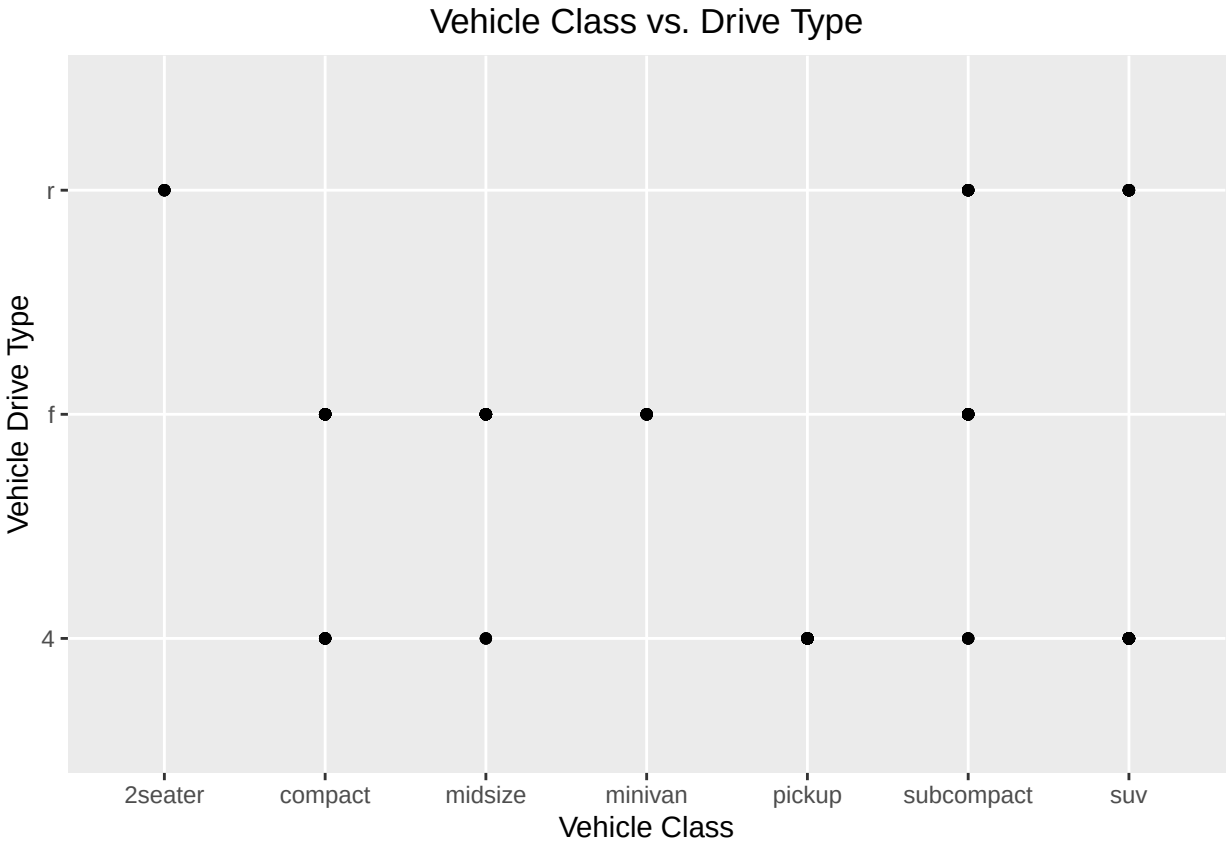
SSC 442 Lab 01

Team 7

1/16/2020

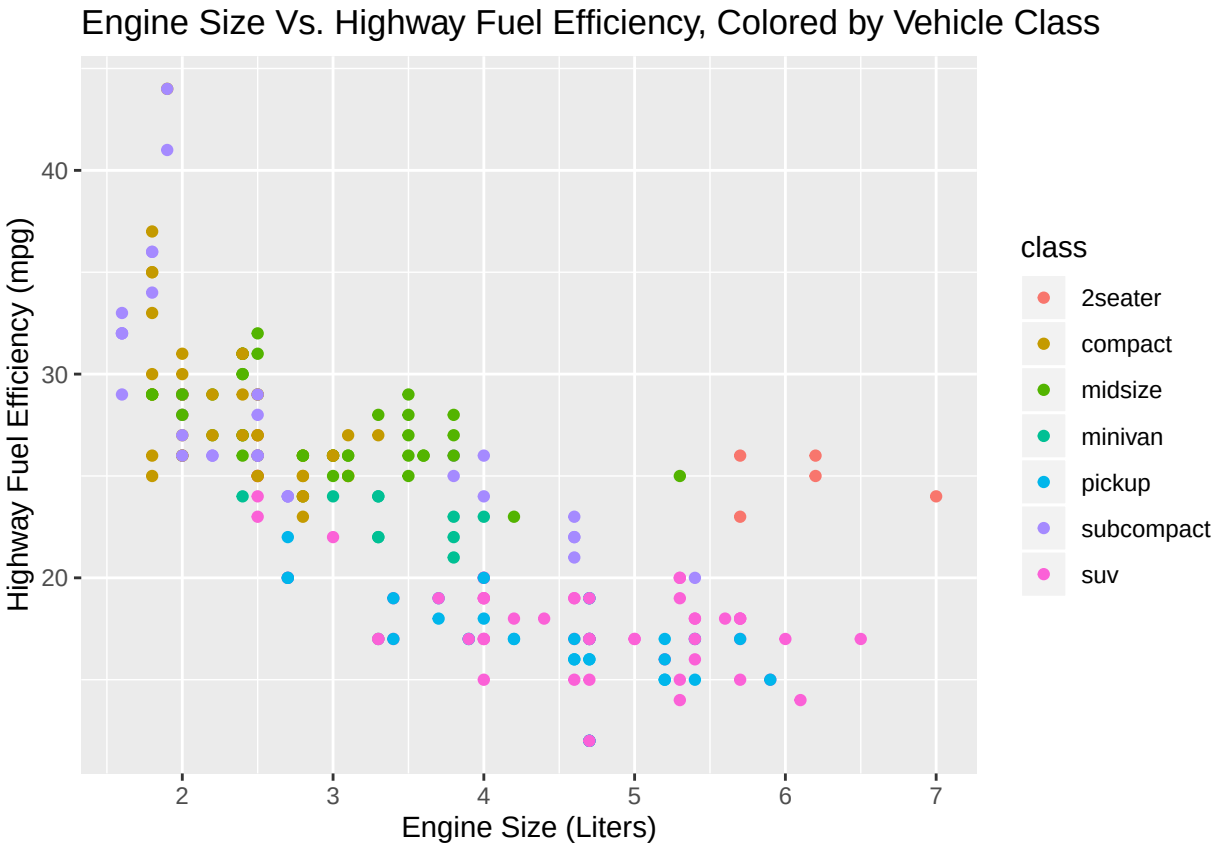
Exercise 1:

This scatter plot of Engine Size vs. Highway Fuel Efficiency shows a negative correlation between engine size and highway fuel efficiency. That is, the scatter plot demonstrates a general trend that as engine size (disp) increases, highway fuel efficiency will decrease. This relationship is, however, intuitive. One would expect that as the size of the engine increases, the engine will use more gasoline, and thus will have a lower highway fuel efficiency.



