FINAL PROJECT DOCUMENTATION

CIS 4339

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2 December, 2018

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User Stories & Test Cases

Dealership Owner

As a dealership owner, I want to have the full permission so that I can delete, add, and modify data in all tables.

Test Case ID	T_01	Test Case Description	Access to all tables to delete, add, and modify data		
Created By	Otilio	Reviewed By	Osama		
Tester's Name	Akshay	Date Tested	November 27, 2018	Test Case (Pass/Fail)	Pass

S #	Prerequisites:		S #	Test Data
1	Access to Web Application		1	Userid = admin@uh.edu
2			2	Pass = 1234556

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Access to all tables	Can navigate to all tables	As Expected	Pass
5	Access to modify, delete, add data	Have permission to change data	As Expected	Pass

Sales Person

As the sales person, I want to create quotes, look up any customer, and search vehicles in the inventory so that I can assist the customer provide and record vehicle information to the customer.

Test Case ID	T_02	Test Case Description	Create Quotes		
Created By	Otilio	Reviewed By	Osama		
Tester's Name	Ahmad	Date Tested	November 16, 2018	Test Case (Pass/Fail)	Pass

S #	Prerequisites:		S #	Test Data
1	Access to Web Application		1	Userid = salesp@uh.edu
2			2	Pass = 1234556

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Navigate to Quotes Tab	Can navigate	As Expected	Pass
5	Create Quote	Quotes can be created	As Expected	Pass

Test Case ID	T_03		Test Case Description	Look up Customers				
Created By	Ahmad		Reviewed By	Otilio				
Tester's Name	Akshay		Date Tested	November 16, 2018		Test Case (Pass/Fail)	Pass	

S #	Prerequisites:			S #	Test Data			
1	Access to Web Application			1	Userid = salesp@uh.edu			
2				2	Pass = 1234556			

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Navigate to Customers Tab	Can navigate	As Expected	Pass
5	Search for Customers in seach bar	Customer can be searched	As Expected	Pass

Test Case ID	T_04		Test Case Description	Look up Vehicles				
Created By	Osama		Reviewed By	Akshay				
Tester's Name	Ahmad		Date Tested	November 18, 2018		Test Case (Pass/Fail)	Pass	

S #	Prerequisites:			S #	Test Data			
1	Access to Web Application			1	Userid = salesp@uh.edu			
2				2	Pass = 1234556			

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Navigate to Home Page	Can navigate	As Expected	Pass
5	Search for Vehicles in Search Bar	Vehicles can be searched	As Expected	Pass

Sales Manager

As a sales manager, I want to view all sales made by the sales staff so that I can keep track of their sales.

Test Case ID	T_05		Test Case Description	View Sales Report				
Created By	Otilio		Reviewed By	Ahmad				
Tester's Name	Osama		Date Tested	November 19, 2018		Test Case (Pass/Fail)	Pass	

S #	Prerequisites:			S #	Test Data			
1	Access to Web Application			1	Userid = salesm@uh.edu			
2				2	Pass = 1234556			

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Navigate to Sales Report Tab	Can navigate	As Expected	Pass
5	Sales Report Displayed	Can view	As Expected	Pass

Finance Manager

As a finance manager, I want to show customers a breakdown of the given quote, finalize a quote, and exporting a PDF of the quote so that I can provide customers with finance information and options.

Test Case ID	T_06	Test Case Description	Create Quote and Export to PDF				
Created By	Otilio	Reviewed By	Akshay				
Tester's Name	Osama	Date Tested	November 21, 2018	Test Case (Pass/Fail)		Pass	

S #	Prerequisites:			S #	Test Data		
1	Access to Web Application			1	Userid = finance@uh.edu		
2				2	Pass = 1234556		

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Navigate to Quotes Tab	Can navigate	As Expected	Pass
5	Create Quote	Can create	As Expected	Pass
5	Export to PDF	Can export	As Expected	Pass

Test Case ID	T_07	Test Case Description	Finalize Quote and Export to PDF				
Created By	Otilio	Reviewed By	Ahmad				
Tester's Name	Osama	Date Tested	November 21, 2018	Test Case (Pass/Fail)		Pass	

S #	Prerequisites:			S #	Test Data		
1	Access to Web Application			1	Userid = finance@uh.edu		
2				2	Pass = 1234556		

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Navigate to Quotes Tab	Can navigate	As Expected	Pass
5	Create Quote	Can create	As Expected	Pass
6	Finalize Quote	Can mark as sold	As Expected	Pass
7	Export to PDF	Can export	As Expected	Pass

Inventory Manager

As an inventory manager, I want to manage the inventory of vehicles so that I can delete, add, and modify data and upload an image of the vehicle.

