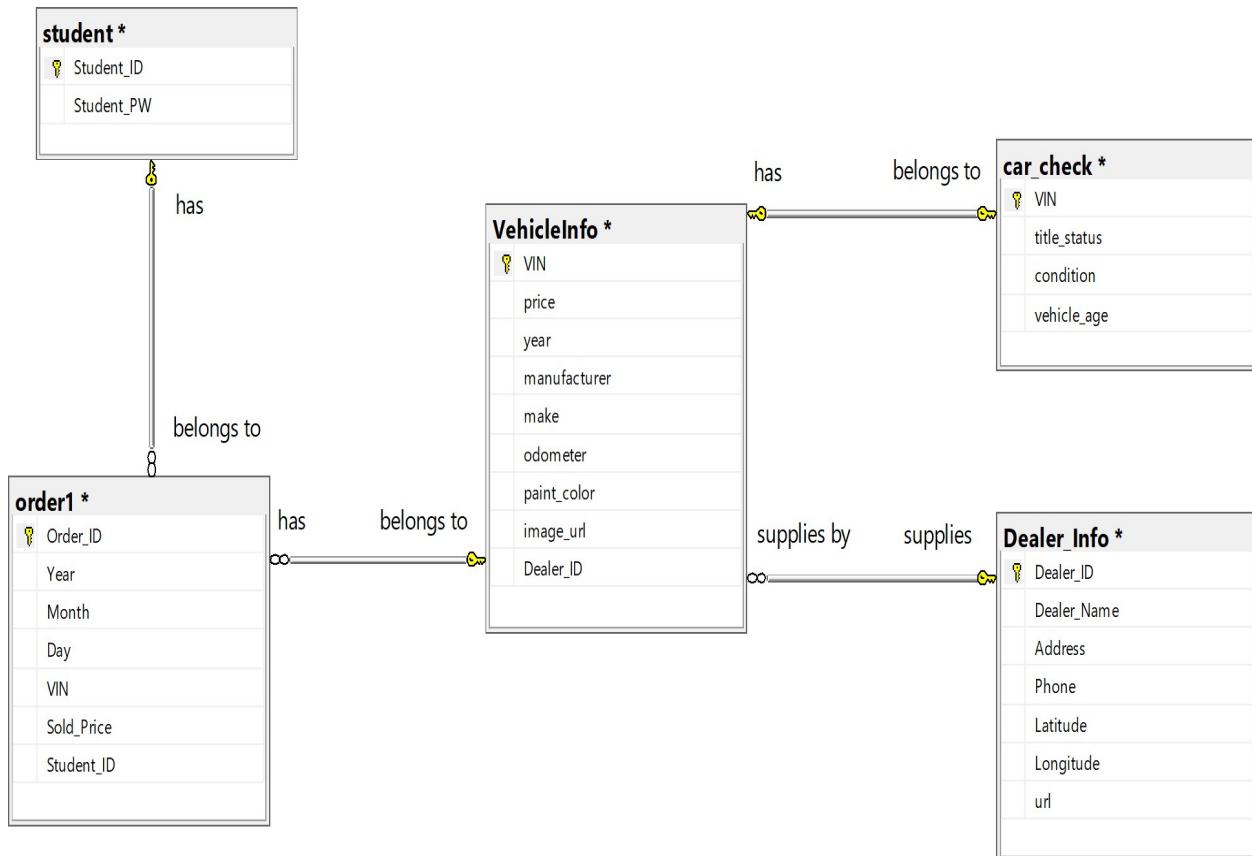


## Appendix:

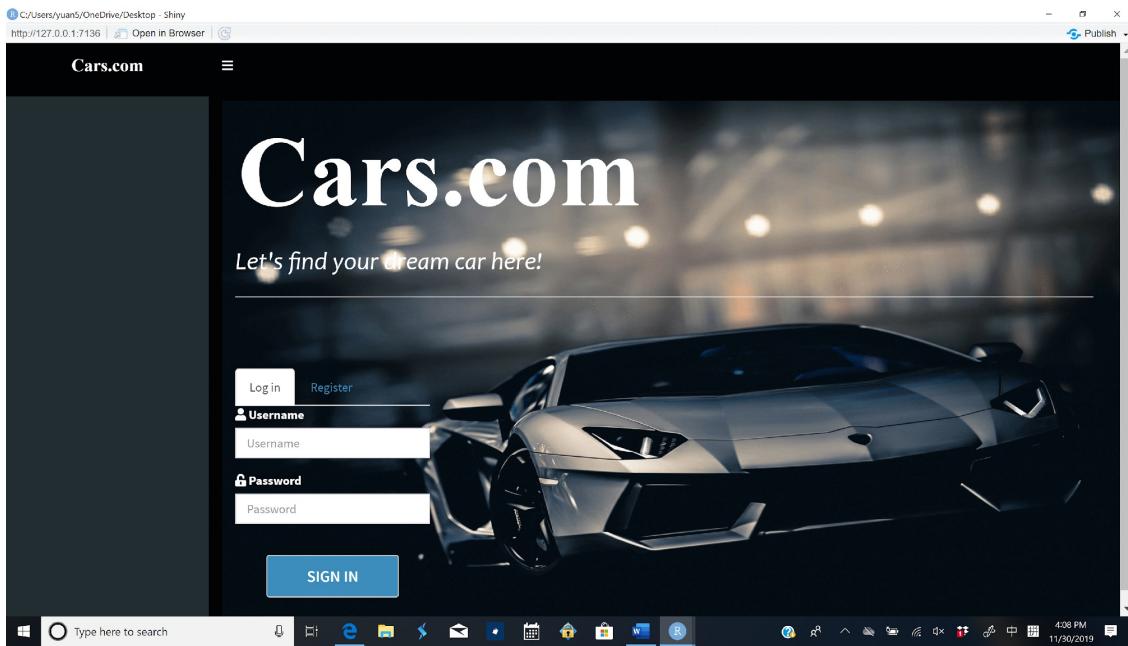
### **Exhibit 1**



- Relationships:
  - A vehicle belongs to minimum 0 and maximum 1 order. An order has minimum 1 and maximum 1 vehicle.
  - A student has minimum 0 and maximum many orders. An order belongs to minimum 1 and maximum 1 student.
  - A vehicle has minimum 1 and maximum 1 car check. A car check belongs to minimum 1 and maximum 1 vehicle.
  - A vehicle supplies by minimum 1 and maximum 1 dealer. A dealer supplies minimum 0 and maximum many vehicle.
  
- Data Dictionary

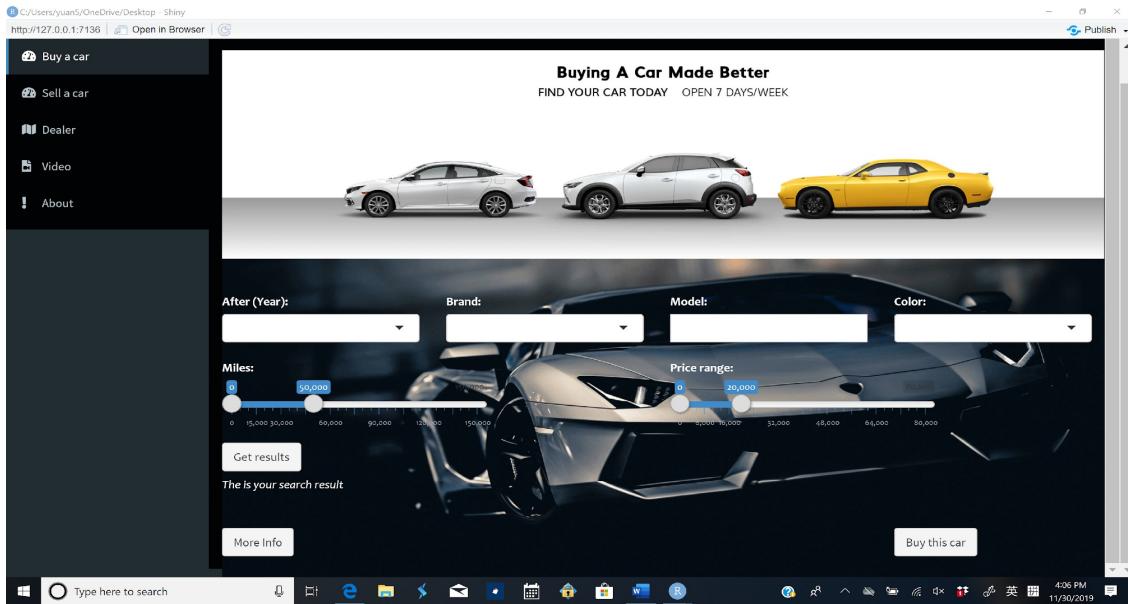
Student	
Student_ID	Unique identification for each student
Student_PW	Password made by student
Order	
Order_ID	Unique identification for each order
Year	Year of the order
Month	Month of the order
Day	Day of the order
VIN	Vehicle identification number of the car in the order
Sold_Price	Out-the-door price for the car
Student_ID	Unique identification for student who bought the car
VehicleInfo	
VIN	Vehicle identification number of the car
Price	Dealer price of the vehicle
Year	Year of the car
Manufacturer	Manufacturer of the car
Make	Model of the car
Odometer	Mileages of the car
Paint_color	Color of the car
Image_url	Image of the car
Dealer_ID	Unique identification for dealer who own that car
Car_check	
VIN	Vehicle identification number of the car
Title_status	Status of the title of the car (Clean, salvage, rebuilt...etc.)
Condition	Condition of the car (Excellent, good, fair...etc.)
Vehicle_age	Years since the car has been made.
Dealer_Info	
Dealer_ID	Unique identification for dealer
Dealer_Name	Name of the dealer
Address	Address of the dealer
Phone	Phone number of the dealer
Latitude	Latitude of the dealer location
Longitude	Longitude of the dealer location
url	Image url of the dealer

