



Everything Roadster

Final Report

University of British Columbia Okanagan

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Team Members & Contact Information





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1 Introduction

This document outlines the implementation details of the EverythingRoadster project. EverythingRoadster.ca is an e-commerce site specializing in the growing roadster market. The site will allow users to buy and sell Roadster accessories and parts in an online format.

2 Executive Summary

EverythingRoadster is a website designed to help customer and vendors of vehicle parts connect with one and other. Everything Roadster allows for the purchase and sale of vehicle parts, providing a place for secure transactions to be made between vendors and customers. Vendors have the ability to create listings that describe the price and quantity of the parts they are selling. Customers can then browse a complete list of parts that are currently for sale, or use searching and filtering tools to find the exact part they are looking for.

The typical workflow of a vendor begins with a request to become a vendor. EverythingRoadster will review the request and, provided that the vendor meets all expectations, will provide a vendor account to the vendor. With this account they will be able to specify which parts they currently have for sale, the quantity of each part, and the price it is selling for. If the part already exists in the database, it is likely already associated with vehicles that it is compatible with. If it is not, however, the vendor will have the option of providing a list of vehicles with which the part is compatible. When a customer adds a part to an order, the associated vendor will be notified. Once the customer places and pays for the order, the vendor will be expected to ship the part to the address provided by the customer (this process of notification and payment is not done through the website but through same point of contact between EverythingRoadster and the vendor - we would have implemented, had we more time).

To become a customer approval by EverythingRoadster is not required; anyone may sign up as a customer. Once signed up, the customer will be able to browse all listings that are currently posted, and find information about specific parts and whether or not they are compatible with the customer's vehicle of interest. They can add any available part to their shopping cart, and place an order for the parts in their cart at any time. They will be required to pay the price of each part, as well as the shipping costs associated with it, before the order will be processed.

EverythingRoadster is responsible for managing the order and financial transaction; however, it is the responsibility of the vendor to ship the part to the customer who purchased it. If the vendor fails to ship the part, it will be the responsibility of the customer and vendor to resolve the issue. A customer can provide feedback based on the quality of service a vendor has provided. If a vendor receives enough negative feedback their association with



EverythingRoadster will be reconsidered, potentially resulting in the deletion of their account (done by a DBA, not through an admin account within the website).

3 Walkthrough

3.1 Unregistered guests and users

Most of the features offered by EverythingRoadster requires an account, but guests are able to browse or search through the parts catalogue to find their desired item along with the ability to add a chosen quantity to their shopping cart. To proceed further an account sign-up is required

3.2 Sign in as Vendor

The EverythingRoadster framework supports 2 types of accounts for non-admins. Customer and Vendor, for the purposes of this walkthrough a vendor account has been provided. Let's navigate to the the sign in page by clicking the "sign in" button in the nav bar. There will be a customer sign-up tutorial at a later time. For now, let's sign in.

Account Sign In

Email
Ramon@cosc304.ca

Password

Sign In

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email: RamonVend@cosc304.ca
password: Ramon

3.2.1 Create a part

As a vendor you will get to see some of the extra features the site has to offer. Navigating over to your account name in the nav bar will bring up a set of options. First we will create a part. Filling in basic part information along with uploading its image will create the part object in the data. Currently only administrators can create new category names, so for the purposes of this walkthrough we will create a battery object.



EverythingRoadster Browse Cart 0 Doris Coleman

Create Part

Part Name: Blue Steering Wheel

Category Name: Steering Wheel

Description: A blue, circular steering wheel without any branding.

Image Path: Choose file: steering_wheel.jpg

Fits In Associations

Make Name	Model Name	Year
Ford	F-150	2008
Honda	Accord	2010
Toyota	Corolla	2008

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3.2.2 Fits In Associations

After the battery object has been created, we will need to let the database know which vehicles the battery fits in. By navigating through the Fits In Associations sections, we will inform the system, If the part fits in multiple vehicles, simply click the add extra Fits In icon, denoted (+). After we have selected which vehicles our part fits in we are ready to list the part

3.2.3 List Part for Sale

Great! You have created your first part, you know what vehicles it is compatible with and are ready to sell. Navigating to the nav bar, under our vendor's title we can now "List Part for Sale", simply select the part you want to sell, enter the quantity you currently have to sell and enter a price to sell at. Great, we have created a part and listed it for sale. To test the next part of the system, we will take advantage of the logout button located under your account name.