Test Case ID	T_08	Test Case Description	Edit Vehicles and Upload Image			
Created By	Akshay	Reviewed By	Osama			
Tester's Name	Ahmad	Date Tested	November 25, 2018	Test Case (Pass/Fail)	Pass	

S #	Prerequisites:		S #	Test Data	
1	Access to Web Application		1	Userid = inventory@uh.edu	
2			2	Pass = 1234556	

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Search for Vehicle to edit	Vehicle found with search bar	As Expected	Pass
5	Edit Vehicle Details	Vehicle can be edited	As Expected	Pass
6	Upload image	Image can be uploaded	As Expected	Pass

Test Case ID	T_09	Test Case Description	Add Vehicles and Upload Image			
Created By	Ahmad	Reviewed By	Otilio			
Tester's Name	Akshay	Date Tested	November 26, 2018	Test Case (Pass/Fail)	Pass	

S #	Prerequisites:		S #	Test Data	
1	Access to Web Application		1	Userid = inventory@uh.edu	
2			2	Pass = 1234556	

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Add vehicle	Vehicle can be added	As Expected	Pass
5	Upload image	Image can be uploaded	As Expected	Pass

Test Case ID	T_10	Test Case Description	Delete Vehicles			
Created By	Osama	Reviewed By	Akshay			
Tester's Name	Ahmad	Date Tested	November 27, 2018	Test Case (Pass/Fail)	Pass	

S #	Prerequisites:		S #	Test Data	
1	Access to Web Application		1	Userid = inventory@uh.edu	
2			2	Pass = 1234556	

Step #	Step Details	Expected Results	Actual Results	Pass / Fail / Not executed / Suspended
1	Navigate to localhost:3000	Site should open	As Expected	Pass
2	Sign up	Credential can be entered	As Expected	Pass
3	Sign in	Credential can be entered	As Expected	Pass
4	Search for Vehicle	Vehicle can be searched	As Expected	Pass
5	Delete Vehicle	Vehicle can be deleted	As Expected	Pass

<u>User Manual</u>

To Sign Up

- Click 'Login' link and then click 'Sign up' link and chose the appropriate role along with information and click 'Sign up' to create an account.

To Sign In

- Click 'Login' link and use your credentials and then click 'Log in' to sign in.

Forgot Account Password?

- Click 'Login' link and then click 'Forgot your password?' link, then enter your email and click 'Send me reset password instructions' to have password reset instructions emailed to you.

Customer

Home Page

- Click 'Search' to look up for vehicle by typing the vehicle VIN, Color, or Model in the search bar on the home page.

Dealership Owner

Home Page

- Click 'Search' to look up for vehicle by typing the vehicle VIN, Color, or Model in the search bar on the home page.
- Click 'Edit' to modify vehicle information on the home page and then click 'Update Vehicle'.
- Click 'Destroy' to delete vehicle information on the home page.
- Click 'Edit' and then 'Browse' to upload the image of the vehicle and then click 'Update Vehicle'.
- Click 'New Vehicle' link to add a new vehicle and then click 'Create Vehicle'.

Customers Page

- Type customer's first name, last name, address, email, or phone to look up customer information and hit enter.
- Click 'Edit' to modify customer information on the customer page and then click 'Update Customer'.
- Click 'Destroy' to delete customer information on the customer page.
- Click 'New Customer' link to add a new customer and then click 'Create Customer'.

Quotes Page

- Click 'New Quote' link to add a new quote and then click 'Create Quote'.
- Click 'Edit' to modify quote information on the quotes page and then click 'Update Quote'.
- Click 'Destroy' to delete quote information on the quotes page.
- Click 'Show' and then 'PDF' to generate a PDF file for the given quote.
- Click 'Edit' and check 'Sold' to finalize quote and then click 'Update Quote'.

Sales Report Page

- Click on 'Sales Report' tab to navigate to the page and find a report of the sales.

Employees Page

- Type employee's first name or last name to look up employee information and hit enter.
- Click 'Edit' to modify employee information on the employees' page and then click 'Update Employee'.
- Click 'Destroy' to delete employee information on the employees' page.
- Click 'New Employee' link to add a new employee and then click 'Create Employee'.

Register Page

- Click 'Search' to look up for vehicle by typing the vehicle VIN, Color, or Model in the search bar on the home page.
- Click 'Edit' to modify vehicle information on the home page and then click 'Update Vehicle'.
- Click 'Destroy' to delete vehicle information on the home page.
- Click 'Edit' and then 'Browse' to upload the image of the vehicle and then click 'Update Vehicle'.
- Click 'New Vehicle' link to add a new vehicle and then click 'Create Vehicle'.

