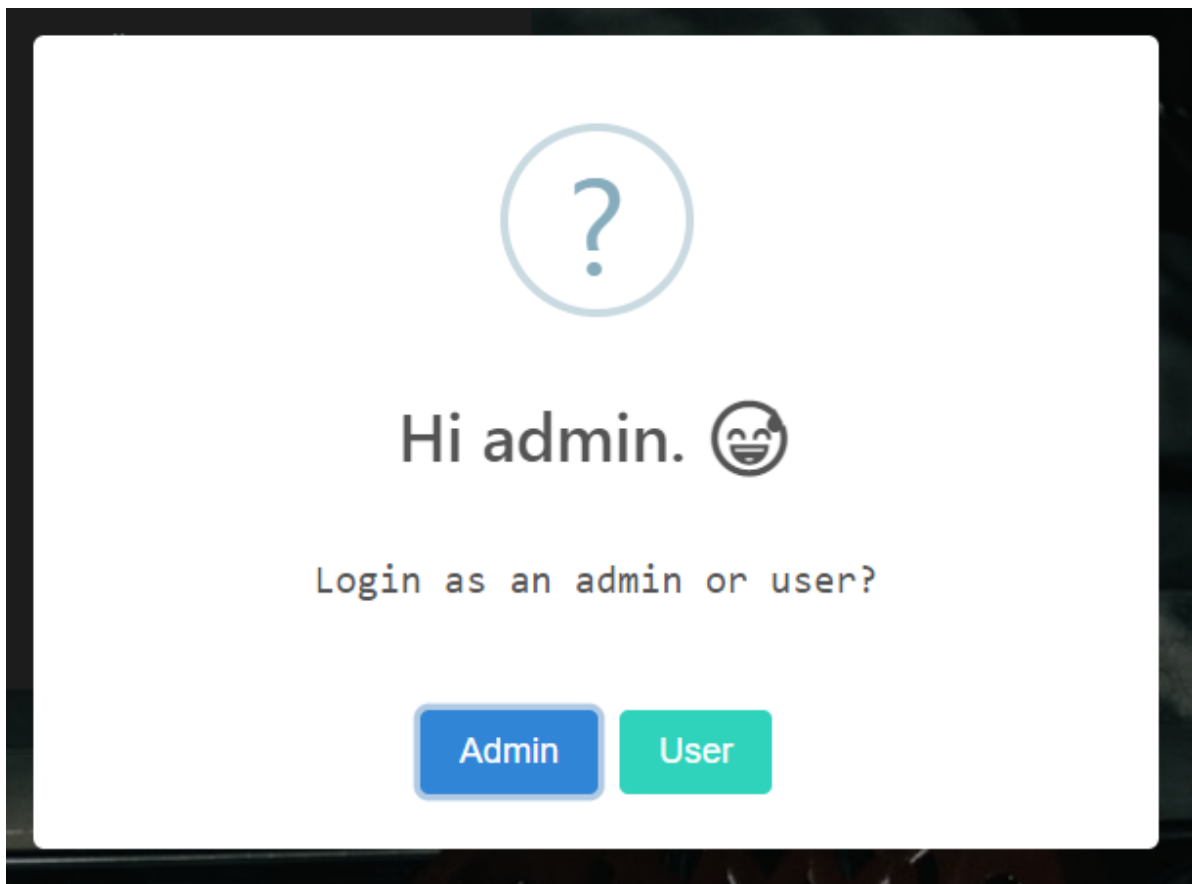
Show 10 entries

Search:

ID	Reservation ID	Payment amount	Date
1	1	15	2021-10-15
2	1	30	2021-10-17
3	1	35	2021-10-18
8	5	60	2021-12-03
11	9	100	2022-01-08

Showing 1 to 5 of 5 entries

Previous 1 Next

Admin

Admin login page

Users page

Users

Show 10 entries

Search:

Email	First Name	Last Name	National ID	Phone	Birthdate	Reservations	Due	Paid	Admin
admin@gmail.com	Admin	Account	123450	+20120123450	1999-01-05	0	0	0	Remove Admin
andrew@gmail.com	Andrew	Wahid	123456	+20120123456	1999-01-01	3	440	240	Set Admin
karim@gmail.com	Karim	Sameh	123458	+20120123458	1999-01-03	2	375	325	Set Admin
kiro@gmail.com	Kyrollos	Magdy	123459	+20120123459	1999-01-04	2	475	75	Set Admin
maaroof@gmail.com	Ahmed	Maaroof	123457	+20120123457	1999-01-02	3	225	110	Set Admin

Showing 1 to 5 of 5 entries

Previous 1 Next

Offices page

Offices + New Office

Show 10 entries

Search:

ID	Country	City	Location	Cars		Active
1	Egypt	Alexandria	Smouha	7		Set Inactive
2	Egypt	Alexandria	Moharam Bek	2		Set Inactive
3	Egypt	Cairo	Fifth Settlement	2		Set Inactive
4	France	Paris	Champs-Elysees	1		Set Inactive
5	United States of America	California	Orange County	1		Set Active

Showing 1 to 5 of 5 entries

Previous 1 Next

Create office

Country:

City:

Location:

OK

California   Orange County

Cars page

Cars   + New Car

All car info + current car status (active, out of service) + belongs to what office + how many times this car has been reserved + how many days has this car been reserved + how much incom this car generated + how much of this incom was received (paid by user)