3.3 Signup for a Customer Account

We will now create a customer account, EverythingRoadster only offers customer accounts to all users. If you want to skip the signup process, customer account info has been provided for convenience. Creating an account for the purpose of this walkthrough is suggested. To create an account simply navigate to the sign-up button located in the top right of the navbar. Here a user will be required to fill in basic contact info along with shipping information. We will create a customer account for the purposes of purchasing the part we have have just listed under another account.

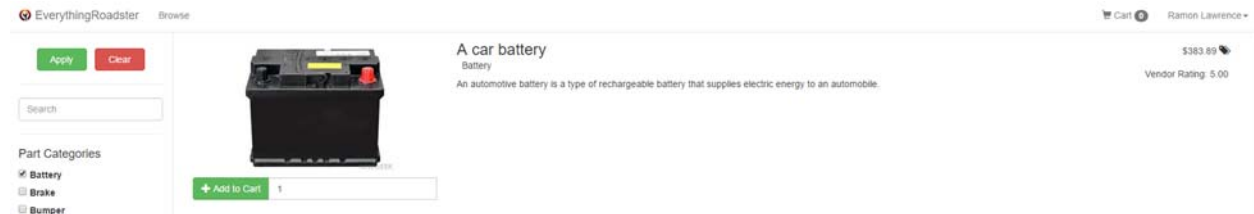
email: RamonCust@cosc304.ca
password: Ramon

3.3.1 Browse

As a customer of EverythingRoadster you have access to our wide range of car parts. Searching and filtering is as simple as typing in keywords or filtering by vehicle, part, make or

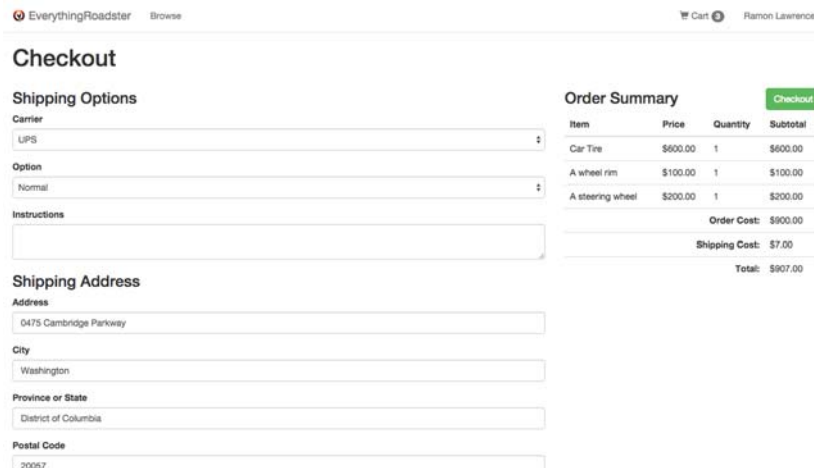


model. We are more interested in the part that we have created, so we will click the battery filter icon and click apply to begin searching for our created part.



3.3.2 Add to cart

Now that we have found our listed part it's time to buy our battery. Simply click add to cart, and the part will be added to our shopping cart. Feel free to grab a couple seats, maybe some windshield wipers it will all be processed the same, to add multiple simply modify the quantity desired and click add. Take advantage of the part filtering in the sidebar to make your selections quicker and if you can't find what you are looking for, try searching for it by name. After we are done shopping around, it's time to checkout



3.3.3 Checkout

To checkout, navigate to the shopping cart icon in our nav bar, from this pop up you can remove items if needed, if everything looks good, click checkout. The checkout page gives our vendors your preferred shipping, special instructions and payment method for order processing. All of your personalized shipping is automatically loaded along with the option to change the ship to address. Before you can checkout and process your order, you must fill in a numerical account number for payment purposes at the bottom of the form. When you are ready, click checkout again located next to the order summary.

3.3.4 Order History

After checkout, users will be automatically directed to their order history, showing their current order. To see all of their past orders, the customer can go to Order History from the drop



down in the navigation bar at any point, and will be shown all of their past orders. At the top users will have the option to rate the vendors they have previously purchased from.