Executive Summary Page

- Click on 'Executive Summary tab to navigate to the page and an executive summary.

Finance Manager

Home Page

- Click 'Search' to look up for vehicle by typing the vehicle VIN, Color, or Model in the search bar on the home page.
- Click 'Edit' to modify vehicle information on the home page and then click 'Update Vehicle'.
- Click 'Destroy' to delete vehicle information on the home page.

- Click 'Edit' and then 'Browse' to upload the image of the vehicle and then click 'Update Vehicle'.
- Click 'New Vehicle' link to add a new vehicle and then click 'Create Vehicle'.

Finance Page

- Click 'New Quote' link to add a new quote and then click 'Create Quote'.
- Click 'Edit' to modify quote information on the quotes page and then click 'Update Quote'.
- Click 'Destroy' to delete quote information on the quotes page.
- Click 'Show' and then 'PDF' to generate a PDF file for the given quote.
- Click 'Edit' and check 'Sold' to finalize quote and then click 'Update Quote'.

Inventory Manager

Home Page

- Click 'Search' to look up for vehicle by typing the vehicle VIN, Color, or Model in the search bar on the home page.
- Click 'Edit' to modify vehicle information on the home page and then click 'Update Vehicle'.
- Click 'Destroy' to delete vehicle information on the home page.
- Click 'Edit' and then 'Browse' to upload the image of the vehicle and then click 'Update Vehicle'.
- Click 'New Vehicle' link to add a new vehicle and then click 'Create Vehicle'.

Sales Manager

Home Page

- Click 'Search' to look up for vehicle by typing the vehicle VIN, Color, or Model in the search bar on the home page.
- Click 'Edit' to modify vehicle information on the home page and then click 'Update Vehicle'.
- Click 'Destroy' to delete vehicle information on the home page.
- Click 'Edit' and then 'Browse' to upload the image of the vehicle and then click 'Update Vehicle'.
- Click 'New Vehicle' link to add a new vehicle and then click 'Create Vehicle'.

Customers Page

- Type customer's first name, last name, address, email, or phone to look up customer information and hit enter.
- Click 'Edit' to modify customer information on the customer page and then click 'Update Customer'.
- Click 'Destroy' to delete customer information on the customer page.
- Click 'New Customer' link to add a new customer and then click 'Create Customer'.

Quotes Page

- Click 'New Quote' link to add a new quote and then click 'Create Quote'.
- Click 'Edit' to modify quote information on the quotes page and then click 'Update Quote'.
- Click 'Destroy' to delete quote information on the quotes page.
- Click 'Show' and then 'PDF' to generate a PDF file for the given quote.
- Click 'Edit' and check 'Sold' to finalize quote and then click 'Update Quote'.

Sales Report Page

- Click on 'Sales Report' tab to navigate to the page and find a report of the sales.

Sales Person

Home Page

- Click 'Search' to look up for vehicle by typing the vehicle VIN, Color, or Model in the search bar on the home page.
- Click 'Edit' to modify vehicle information on the home page and then click 'Update Vehicle'.
- Click 'Destroy' to delete vehicle information on the home page.
- Click 'Edit' and then 'Browse' to upload the image of the vehicle and then click 'Update Vehicle'.
- Click 'New Vehicle' link to add a new vehicle and then click 'Create Vehicle'.

Customers Page

- Type customer's first name, last name, address, email, or phone to look up customer information and hit enter.
- Click 'Edit' to modify customer information on the customer page and then click 'Update Customer'.
- Click 'Destroy' to delete customer information on the customer page.
- Click 'New Customer' link to add a new customer and then click 'Create Customer'.

Quotes Page

- Click 'New Quote' link to add a new quote and then click 'Create Quote'.
- Click 'Edit' to modify quote information on the quotes page and then click 'Update Quote'.
- Click 'Destroy' to delete quote information on the quotes page.
- Click 'Show' and then 'PDF' to generate a PDF file for the given quote.
- Click 'Edit' and check 'Sold' to finalize quote and then click 'Update Quote'.