## **Exhibit 2:**



*This exhibit shows that the users need to register in order to use the service provided, students and dealers need to have users to improve reliability and credibility*

## **Exhibit3 :**



*This exhibit shows the buy page for students where they can input features to get filtered car results*

### Exhibit 4:

The screenshot shows a web application interface for selling a car. At the top, there's a banner with the text "SELL YOUR CAR THE EASY WAY" and "Get your free online car valuation now". Below the banner are several input fields: "VIN:", "Price:", "Year:", "Manufacturer:", "Model:", "Miles:", "color:", and "Image URL:". A "Submit" button is located at the bottom left of the form area. On the far left, a sidebar menu includes options like "Buy a car", "Sell a car" (which is currently selected), "Dealer", "Video", and "About". The status bar at the bottom shows system icons and the date/time: 11/30/2019 4:07 PM.

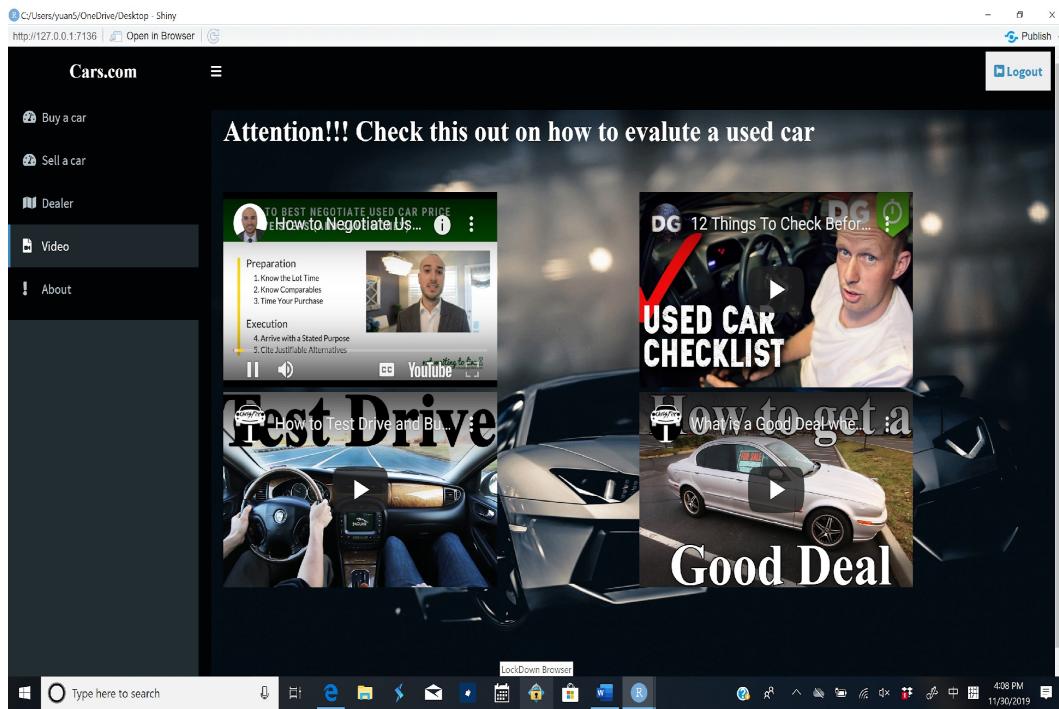
This exhibit shows the page for selling a car ( both users dealers and students), users here need to input cars information correctly in order to match with customers features.