3.3.5 Rate Vendor

After a purchase, a vendor name will appear alongside a 5 point rating dropdown in the top left of the screen above your order history. You can only rate a vendor once, so choose wisely. As you have purchased this part from yourself a 5 star rating is suggested. After you have rated your experience with the vendor, it's time to logout and sign in with the last type of account in EverythingRoadster.

Rate Vendors Used

Test Test

Rate

Order History

Order #30

Ramon Lawrence
0475 Cambridge Parkway
Washington, District of Columbia 20057
United States

2015-12-04

Part Name	Vendor Name	Category	Price	Quantity	Description
Red/Black Seat	Test Test	Seat	\$250.00	1	Red and black seat

3.4 Admin Sign In

Admin accounts can only be created by another admin, and admin login information has been provided below. Please log in with the following information.

email: RamonAdmin@cosc304.ca
password: Ramon

3.4.1 Create Vehicle

Admins have access to additional features but have some restrictions, such as being able to checkout and process orders. Admins can create parts, remove parts and create vehicle. We have already seen the other prior features so we will create a vehicle. Under the account



toolbars select create a vehicle, here enter Make: Ford Model: Viper and any valid year to create a Ford Viper vehicle.

3.4.2 Remove Vehicle

Viper is not a model built by Ford, so we are going to go ahead and remove that vehicle, because as an admin we have that privilege. In the same process as creating a vehicle, go to the toolbar and select remove vehicle. To remove a vehicle select the same information we did when creating a vehicle, click remove and the vehicle is removed from the database. Now that we have covered the basic vehicle tools, we will create part categories next.

3.4.3 Create Part category

Managing part categories is as easy as navigating back to your admin tools and clicking the manage part category option. To add a part enter any name and description in the text windows and click add part when you are done, the list will update showing your part category.

3.4.4 Remove a part category

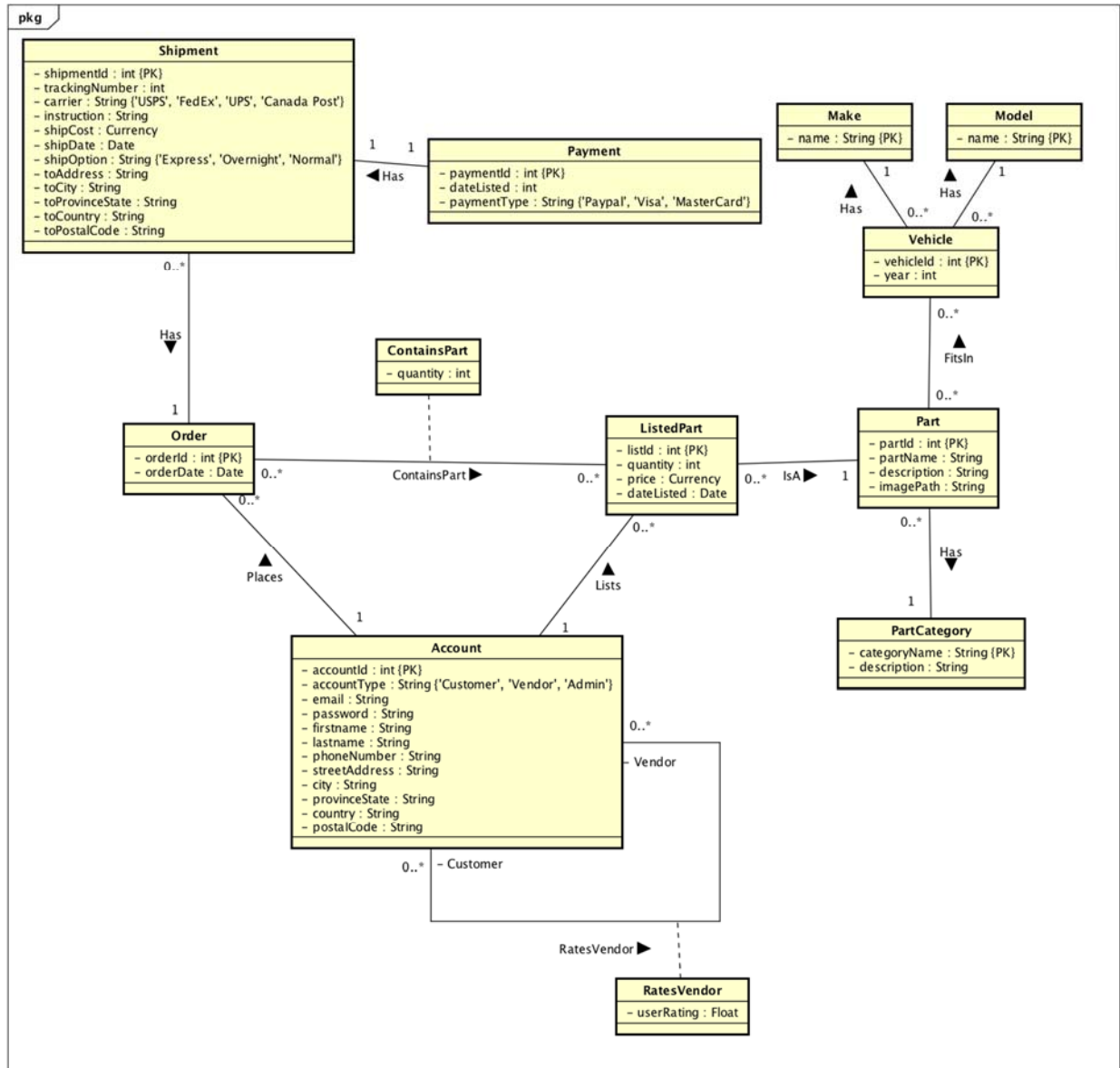
To remove a part category, simply navigate the previous list and click X to delete the part category from the database.