CRUD Matrix

Roles	Models	Create	Read	Update	Delete
Sales Person	Customer		x	x	
	Quote	x	x	x	
	Vehicle		x		
Sales Manager	Account				
	Customer	x	x	x	x
	Employee		x	x	
	Quote	x	x	x	x
	Vehicle		x	x	
	Report		x		
	Summary		x		
Finance	Customer	x	x	x	
	Employee		x	x	
	Quote	x	x	x	x
	Vehicle		x	x	
Inventory	Customer				
	Employee		x	x	
	Quote		x	x	
	Vehicle	x	x	x	x
Owner	Account				
	Customer				
	Employee				
	Quote		All		
	Vehicle				
	Report				
	Summary				

Authorization Using CanCanCan

Ability Definitions

```ruby
class Ability
  include CanCan::Ability

  def initialize(user)
    if user.present?
    if user.role == 'admin'
      can :manage, :all
    end
    if user.role == 'salesm'
      can :read, [Employee, Quote, Vehicle]
      can :update,  [Employee, Quote, Vehicle]
    end
    if user.role == 'salesp'
      can :create, Quote
      can :read, [Customer, Quote, Vehicle]
      can :update, [Customer, Quote, Vehicle]
    end
    if user.role == 'finance'
      can :manage, [Customer, Quote]
      can :read, [Vehicle, Employee]
      can :update, Employee
    end
    if user.role == 'inventory'
      can :manage, Vehicle
      can :read, [Employee, Customer, Quotes]
      can :update, Employee
    end
  end
  else
    can :read, Vehicle
```

Ajax

```
23    resources :vehicles do
24      member do
25        get 'price'
26      end
27    end
```

```
15
16    def price
17      vehicle = Vehicle.find(params[:id])
18      render json: vehicle
19    end
20
```

```
1   json.partial! "vehicles/vehicle", vehicle: @vehicle
2
```

← → C ⌂ ⓘ localhost:3000/vehicles/1/price

{"id":1,"vin":"9BE8J8YX1FABBJSZE","year":2017,"price":"391388.82","created_at":"2018-11-30T18:00:20.486Z","updated_at":"2018-12-02T03:29:19.178Z","make":"Nissan","model":"Corolla","color":"Blue","car_type":null}

```javascript
1   var carPrice;
2
3   carPrice = function () {
4     var formatter = new Intl.NumberFormat('en-US', {style: 'currency', currency: 'USD'});
5     var selection_id;
6     selection_id = $('#quote_vehicle_id').val();
7     return $.getJSON('/vehicles/' + selection_id +'/price', {}, function (json, response) {
8       var format_price = formatter.format(json['price']);
9       return $('#price').text(format_price);
10    });
11  };
12
13  $(document).on('turbolinks:load', function () {
14    if($('#quote_vehicle_id').length) {
15      carPrice;
16    }
17    $('#quote_vehicle_id').on('change', carPrice);
18    $('#quote_vehicle_id').trigger("change");
19  });
```