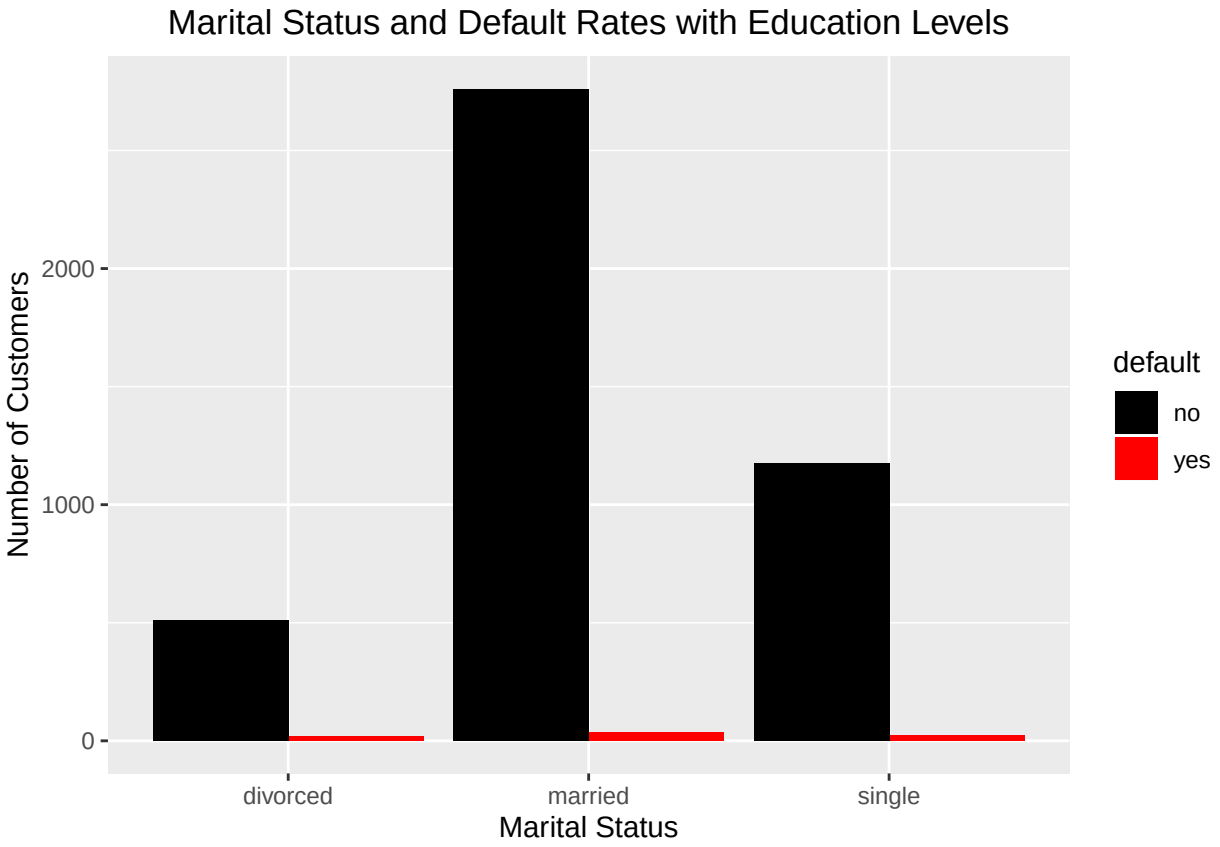
This scatter plot of Vehicle Class Vs. Drive Type is not a useful plot because there is no related relationship between the two variables. The vehicle class generally dictates what drive type the vehicle may have, and there are far too few data points to make any reasonable conclusions

Exercise 1b:



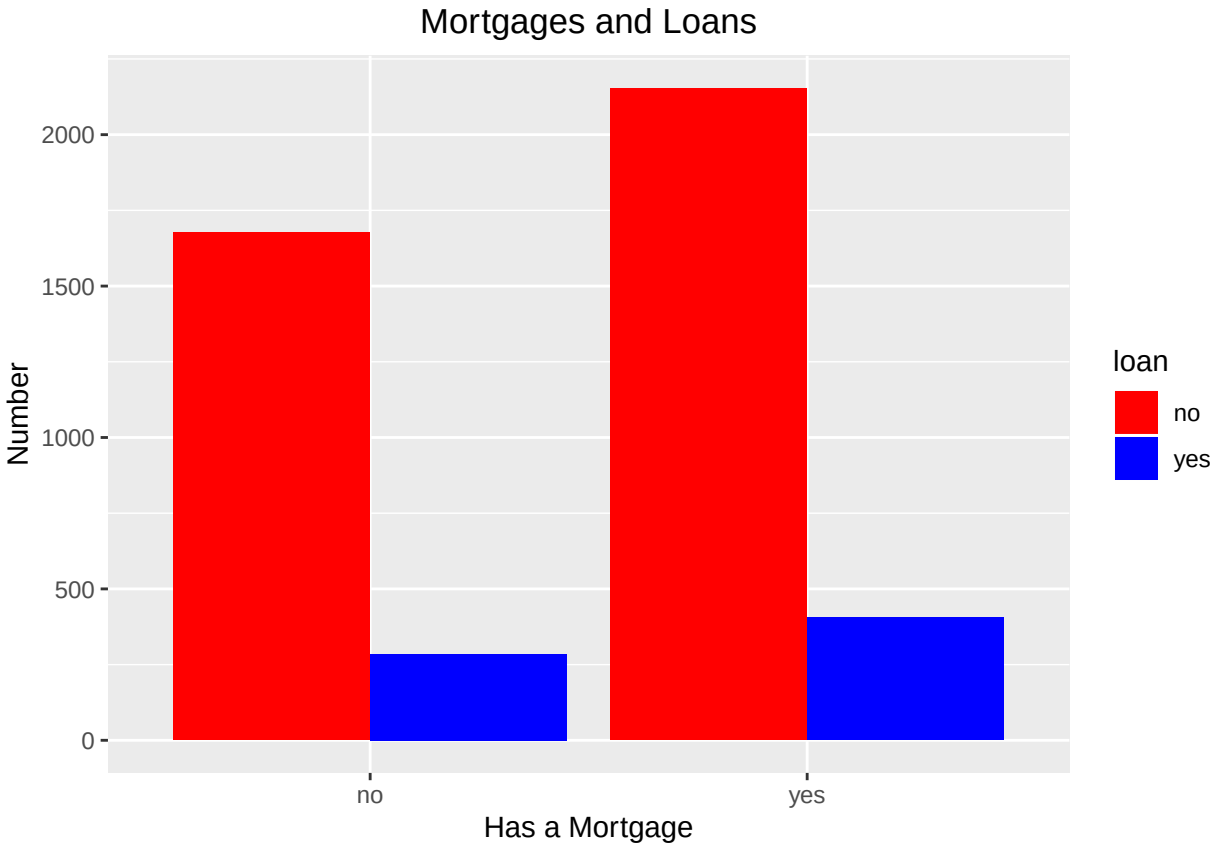
Given the scatter plot Engine Size Vs. Highway Fuel Efficiency generated with color coded dots according to the type of vehicle, it can be noted that 2-seat vehicles are outlyers in the sense that they achieve better highway fuel efficiency than other types of vehicles with the same size engine. This is likely explained by the fact that 2-seat vehicles are smaller and lighter than the other vehicles which have similar sized engines.

Exercise 2:



	totalNumCustomers	totalNumCustomersDefaulted	percentageDefaulted
Divorced	528	18	3.409091
Married	2797	36	1.287093
Single	1196	22	1.839465
Total	4521	76	1.681044

The above graph and table dmeonstrate how customer marital status is related to the rate at which they default on the loan or mortgage the customer holds with the bank. From the graph and table, we note that in general, a very small proportion (approximatley 1.7%) of all customers, across all marital stauses, default on the loans/mortgages they hold. However, the table demonstrates that customers who have been divorced are the most at-risk population for defaulting on their loan/mortgage, and married individuals are the population with the lowest risk of defaulting.



	Number of Customers	Percentage
Neither a Mortgage nor a Loan	1677	37.093563
Only a Mortgage	2153	47.622208
Only a Loan	285	6.303915
Both a Mortgage and a Loan	406	8.980314

The above graph and table display data on customers who have neither a loan nor a loan, only a mortgage, only a loan, or both. From the graph, it can be seen that the largest population has only a mortgage, but the smallest population has both a loan and a mortgage. The table breaks these populations down into percentages, and it can be seen that roughly half of all customers hold mortgages, but the next largest population is customers who have neither a mortgage nor a loan. Thus, from a business perspective, one of the best approaches to increasing revenues for the bank would be to entice the large population of customers (approximately 37%) who do not have a mortgage or a loan to take out a mortgage or loan from the bank. Another tactic which could possibly increase business revenues would be to target the population of customers who have exclusively a loan or a mortgage, and attempt to entice them to take out another or one of the other types.