Feature: Vehicle Marketplace

Feature Developer: Vi

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(Based on BRD version 0.7 may be applicable to change)

Major Positives

1. Simple and easy to understand the designs since there are notes that go into further detail in the design explaining what is happening. Also, the flow of the design is clear, and you can see which layers communicate with each other.
2. Makes use of other services already implemented such as using the Vehicle Profile Retrieval Service from the Vehicle Profile feature to get the profiles needed to display. This means that time is not wasted on coding a service when there is already an existing service that does what you need.

Major Negatives

1. **Design flaw for VPM1 (Upload Vehicle to Marketplace)**

Only the vehicle profile details may be in local storage but things such as the Service Log, Car Health Ranking, and Vehicle Market Value may not be in the local storage so it must get them from the database when uploading. Also, it is missing a step where all the necessary information from the vehicle profile is validated before the post is created in the marketplace and in the design, it is assumed that everything is correct and starts creating the post. For example, before the user can upload to marketplace it has to check that the vehicle profile has a service log and a car health ranking.

2. **Design flaw for VPM3(View Marketplace)**

It is unclear in the design whether the user will be able to view only 10 posts at a time or, when there is a user input to view more than 10 posts at a time. It only states that the vehicle profiles are injected into the HTML. Also, the design only retrieves vehicle profiles that are

viewable but doesn't return a post that includes all the necessary information such as vehicle image, asking price, date of post, location of seller within 5-mile radius and, whether the vehicle is certified or not. There is an inner join with MarketplaceStatus but it only contains the status and the description attribute is unable to hold all the necessary information.

3. Desing flaw for VPM4(View Marketplace Detail)

Similar to VPM3 it is still missing necessary information of the post it only gets the vehicle details and marketplace stats and description. There must be a service that will also give the vehicle image, asking price, date of post, fuel economy, if it's certified, Carfax document, market value, and sellers location within a 5-mile radius. This information should either be pulled from the database or have a service that provides the information when a post is created.

4. Design flaw for VPM5 (Search Vehicle Profile Post)

For VPM5 (Search Vehicle Profile Post) it is designed that it can only search for vehicle profiles by model and brand. This means if they insert any other types of parameters such as year, color, or price it will return nothing. Also, it is unclear how the user is going to input the parameters for the search since it simply states they are only clicking a button. This means that if they type in the input there is also a chance for the user to input invalid parameters.

5. Design flaw for VPM6(Sen Buying Request)

In VPM6 when it's creating the notification that will be send to the sell it is only sending the vin and price. Even though the vin can be used to identify the vehicle post they wish to buy it is not sending the buyer's profile. This means that when the seller does get the notification that someone is interested in their vehicle post they won't know who sent it.

6. **Desing flaw for VPM7 (Request Vehicle Profile Market Value)**

For the API to work it will also need the period and mileage to be inputted by the user and is missing as a parameter when sending to the manager layer. In the design, the price attribute is created in the MarketplaceStatus table but is never retrieved in the other designs to be used to display it. This user story should be the first one done instead of being the last one since the information that it will output will be used in the other user stories when displaying information. Also, when requesting information from the API it is only saving the vin and the updated price, but it can be used to return other attributes such as mean, standard deviation, count, and certainty. This way when it gives the price it can also give the data that provides evidence for the price.

Unmet Requirements

1. **VPM3 Missing Display information**

The design does not include the vehicle asking price, the date of the post, vehicle is certified, and seller's location as a 5-mile radius circle at seller's exact location and is unlikely that all this information will fit in the description attribute.

2. **VPM4 missing details**

It is missing details to display such as vehicle image, asking price, date of post, fuel economy, if it's certified, Carfax document, market value, and sellers' location within a 5-mile radius.

3. **VPM5 missing filters**

The VPM5 (Search Vehicle Profile Post) is missing search filters such as price range, fuel economy, body type, color, and year.

4. **VPM6 missing buyer's profile**

Missing passing in the buyer's profile with the price and vin of the vehicle post.

5. **VPM7 missing to pass attributes to database.**

The attributes missing to be saved in the database are count, mean, standard deviation, and certainty. Mileage and period are also missing as parameters to be sent to the manager layer.

Design Recommendations

1. For VPM5 when the user is searching for a post instead of the user typing out their search parameter, they are instead given a filter dropdown menu. This way it gets rid of invalid user inputs. They can choose the filters and the dropdown menu will show all the available options for that filter. This way it makes it easier and faster to search if it doesn't have to check for invalid inputs. The negative it may become more tedious for the user if they must use multiple dropdown menus for each different filter.
2. Currently there is no way to update a post on the vehicle marketplace if any of the details changed such as the service log has been updated or their car health ranking has changed, or the market value has changed after posting to the vehicle marketplace. The only way to update it is by deleting it and posting it again. Therefore, there should be a way to update the post either manually by the user or automatically by the system. The negative this can be counted as a new user story and given time constraints may be unable to implement to the feature.

3. When creating the post for the marketplace there should be more attributes for image, asking price, date of post, and location of seller within 5-mile radius. This way it is easier to display because the description string will be unable to hold an image of the vehicle. This way it is easier to follow and know what each attribute corresponds to. The negative is that it increases the parameters needed in the method signature.

Test Recommendations

1. The test recommendation for VPM5 would mostly be front end where a test case would be that it verifies that the drop menu shows all the options. That it also tests the different combinations of the filters and that it can return post with those filters or state that there is no post that fits the criteria. It is important because this can get rid of invalid inputs and users are more likely to receive relevant vehicle post to their search criteria.
2. A test case for manually updating the post will most likely include a user interface and verifies that when service log, car health ranking, or market value changes it returns an accurate change. This will be important because having an updated post will be important to users when they are in the vehicle marketplace and can make informed decisions with the latest information.
3. The testing will be like what is already being tested but with more parameters so the method signature will be tested to verify that the new attributes are included. Another test is to make sure that the image is being displayed with the correct vehicle post. These are all requirements needed by the BRD for the user story to be completed.