Editing Quote

Vehicle 2018 Chevy A8 ▼

Base Price $556,471.29

Ajax Request Chart
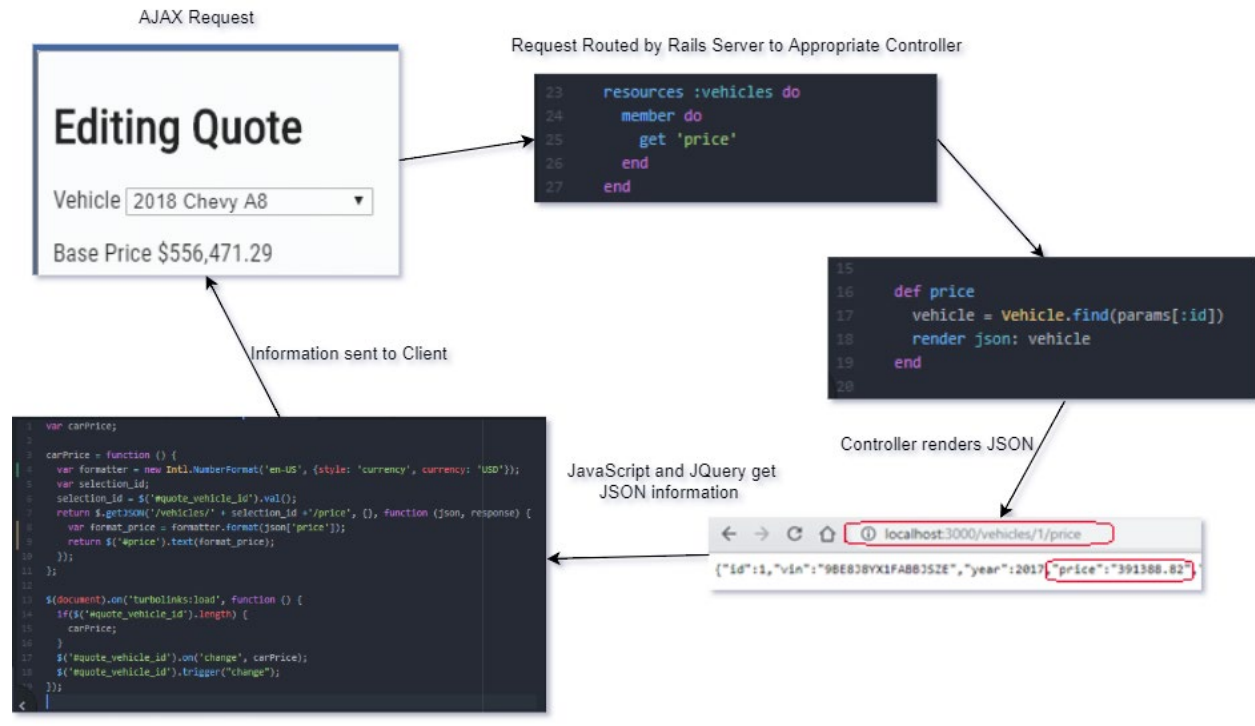
Load Test

We tested the application for performance against our home page. This displays all vehicles and is the focal point of the application. We