### Exhibit 5:

The screenshot displays a dealer search results page for the Dallas area. On the left, a sidebar menu lists "Buy a car", "Sell a car", "Dealer" (selected), "Video", and "About". The main content area features a map of the Dallas region with several dealer locations marked by blue teardrop icons. A callout text above the map says "Click on teardrop to check names and more information". To the right of the map is a section titled "Dealer Info" showing details for Goodson Acura. The info includes: Dealer\_Name (Goodson Acura), Address ("4801 Lemmon Ave, Dallas, TX 75219"), and Phone ((214) 692-2872). Below this is a photo of several Acura vehicles parked outside a dealership building. The status bar at the bottom shows system icons and the date/time: 11/30/2019 4:07 PM.

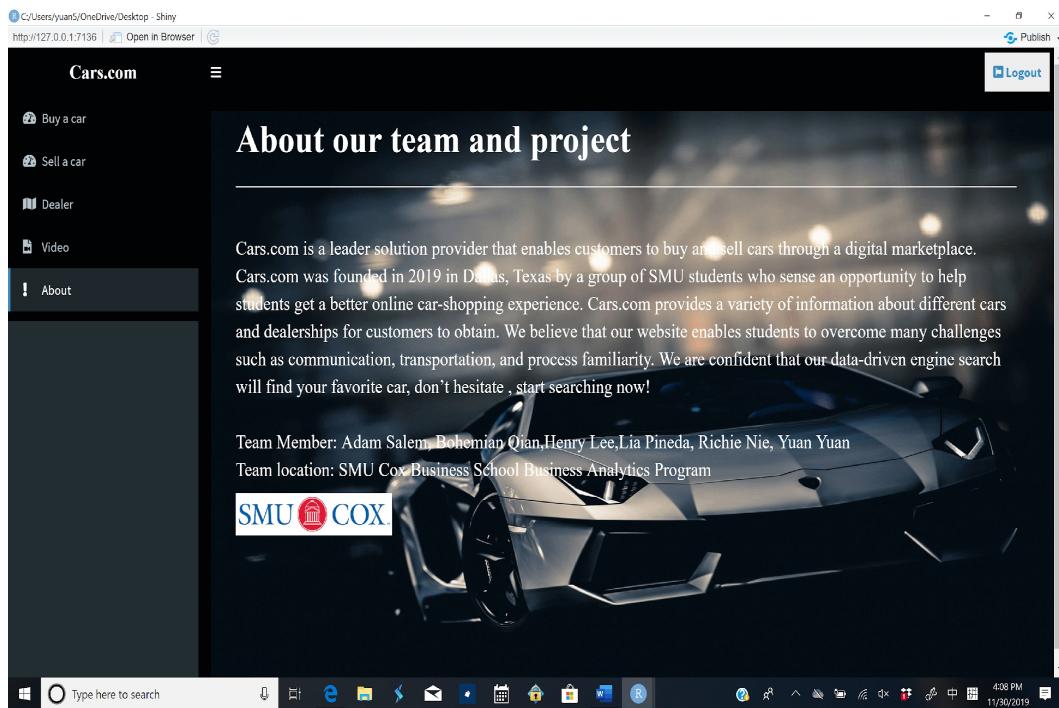
The Exhibit shows the dealers information page which provide users with dealer maps and information of cars that they have in their wishing list.

### **Exhibit 6:**



This Exhibit show a video tab page, those videos will assist customers in buying skills such as negotiation , communication and driving tests.

### **Exhibit 7:**



The about page tab will tell a story about the website founders and application goals.

