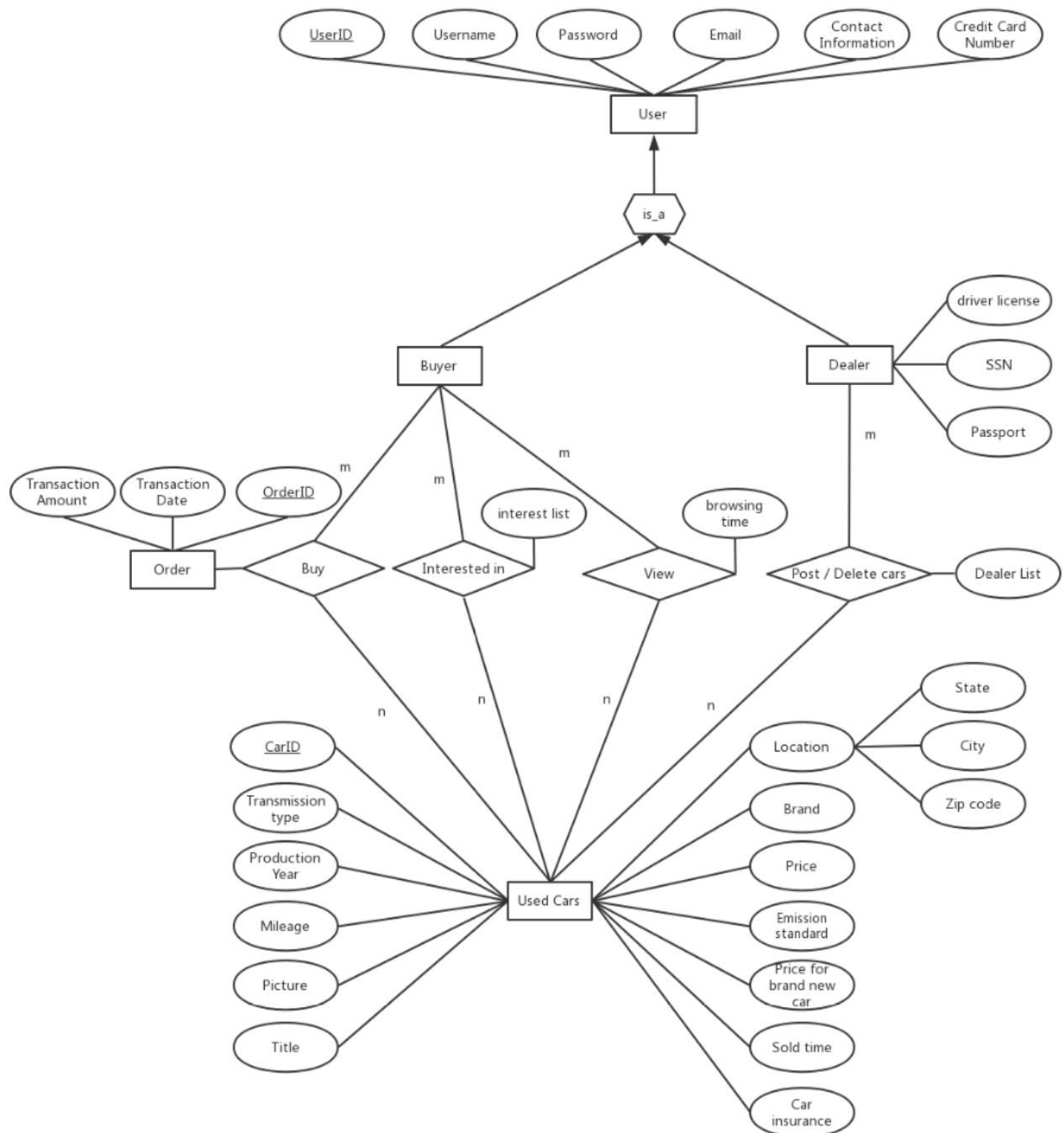


# COP5725 Data Base Manage System

## Project Report II

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For this project, we aim to establish a used car trading platform providing service for both car dealers and buyers. According to the functionality we desire to realize and the data set we have already collected, the structure of our E-R diagram is presented in Fig1.



**Fig 1. E-R Diagram**

## **I. Entities and Attributes in E-R diagram:**

### **1. Users**

The user entity is associated with several attributes: userID, username, password, email address and contact information. UserID is the primary key and can uniquely identify different users. Email address is a candidate key, which means one email address can only be registered once. If a user forgets his password or username, he can retrieve his record or create a new one by providing his email address. Moreover, contact information contains the users' telephone number and our database may also store the users' credit card number when they make a purchase in our website.

### **2. Dealers**

Dealer is a specific kind of user, who can post car information on our website. In addition to the attributes stored in their superior entity set, dealers also have to provide their driver license number, SSN or passport number to validate their identities and ensure that they can sell a car legally.

### **3. Buyers**

Buyer is another kind of user, who can search a specific type of cars, make a purchase and add favorite cars to their own list. Buyers do not need to provide any extra personal information other than the basic information of users.