3.4.5 Order History

By going to order history, the admin is shown a list of all past orders and they can filter this list by order id or account id without restriction. Try this by adding ?accountId=1 or ?orderId=1 at the end of the URL while on orderHistory.jsp page.



4 Data Model Description - ER/UML Diagram



powered by Astah

5 Implemented Features

5.1 Sessions (Sign Up, Sign In, Sign Out)

Users can create their own account as a customer. However, a vendor account or admin account has to be created by the site's DBA and the credentials can only be given to the vendor or admin. This is because vendors are vetted by EverythingRoadster and their direct payment and shipping agreement is decided upon beforehand. All types (customers, vendors, or admins)



can sign in to their existing account from the sign in page. Their user data is then stored in their session to be used to validate their purchases and listings and their access to certain pages. They can then sign out from their account at any time by clicking logout in the user dropdown in the navigation bar.

5.2 Browsing Part Listings

All users are able to view parts created by vendors regardless of their account status. They can filter parts by vehicle model, make, and category, as well, as search for parts by name. In this view, they are shown the name, image, category, description, price, and average vendor rating of all parts that are available to be purchased. They also have an option to add the listed part to their cart. Only parts that have a remaining quantity greater than zero are shown.

5.3 Shopping Cart

Parts can be added to a user's cart from the browse page. The cart is stored in the session, so a user does not need to be logged in in order to begin adding items to their cart. All items that are currently in the user's cart can be found in the dropdown list in the navigation bar that is present on all pages. The button to open the dropdown displays the number of unique items that the user currently has in their cart; the number next to each item in the dropdown list shows the quantity of that item that is in their cart. Items can also be removed from a user's cart using this list. If the user is logged into an account and has items in their cart, a checkout link will also be present within the dropdown.

5.4 Creating and Listing Parts

Registered vendors can create parts and list them under their vendor status. If a vendor would like to create a listing for a part that does not currently exist, they will need to create a new entry in the database, using the create part page, before they may list it. At this stage, they may also associate the part with any number of vehicles using the fits in form. Listed parts can then be viewed and purchased by other users.

5.5 Vendor Rating

After an order has been processed, users are able to rate vendors which they purchased parts from on a 5 point scale. The average rating that vendors receive is displayed next to all parts that they list on the browse page as well as on the vendor's account settings page.

5.6 Shipment Processing

During checkout users are able to select their preferred shipment method (normal, express, or overnight) as well as their preferred carrier (FedEx, Canada Post, etc). The amount which they will be charged for shipping is immediately reflected in the order summary on the right side of



the checkout page based on which shipping options they have selected. At this stage, they must also enter their payment method and address. The cart is cleared once the order has been processed and the user is taken to the order history page for that order only.

