

Car Finder Web Portal

Team Members

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Problem Description

Due to the COVID-19 Pandemic, many small car dealerships have been unable to operate. Most have been permanently closed, while some have been able to see a few customers a day. However, most people do not want to leave their house out of fear of the pandemic. Additionally, these small dealerships are in to financial standing to afford a largescale database system for their car sales lot. They do not need all the bells and whistles of a large-scale company database – they just need to sell cars. That is where my portal will come in – to help small businesses sell more cars.

Project Motivation

This problem is interesting because it covers all of the database features. I will get to use multiple tables to keep track of cars, users, and admin. All data will be able to be edited by the appropriate user (user editing their info, admin adding/removing cars). The potential users for this program are people wishing to buy a car without leaving their home, a number that is exponentially growing day by day.

Description of Approach Taken and System Architecture

To solve this problem, I used a number of different systems and services. I used HTML to help design the basic framework and layout for the front facing pages. HTML is also used on all pages that do not need any dynamic content. I used a combination of HTML, PHP, and MySQL to develop the pages that needed to support dynamic content. HTML was used to provide the basic layout and framework, PHP was used to display data on the front end and process data on the backend, and MySQL was invoked through PHP to connect to the database. The database is hosted through the Clemson Buffet service. CSS is used to style the tables that are displayed upon a query.

The overall system architecture is very simple. There are main pages written in HTML and PHP to support dynamic content. MySQL is used through PHP to connect to the database for data verification, data queries, and data updating. There are a number of backend services performed by PHP which the user does not have access to. These services are located in the PHP folder. Three tables are used to store data: admin, user, and vehicle. The admin table simply holds the username and password for an administrator. The user table holds all pertinent information for each user. The vehicle table holds all of the vehicles for sale and contains all pertinent information for each vehicle (VIN, make, model, color, price, mileage, year).

Function and Feature Implementations

All of the basic features have been implemented in my portal.

User Account Management

- New user registration module: this feature is implemented by selecting “New User? Register Here” from the main page. This takes the user to the registration page. If they fill out all of the boxes, and their passwords match, then they will be sent to the user homepage and their information will be added to the database. If they leave a box empty or the passwords do not match, they will get an error message and be prompted to try again. This feature can be tested by navigating to the page and entering information for a new user. First, leave a box blank and try to submit. Then have mismatched passwords. Finally, enter everything correct and get sent to the user homepage.

New User Registration

First Name: *

Last Name: *

Age: *

Phone Number: *

Email Address: *

Address: *

Username: *

Password: *

Confirm Password: *

[Home Page](#)

New User Registration

First Name: *

Last Name: *

Age: *

Phone Number: *

Email Address: *

Address: *

Username: *

Password: *

Confirm Password: *

[Home Page](#)

User Homepage

[Search for vehicles!](#)

[Edit user info](#)

[Log Out](#)

- Sign in module: if a user already has an account, they can sign in by selecting “Already Registered? Login Here” from the main page. This takes them to a new page where they are prompted for their username and password. If they are correct with what is stored in the database, the user will be sent to the user homepage. If not, they will get an error message saying that their username or password is wrong, and to try again. This feature can be tested by first successfully making an account, then logging out and using the username and password to log back into the system. First enter an incorrect username or password to see the error handling. Then enter the right ones and get logged in.

Returning User Login Username: <input type="text"/> * Password: <input type="password"/> * <input type="button" value="Submit"/> Home Page	Returning User Login Username: <input type="text" value="jhayde"/> * Password: <input type="password" value="johnmichael06"/> * <input type="button" value="Submit"/> Home Page	User Homepage Search for vehicles! Edit user info Log Out
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- Profile update module: if a user wishes to change some of their information, they are welcome to do so after they have already logged in. They can login, then select “Edit user info”. From there, they are prompted to re-enter all of their information. Users are not able to change their username, but they are asked to verify it on this page. They have the option to change all of their personal information, including their password. If the passwords do not match, the data will not be saved, and they will be prompted to re-enter the new information. If all boxes are filled and the passwords match, they will be sent back to the user homepage. This can be tested by first creating a user account, then navigating to this page. Try to submit the form with blank lines or mismatched passwords, then have all fields correct and hit submit. You can change your password, log out, and log back in with your new password to show the update is working.