Edit: Edit car info
Check history: Check car status history (ACTIVE, OUT OF SERVICE, RESERVED, PICKED UP, RETURNED)
Set Status: Change car status (for active and out of service only)

Show 10 ∨ entries   Search:

Plate	Manufacturer	Model	Year	Price/Day	Status	Image	Office ID	Reservations	Reserved Days	Income	Received	Actions
BWW 150	BMW	M3	2018	50	ACTIVE	Check Image	1	0	0	0	0	Edit Check History Set out of service
CVV 140	Chevrolet	Aveo	2013	10	ACTIVE	Check Image	1	1	5	60	60	Edit Check History Set out of service
CVV 141	Chevrolet	Optra	2012	15	OUT OF SERVICE	Check Image	1	1	3	45	0	Edit Check History Set active
FRD 210	Ford	Mustang	2019	100	ACTIVE	Check Image	5	0	0	0	0	Edit Check History Set out of service

Opens car image in new tab

Edit car: BWW 150

Manufacturer: BMW

Model: M3

Year: 2018

Price per day: 50

Image: https://i.ibb.co/wKs

Office ID: 1

OK

Create car

Plate:

Manufacturer:

Model:

Year:

Price per day:

Image:

Office ID:

OK

Car MRR 180 History

Show 10 v entries

Status and date of
status execution

Search:

Reservation ID	Status	Date
8	RETURNED	2021-12-13 00:00:00
8	PICKED UP	2021-12-10 00:00:00
8	RESERVED	2021-12-01 00:00:00
None	ACTIVE	2021-10-10 00:00:00

Showing 1 to 4 of 4 entries

Previous 1 Next

Reservations page

Payments page

ERD

available in high quality in Car Rental ER Diagram.pdf
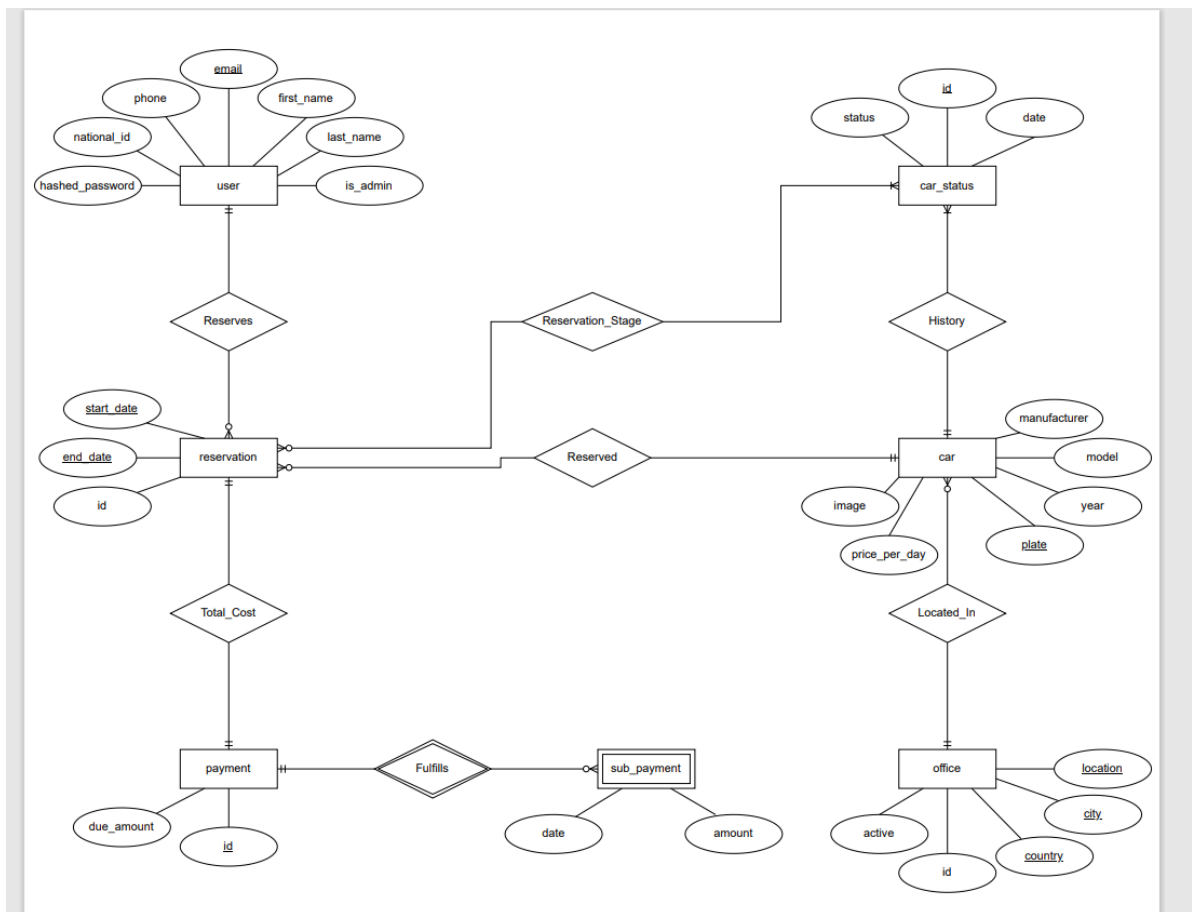
Thanks

Thanks for this wonderful semester.
We really learnt a lot, and we hope that you find your hard-work reflected in our project!

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