5.7 Account Settings

At any time, a user may change settings related to their account by accessing the my account page. They are able to change their name, password, address, and phone number from this form. Vendors can also see their rating, which is the average of all ratings that customers have provided for the vendor. The email and account type is shown to the user, but they are unable to alter it as it is required to stay the same.

5.8 Admin Features

Admins are able to access a few more additional features, but they are also unable to checkout and process orders as an admin. Admins can create parts like vendors can. They can also add additional vehicles to the database and remove existing vehicles. By going to order history, the admin is shown a list of all past orders and they can filter this list by order id or account id without restriction. Finally, admins can create or remove part categories to make it easier for vendors to list their parts in the correct bucket and for customers to find parts easier by filtering.

6 File List & Description

File Name	Description	Files Included
util_connection.jsp	Connection manager for all SQL connections. It is included in any .jsp file that requires use of a SQL connection, and can then access the connection manager class.	
util_user.jsp	User object, stores account info and signIn status in the session. Included in any file that requires access to user session for authentication or user property data.	
signIn.jsp	Allows users to sign into their accounts using email and password. If user already has a logged in user session, the user is unable to access this page.	util_user.jsp util_connection.jsp, util_copyright.jsp, util_navbar.jsp
signUp.jsp	Users with logged in sessions are unable to access this page. Allows visitors to the site to sign up for customer accounts in order to purchase products. All field values must be filled in to sign up for an account. Doesn't automatically log you in on signup, the user must then go to sign in to log in.	util_user.jsp util_connection.jsp, util_copyright.jsp, util_navbar.jsp, signUp.css



Everything Roadster Software Document Outline

signOut.jsp	Allows users to sign out of their account by clearing the user attribute in the JSP session.	util_user.jsp util_connection.jsp
index.jsp	Home page of EverythingRoadster. Displays slideshow of images of recently listed parts and a quick links to browse part categories.	util_connection.jsp, util_copyright.jsp, util_message.jsp, util_navbar.jsp, index.css, main.css
browse.jsp	Displays all the currently listed parts for sale and allows a user to browse them. Initially shown all products currently for sale, but can be filtered down from the side bar by different categories (part category, vehicle, etc.) and searched for by name. Only place where user can add parts to their shopping cart.	util_connection.jsp, util_copyright.jsp, util_message.jsp, util_navbar.jsp, browse.js, browse.css
util_cart.jsp	Shopping cart object, stores current items added	
cart.jsp	Contains the logic of interacting with the shopping cart in the navigation bar. Allows a user to remove all parts, a single part, or add a part to their cart.	util_cart.jsp
checkOut.jsp	Checkout page that shows the summary of your almost created order based off the items in your shopping cart. When the user checks out, the checkOut.jsp page creates the order, the shipment, the payment, and the contains part rows in the respective tables and clears the user's cart.	util_user.jsp, util_connection.jsp, util_copyright.jsp, util_message.jsp, util_navbar.jsp, checkout.js, checkout.css
createVehicle.jsp	Reserved for admin accounts to access. Allows an admin to add a vehicle with a make and model to the vehicle table.	util_connection.jsp, util_copyright.jsp, util_message.jsp, util_navbar.jsp
removeVehicle.jsp	Reserved for admin accounts to access. Removes a vehicle entry from the database.	util_user.jsp, util_connection.jsp, util_copyright.jsp, util_navbar.jsp, removeVehicle.js
createPart.jsp	Access restricted to admins and vendors. Creates a part in the database. Able to be accessed and used by admin and vendor accounts. After creating a part, allows the vendor to show which vehicles the part fits in, and uploads to database.	util_user.jsp, util_connection.jsp, util_copyright.jsp, util_message.jsp, util_navbar.jsp, createPart.js, createPart.css
listPart.jsp	Access restricted to vendors only. Allows vendors to list parts for sale and set their quantity and price. The listed part must belong to a saved part in the Part table.	util_user.jsp, util_connection.jsp, util_copyright.jsp, util_message.jsp, util_navbar.jsp
myAccount.jsp	Must be signed in as a customer or vendor to access this page. Allow users to view and edit their current account info. The account type and email of	util_user.jsp, util_connection.jsp, util_copyright.jsp,