Enter New User Information Page

Note: you cannot change your username

Username:

Enter new user information below:

First Name:

Last Name:

Age:

Phone Number:

Email Address:

Address:

Password:

Confirm Password:

[Log Out](#)

Enter New User Information Page

Note: you cannot change your username

Username:

Enter new user information below:

First Name:

Last Name:

Age:

Phone Number:

Email Address:

Address:

Password:

Confirm Password:

[Log Out](#)

User Homepage

[Search for vehicles!](#)

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Data Management

- Allow users to view category level data, users are able to query data sets over a specified category: once logged in, users have the option to select "Search for vehicles!" which takes them to the vehicle search page. Here, there are detailed instructions on the different types of searches they can make. Users have the option to search over all fields, or only by make or make and model. If a search fails, it will default to searching for just the make and model to give the user a better idea of what is available. Once a search is made, the results will populate in a table below the Search button. To test this feature, first search for just a make. Then, search for make and model. Then, try searching with every field filled. You will see varying results populate, and different messages show up depending on the success of your search.

Vehicle Search Page

To search for a vehicle, enter any specific information you wish to search for, and click "submit"

- If you do not know color, mileage, year, or price, simply search by just make, or by make and model!

- For mileage and price, enter the maximum you wish to search for

- For year, enter the minimum you wish to search for

- If no vehicles match your search, the vehicles with corresponding make and model will be listed

Make:

Model:

Color:

Mileage:

Year:

Price:

[User Homepage](#)

Make:

Model:

Color:

Mileage:

Year:

Price:

Showing results for vehicles mathcing the requested make and model in stock.

VIN	Color	Make	Model	Mileage	Year	Price
1HDTJ75PTIR588683	Magenta	Ford	Mustang	288037	2002	47412
1JIVP36LFVA450421	Yellow	Ford	Mustang	90287	2010	46155
1HACV83HAUO856960	Black	Ford	Mustang	333380	1997	88599

[User Homepage](#)

Make:

Model:

Color:

Mileage:

Year:

Price:

VIN	Color	Make	Model	Mileage	Year	Price
1ILEP23FVRN145378	Red	Ford	Fusion	46224	1994	35206
1SNBO37IDRT354109	Brown	Ford	EcoSport	338950	2019	57604
1IODN03TCZN754112	Green	Ford	Escape	171316	1997	32424
1HDTJ75PTIR588683	Magenta	Ford	Mustang	288037	2002	47412
1RCCJ06AZLD455935	Yellow	Ford	Edge	311810	2002	59049
1SAPD78DSCM140779	White	Ford	F150 SuperCrew Cab	189935	2019	7471
1WVFC90UQHZ420938	Blue	Ford	Ranger SuperCab	291181	2019	35078
1LHAM88UNSS710404	Brown	Ford	Expedition MAX	343884	2019	66664
1PXXKH73FRWT046878	Black	Ford	Expedition	345468	1980	46856

- Users are able to update existing record: while users cannot post vehicles for sale, as this portal is for small businesses to sell vehicles, users do have the options to edit their personal information. They can do this by selecting “Edit user info” from the user home page. From there, they are prompted to enter their username for verification, and they can re-enter all of their information, including their password. This can be tested by entering your username and new information, including a new password. Then, log out and log back in. since you updated the password, your old one will not work, and your new one will. This will not work if fields are blank or the passwords do not match.

Enter New User Information Page

Note: you cannot change your username

Username:

Enter new user information below:

First Name:

Last Name:

Age:

Phone Number:

Email Address:

Address:

Password:

Confirm Password:

[Log Out](#)

Enter New User Information Page

Note: you cannot change your username

Username:

Enter new user information below:

First Name:

Last Name:

Age:

Phone Number:

Email Address:

Address:

Password:

Confirm Password:

[Log Out](#)

User Homepage

[Search for vehicles!](#)

[Edit user info](#)

[Log Out](#)

Database Administration

- View/query/update user accounts: an admin has 2 options here, they can view and search for user accounts, and they can update a specific user account. To view and query the user accounts, select "View/Query User Accounts" from the admin home page. This prompts you to search by username, first and last name, or just last name. a search of username or first and last name will only yield one user, while a search of just last name could yield multiple users. To test this, you can create a new user using the. New user registration, then log into the admin portal and search for that user by any 3 of the options available.