## Exhibit 8:

A screenshot of a web browser window titled "Cars.com". The main content area is titled "Manage Inventory" and contains fields for "Brand:", "Model:", and "VIN:". Below these fields are buttons for "Get results", "Edit", and "Delete". To the right of the input fields is a large, dark image of a Lamborghini sports car. The left sidebar of the website includes links for "Buy a car", "Sell a car", "Dealer", "Video", and "About". The top right corner has a "Logout" button. The browser's address bar shows the URL "http://127.0.0.1:7136" and the title "C:/Users/yuan5/OneDrive/Desktop - Shiny". The taskbar at the bottom of the screen shows various pinned icons and the date/time "11/30/2019 4:10 PM".

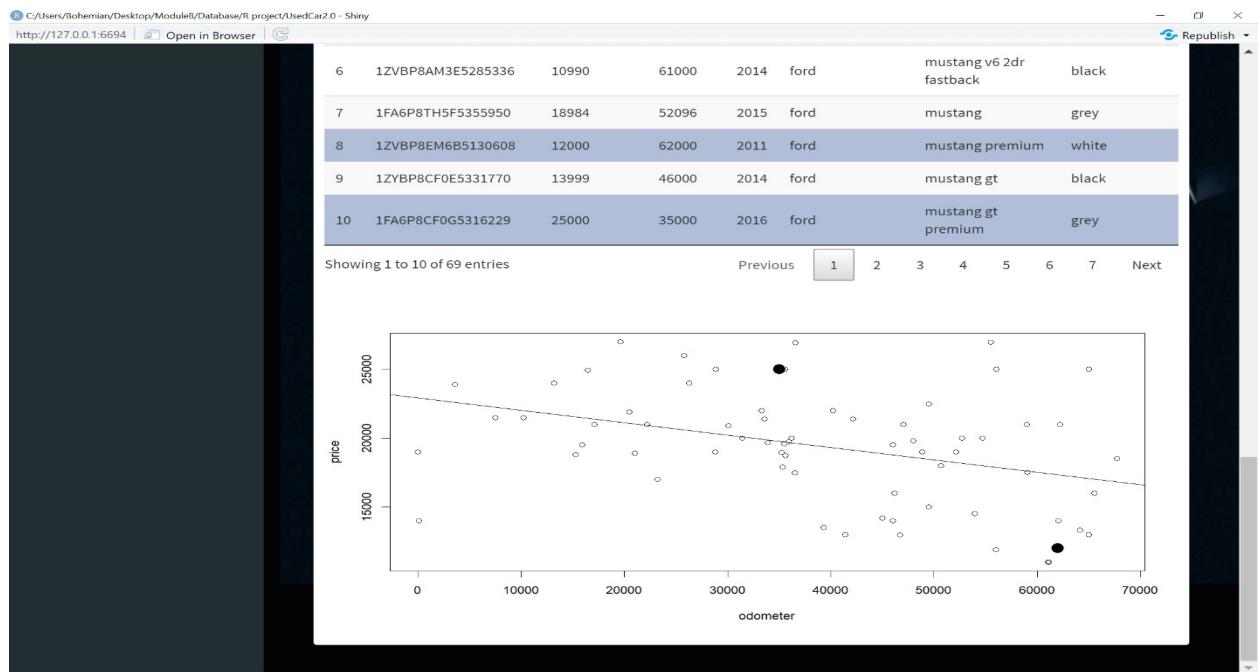
This is a special page will help users to manage their inventory specifically for dealers by searching the different demand for different car models.

## Exhibit 9:

A screenshot of a web browser window titled "Cars.com". The main content area is titled "Analyze" and features a histogram titled "Brand histogram:". The y-axis is labeled "Freq" and ranges from 0 to 6000. The x-axis is labeled "Var1" and lists various car brands. The histogram bars show that Ford has the highest frequency (around 6000), followed by GM (Chevrolet/GMC) and Toyota. Other brands like Honda, Chrysler, and Dodge also have relatively high frequencies. The browser's address bar shows the URL "http://127.0.0.1:7136" and the title "C:/Users/yuan5/OneDrive/Desktop - Shiny". The taskbar at the bottom of the screen shows various pinned icons and the date/time "11/30/2019 4:10 PM".

This Analyze page shows a distribution to inform customers about the overall demand for car models in the market.

## Exhibit 10:



In the Exhibit 9, the line is a simple linear regression between price and mileage. The black dot above the average line suggests a high price and the dot below the line suggests a good deal for customers.