	the user is unable to be edited, but everything else can be updated and must be filled in when updating. Vendors only are able to see their average user rating here as well.	util_navbar.jsp, signUp.css
orderHistory.jsp	Shows a user's order history in ascending order by date ordered. A user can only see their own orders. However, if an admin views this page, they by default see all orders placed. By typing in orderId or accountId URL parameters, the admin can search filter the order list (not ideal but time didn't allow for a UI solution).	util_user.jsp, util_connection.jsp, util_copyright.jsp, util_navbar.jsp, orderHistory.css
vendorListings.jsp	Access restricted to vendors. Shows a vendor what items they currently have listed for sale. It has quantity sold shown as well as total quantity listed, allowing them to see their status of listings.	util_user.jsp, util_connection.jsp, util_copyright.jsp, util_navbar.jsp
util_navbar.jsp	A navigation bar used in most pages allowing for traversal of the website and other functions. It dynamically changes its contents based on user object being present and its account type. Contains links to sign up, sign in, shopping cart, checkout, account settings, list part, create part and others.	util_cart.jsp, util_copyright.jsp
util_message.jsp	Displays status message alerts on the top of pages it is included in. Alerts users when their actions succeeded or failed, and can be dismissed by an 'X' when they appear.	
util_copyright.jsp	Creates a page footer notifying users of copyright.	
managePartCategory.jsp	Access restricted to admins. Allows admins to add part categories for vendors and admins to create parts under, to increase ease of searching for customers.	util_connection.jsp, util_copyright.jsp, util_message.jsp, util_navbar.jsp

Javascript (.js) file's included overview:

- browse.js, checkout.js, createPart.js, removeVehicle.js
- browse.js → Provided methods for filtering and searching in browse
- checkout.js → Updated total cost of order based on shipping charges chosen
- createPart.js → method createFitsInFormHtml and other methods to dynamically generate multiple fits in forms by request
- removeVehicle.js → methods to update vehicle selector on removal

CSS (.css) files included overview:

- adds styling to .jsp files that include them



7 Limitations

7.1 Shopping Cart

The shopping cart is stored in the session and is never persisted to the database. This means that whenever a user logs out, we must empty their shopping cart, causing them to have to repopulate it upon their next visit. This could be resolved by storing the shopping cart in the database. When the user logs back in, we could fetch their cart data, if it exists, thus allowing us to maintain their cart between visits. And finally, a complete proper solution to the shopping cart feature would create a cart in the database for any guest user registered to a temporarily created user account that upon signup could be promoted to a true user account.

7.2 Processed Orders

Vendors are not notified when a part they are listing has been purchased. They should be able to access a page which allows them to state that they have shipped the part that has been purchased. Instead, it is assumed that parts are shipped immediately after an order is created; the user completes the checkout process.

7.3 Security

Passwords are stored in plain text in the database, meaning that they can be retrieved in their original form at any time. Instead, a hash of the password should be stored along with a random salt that is applied to the password. When the user attempts to log in, we would hash the string they entered as their password, apply the salt, and check if that string matches the one stored in the database. Credit card numbers are also stored in plain text.

7.4 Pagination

There are many pages, such as the browse page, which display all (or most) of the entries in one of the tables in the database. If there are few rows in that table, this is not a problem; however, there may be thousands of rows stored in the listedParts table eventually. If we attempted to render the associated HTML with thousands of listedParts, the JSP page would become very large and take a long time to download from the server. Instead, we should paginate all variable size select statements, that will be rendered as HTML, using a 'LIMIT' clause, allowing a maximum of fifty to one hundred results per query.

7.5 Fixed Listed Quantity and Price

Once a vendor has created a listing for a part, they are not able to change the quantity or price of that listing. Because the price of each part is not stored in the containsPart table, we have to maintain the original listing price so that we can calculate the total cost of past orders. And once



a listed part is bought, the listed part would no longer be able to be removed in the current implementation, only the remaining quantity could be adjusted with more time to implement this.

7.6 Vehicle Make and Model

The make and model should have a Make → Model → Vehicle relationship, however we implemented it as it is now before realizing a change would be appropriate and we now have our client display properly based on vehicle. This allows for incorrect vehicles to be created such as a Dodge F-150, however to supplement this, only admins can create vehicles and we allow them to remove vehicles that are incorrect.

7.7 Admin Order History

To filter the order history of the site by account ids or by order ids, an admin has to place the orderId or accountId in the URL as a parameter and know how to do this.