conducted our test using apache Jmeter to simulate users making concurrent requests to our application at the same time. In addition, we then used the Faker gem to populate data in our Vehicles page. We simulated data for 200, 1000, and 10000 vehicles. All tests were conducted with 20 users.
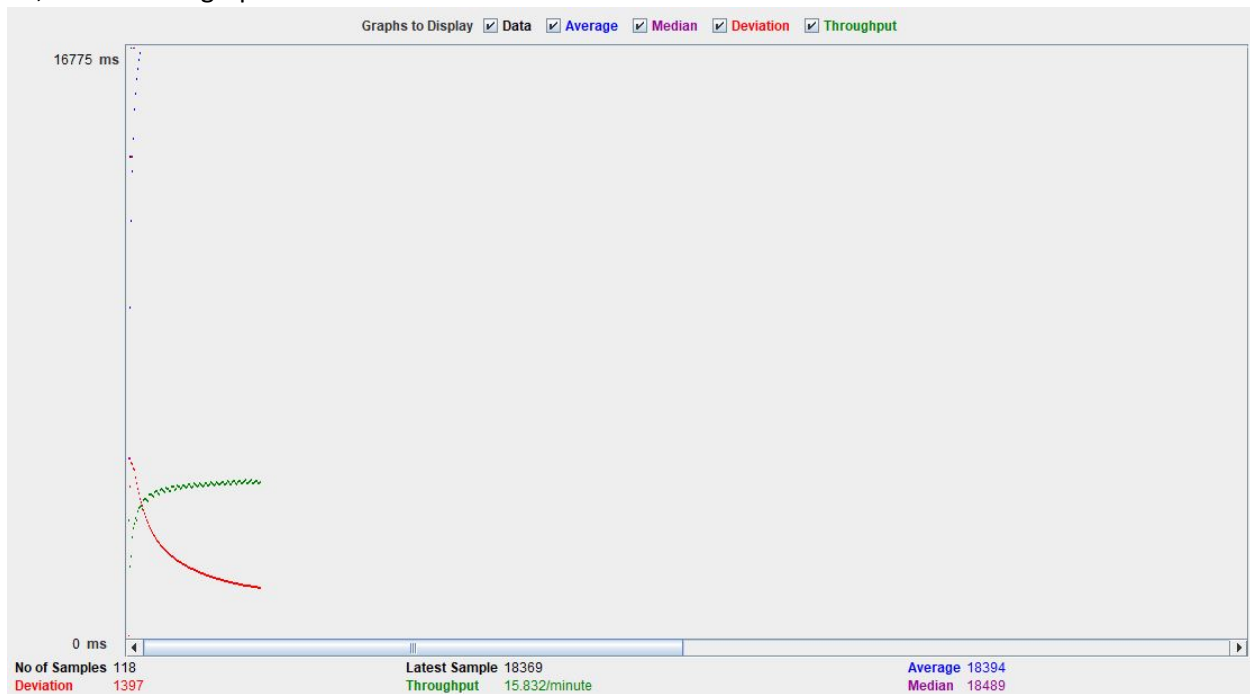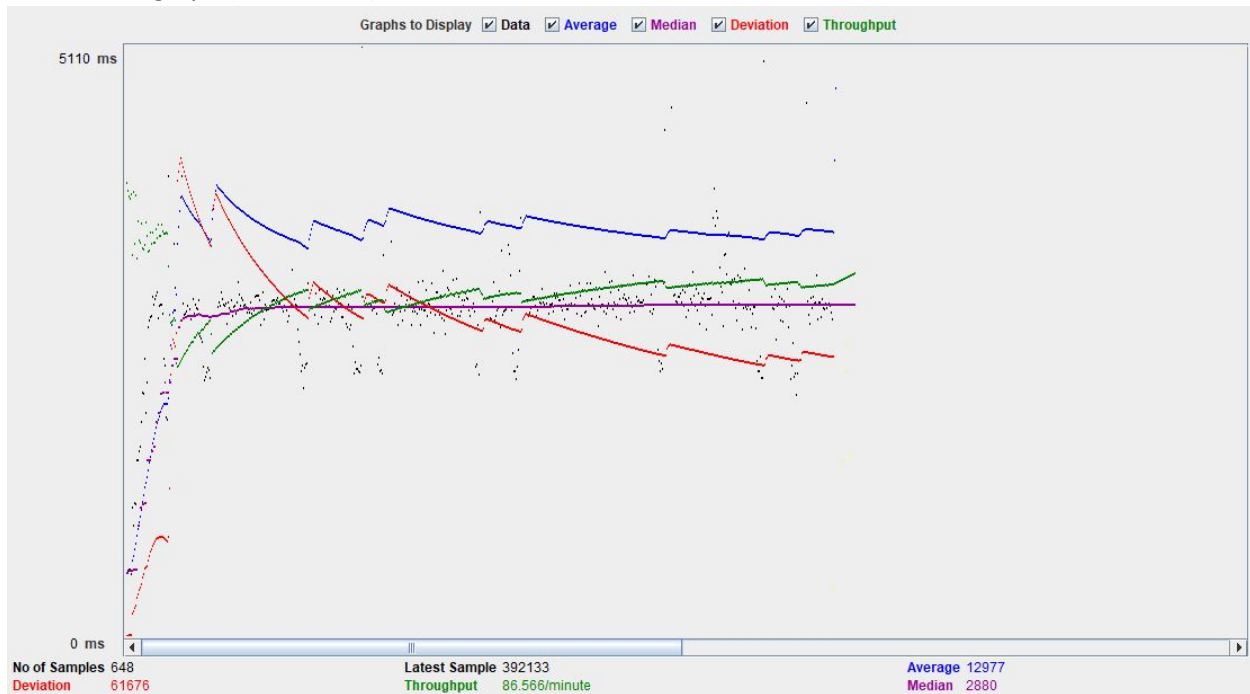
200 Vehicles graph
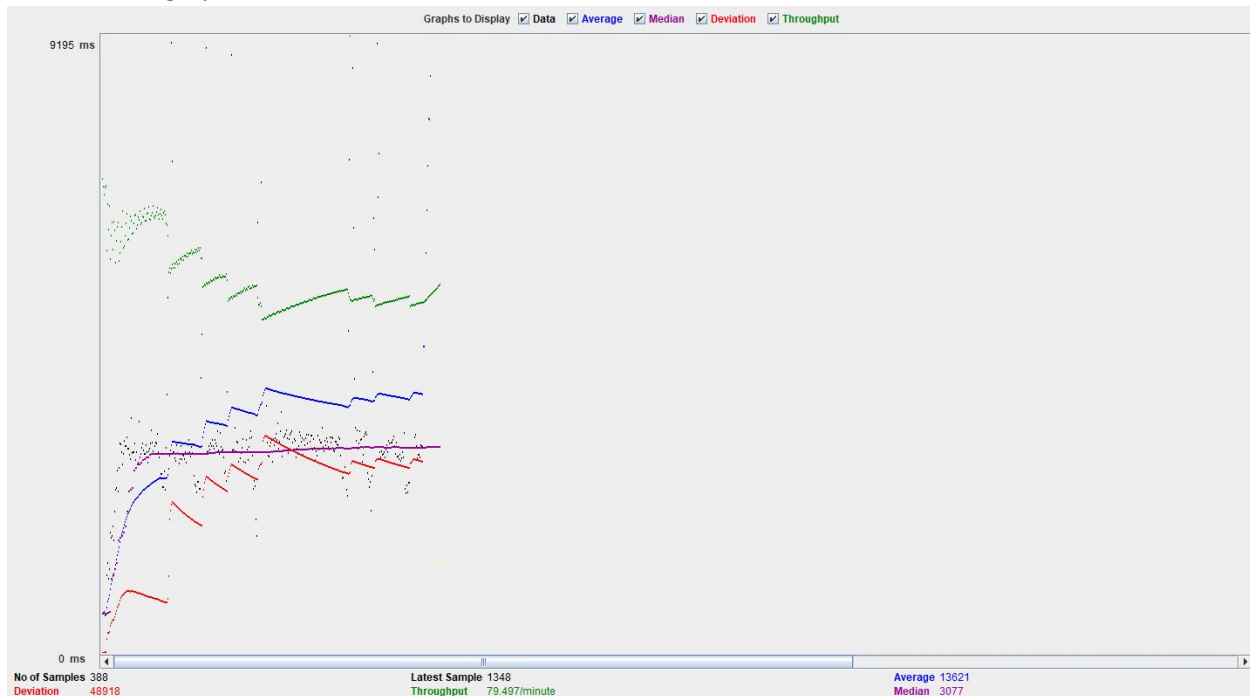
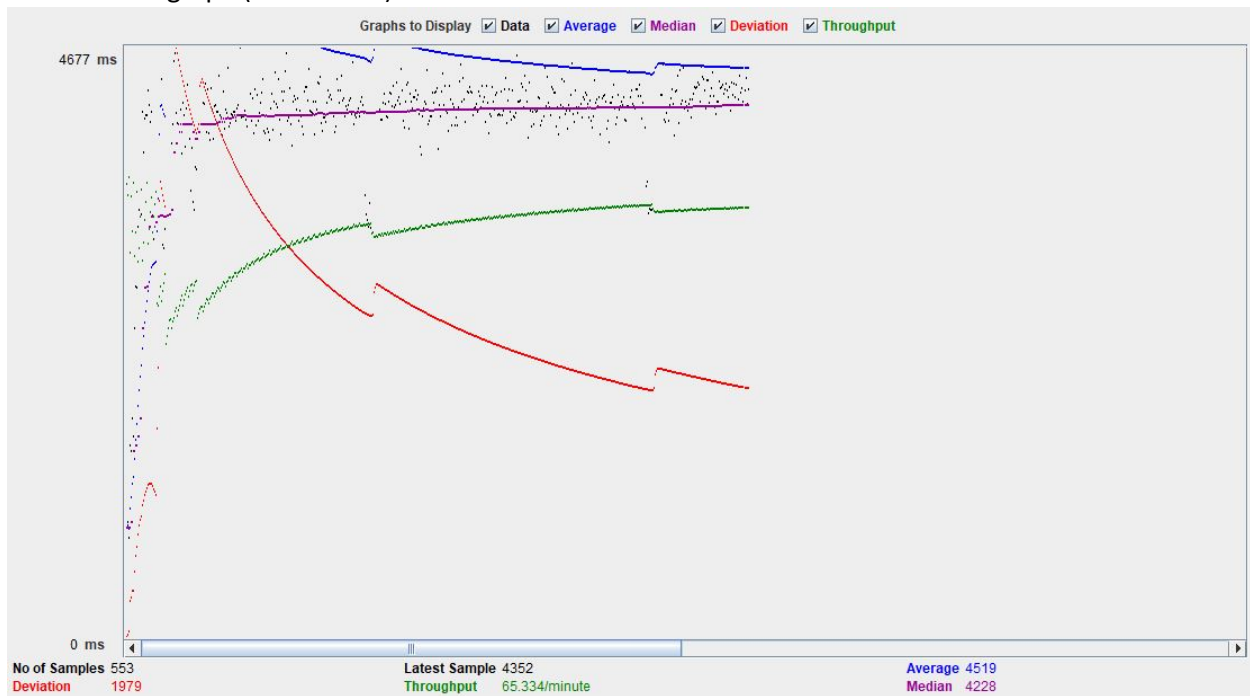1000 Vehicles graph
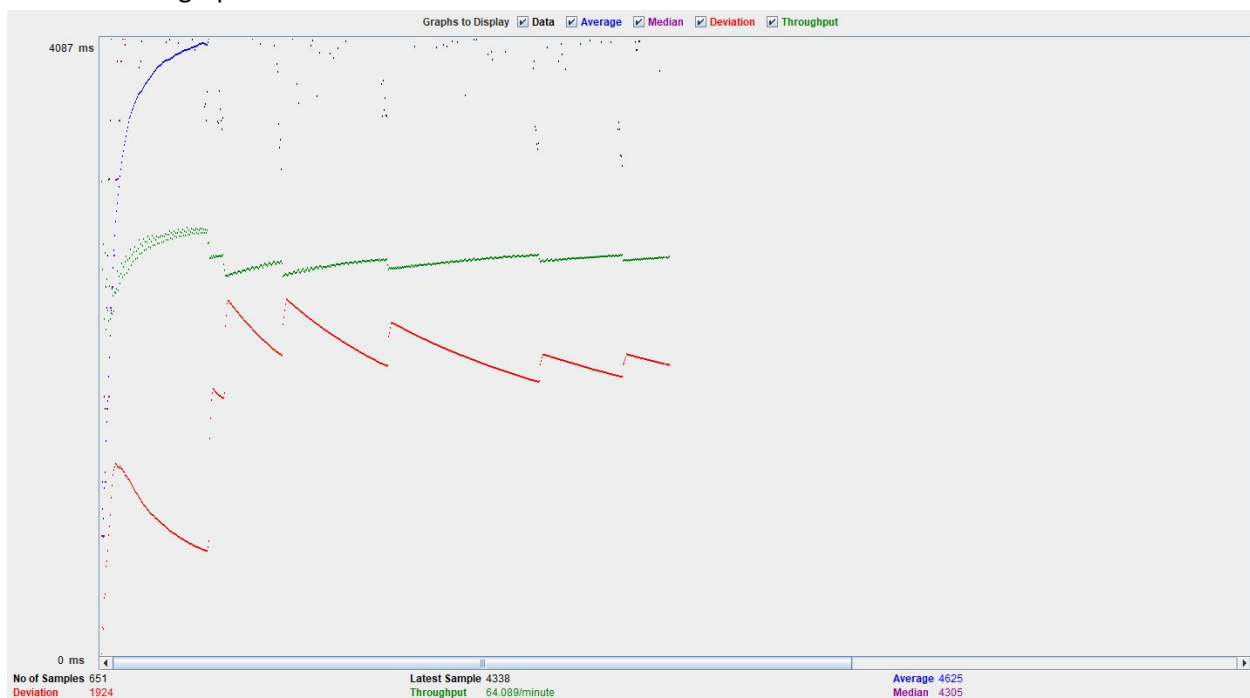
10,000 Vehicles graph