Admin Search Users

To search for a user, enter their information and click "Search"

There are 3 ways to search:

- Enter their username

- Enter their first and last name

- Enter their last name

Username:

First Name:

Last Name:

Username:

First Name:

Last Name:

Username	Password	Phone Number	First Name	Last Name	Age	Email	Address
jhayde	new_pass	6784519581	John	Hayde	23	johnmichaelhayde@gmail.com	9945 Nature Mill Road
phayde	pt01	648264	patruck	hayde	19	phayde@gmail.com	4874 vhdjghe
johnmhayde	johnmichael06	6784519581	John	Hayde	23	jhayde@clemson.edu	test_update
johnmichaelhayde	johnmichael06	6784519581	John	Hayde	22	johnmichaelhayde@gmail.com	9945 Nature Mill Road

Username:

First Name:

Last Name:

[Admin Homepage](#)

Username	Password	Phone Number	First Name	Last Name	Age	Email	Address
jhayde	new_pass	6784519581	John	Hayde	23	johnmichaelhayde@gmail.com	9945 Nature Mill Road

[Admin Homepage](#)

To edit the user account, an admin will select “Update User Account” from the admin home page. This takes them to a new page which prompts them to enter the user’s username and then new information in the fields below. All fields must be filled out and the passwords must match in order for it to be successful. If not, the admin will be prompted to try again. You can test this by editing a user’s information, then searching for that user on the admin user query page. If it is successful, the admin will be routed back to the admin home page.

Admin Edit User Information Page

Note: you cannot change username

Username:

Enter new user information below:

First Name:

Last Name:

Age:

Phone Number:

Email Address:

Address:

Password:

Confirm Password:

Submit

[Admin Homepage](#)

Admin Edit User Information Page

Note: you cannot change username

Username:

Enter new user information below:

First Name:

Last Name:

Age:

Phone Number:

Email Address:

Address:

Password:

Confirm Password:

Submit

[Admin Homepage](#)

- Backup selected tables related to web portal: To use this feature, log into the admin page, then select “Backup Database Tables”. This takes you to a new page which prompts you to click to create a backup of the current tables and download them. When you click this link, a copy of each table of the database is made and converted into a JSON file. You will be sent to a new page which prompts you to download each file. This can be tested by downloading a copy of the files, then adding more users to the database and again downloading the files. Each time you download the files, a new copy is made based on the current state of the tables.

Admin Backup Database Tables

[Click here to create backups of each table and download the database tables in JSON format](#)

[Admin Homepage](#)

[Download user JSON file](#)

[Download vehicle JSON file](#)

[Download admin JSON file](#)

[Admin Homepage](#)

Limitations of Current Implementation and Thoughts on How to Fix

My current implementation has a few limitations. The first is that there is no handling for if a user tries to create a new account for someone with the same username or email. This is a large constraint that needs to be fixed going forward, as it is impossible for a user to know what the taken usernames are. It would also be useful to implement account recovery if a user already has an account but forgot their login information.

The second is that the portal is not extremely appealing in terms of design. Should I move forward with this and want actually business to use it, I would want to implement more CSS/JavaScript to make it look fancier.

The third limitation is that the vehicle search is not perfect. Ideally, I would like for the user to be able to fill out any of the fields and search based on those factors. I could not figure out a good way to implement this, so I had to control the search a little bit with my instructions on the page. Going forward, I will have to find a better way to figure out how to do a search based on any field that is filled out, not just specific fields. I am still unsure of how to exactly implement this.

Link to Web Portal

<http://webapp.cs.clemson.edu/~jhayde/4620/project/>

Admin Username and Password

Username: root

Password: root_pass

Link to Source Code

http://webapp.cs.clemson.edu/~jhayde/4620/project/download_tarball.php