### **4. Cars**

Car plays an important role in our website and its information is posted by dealers. Each of the cars will be labeled with a unique carID as the primary key. The car entity also contains other attributes including transmission type, production year, mileage, title, brand, price, price for brand new car, emission standard, sold time, car insurance, URL of its picture and location. Location is a composite attribute, which is the combination of state, city and zip code. Cars have extremely important relationships with users (dealers and buyers), which will be discussed later.

### **5. Orders**

An order is created when a buyer completes a purchase. The attributes of this entity includes orderID, purchase date and transaction amount. OrderID is the primary key, which is automatically assigned by the database. Purchase date and transaction amount are read-only attributes. Once created, they cannot be changed later.

## **II. Relationships between different entities in E-R diagram:**

### **1. Buy**

This is the relationship between buyers and cars. When a buyer completes a purchase, an order record will be generated.

### **2. Interested in**

This is the relationship between buyers and cars. Considering that buyers will compare the performance of cars when purchasing, we permit the buyers to add their favorite cars to their own list. If the cars are sold to another user, the record will be automatically deleted.

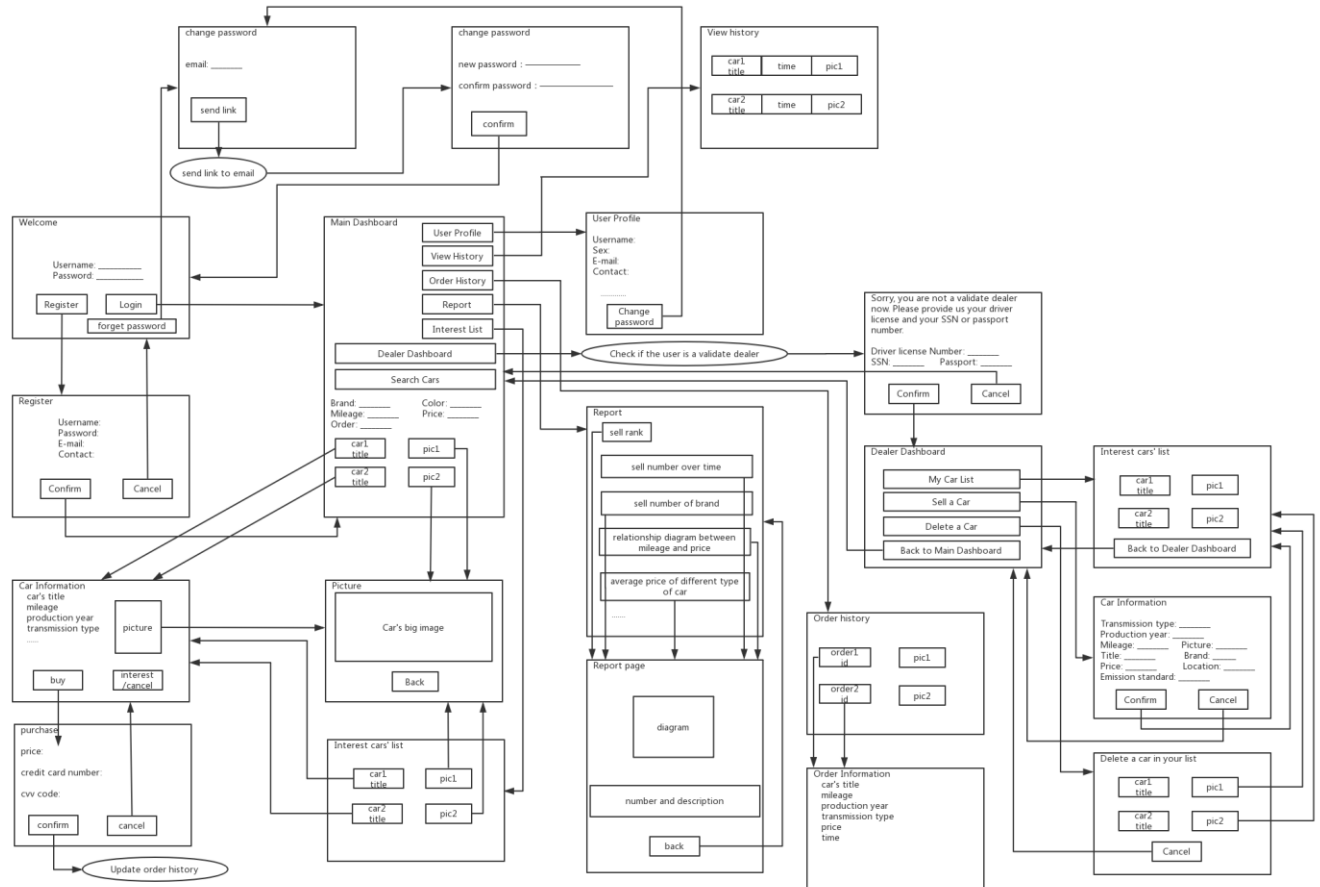
### **3. View**

This is the relationship between buyers and cars. Buyers can search for certain cars using the search filter. For example, set the price or the mileage range of the cars to search for their ideal car types. And our database will store the combination of the browsing history the browsing time.