In order to improve request and render times we then began caching the Vehicles table and performed another round of test.
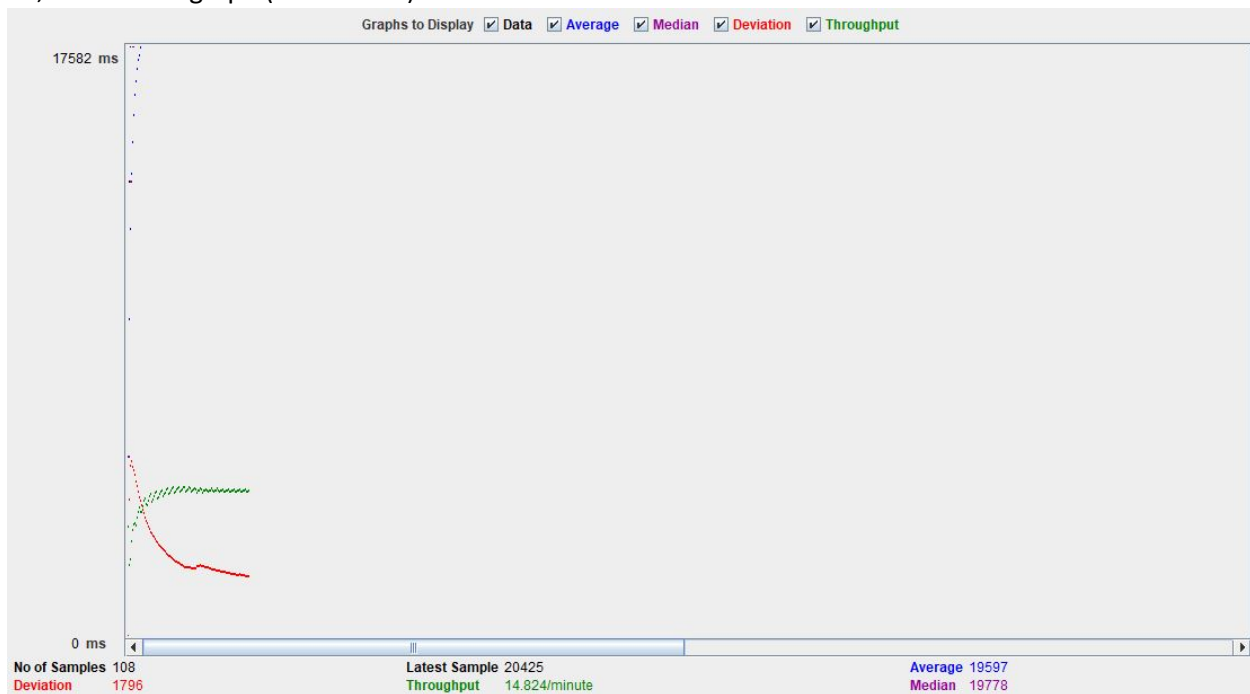
200 Vehicle graph (after cache)

1000 Vehicle graph (after cache)

10,000 Vehicle graph (after cache)

We saw slight improvements in average request times. In order to further improve performance, we also implemented the will paginate gem to limit the number of vehicles to be rendered on a given page.