### **4. Post**

This is the relationship between dealers and cars. When posting a car, the dealer has to provide all the related information such as transmission type, production year, mileage, title, brand, price, etc. After that, the database will store a new car record and assign it with a unique carID.

### III. Introduction for UI diagram and different web pages:



**Fig 2. UI Diagram**

As for the UI diagram shows in Fig 2, we have the following webpages:

#### 1. Welcome Page

Users can enter their username and password to login. Then the database will retrieve the record related with the username from the user table. If the username doesn't exist or doesn't match the password provided, we will request the user to reenter. If the user has already had an account, he may click on the "Login" button to go to the Main Dashboard Page. If they do not have one, they can click on the "Register" button on the welcome page to go to the Register Page and create an account.

#### 2. Register Page

When registering for an account, users should provide a unique username, password, email address and contact information (Phone Number). Then, by clicking on the "Confirm" button, the user's account is created and the website will direct the user to the Main Dashboard Page. If they click "Cancel", they will go back to the Welcome Page.

#### 3. Reset Password Page (Send Link)

If users forget their password, they can click “Forget Password” on the welcome page and then they will be redirected to the Reset Password Page. After entering their email address, they can click “Send Message” and get a reset link in their email, through which they can change their usernames and passwords.

4. **Reset Password Page (Confirm)**

By clicking the reset link in email, the users will be directed to this page. They need to set their new password and confirm the new one. Then, by clicking “Confirm”, users will be directed back to the welcome page.

5. **Main Dashboard Page**

After clicking “Login”, users will be in the main dashboard page. This is the main part of the project. Users can check or search information by clicking “User Profile”, “View History”, “Order History”, “Report”, “Interest List”, “Dealer Dashboard” and “Search Cars”. We created a filter on this page for the users to search the cars they like, which will be presented on the bottom of this webpage. Users can find cars by limiting brand, mileage, color and price. After clicking “Search Cars”, they will see a list of car information which mainly contains two buttons, one is for the full pictures of the cars and the other will lead the users to the car information page.

6. **Car Information Page (View)**

The user will be directed to the Car Information Page by clicking cars’ information button in the main dashboard page. They will see the detail information of the car which is the attributes in cars table. And if users click “Buy”, they will be directed to the purchase page. If the car’s information doesn’t exist in their favorite list, they can add it by clicking on the “Interest / Cancel” button. Otherwise, they will remove this record from favorite list.

7. **Purchase Page**

If users decide to buy a car and click the “Buy” in car information page (View), they will be directed to the purchase page. Here they need to enter their credit card’s information including the card number and CVV code. By clicking “Confirm”, a new order is generated and by clicking “Cancel”, users will go back to car information page (View).

8. **Picture Page**

By clicking the picture in car information page (View), main dashboard page and interest cars’ list page, users can see the big picture in this page. It will be presented in a new tab and they can leave this page by closing the tab.

9. **Interest Cars’ List Page (Buyers)**

If users click “Interest List” in main dashboard page, they will come to this webpage. They can also see cars’ information and big pictures by clicking cars’ information button or pictures button, just like the ones in main dashboard page.

10. **User Profile Page**

Users can click “User Profile” in the main dashboard page to go to this page. Here the users can see and update some profile information like contact information by clicking “Update Information”. But they cannot change certain information like SSN and email for security. Besides, they can also change their password by clicking “Change Password” and go to reset password page (Send Link).

11. **Report Page (Total List)**

The report page (Total List) contains a list of buttons, which will direct the user to a specific report page.

12. **Report Page (Specific Report)**

The report page (Specific Report) consists with the statistics retrieved from the database based on the specific query the user made. And the “Back” button on this page will lead the user back to the report page (Total List).

**13. View History Page**

The view history table in the database will be updated every time the users access the car information table. Then the users can get the list from this table when they click the view history button.

**14. Order History Page**

This page tracks the users’ order history and contains a list of orders the users made. By clicking on each order, the users will be led to a new page with the detail information of the order.

**15. Order Information Page**

This page is associated with the order history page. And the order information page contains all the information of an order, including the title of the car, transaction amount, transaction time, etc.

**16. Check Page**

This page may appear when the users click “Dealer Dashboard” in the main dashboard page. The users can provide their driver license number, SSN or passport number to promote their account to a dealer account on this page.

**17. Dealer Dashboard Page (Dealers)**

The dealer dashboard page is only accessible for one dealer, which can assist the dealers to post or delete their cars. The dealers can also get access to their posted cars’ list by clicking “My Car List”.

**18. Posted Car’s List**

This page contains all the cars’ titles and pictures that the dealers have posted on the website. And there is also a back button for them to get back to the dealer dashboard.

**19. Car Information Page (Post)**

When the dealers intend to post a car on the website, they will be directed to this page. Only if they have entered all the related information and clicked the “Confirm” button, their cars will be visible to all users. Otherwise, they will be led back to the dealer dashboard page.

**20. Delete Car Page**

This page contains all the cars a dealer has posted. And they can delete any of them by clicking on its title.