Project: Diamond Prices

Complete each section. When you are ready, save your file as a PDF document and submit it in your classroom.

Step 1: Understanding the Model

Answer the following questions:

1. **According to the model, if a diamond is 1 carat heavier than another with the same cut, how much more should I expect to pay? Why?**

   - One additional carat would result in an additional $ 8,413 in price. The formula generated by the regression determined that the weight factor of the diamond is 8,413 so for every increase in carat the price will increase by the factor

2. **If you were interested in a 1.5 carat diamond with a Very Good cut (represented by a 3 in the model) and a VS2 clarity rating (represented by a 5 in the model), how much would the model predict you should pay for it?**

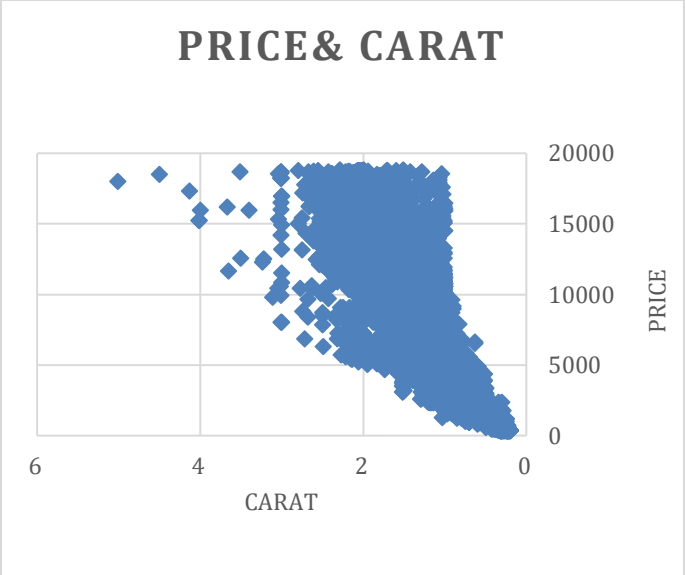
   The formula is Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity

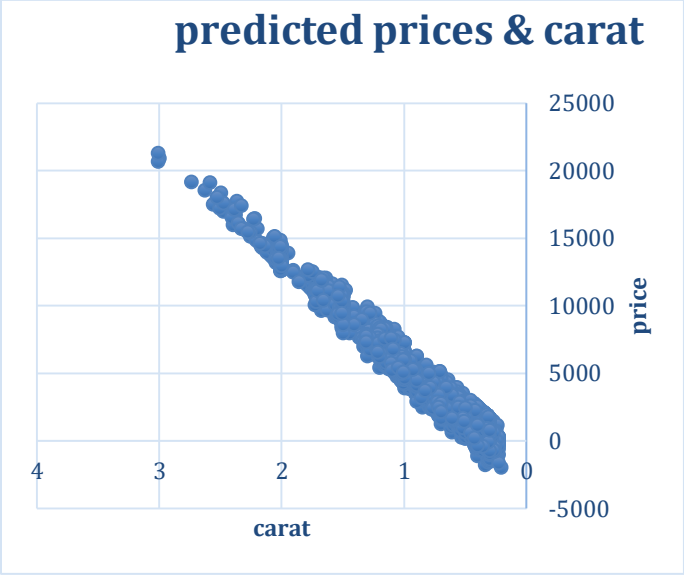
   - so now we will plug in the values for the different variables.
   - Price = -5,269 + 8,413 x 1.5+ 158.1 x 3+ 454 x 5
   - =Price 10094.8

Step 2: Visualize the Data

Make sure to plot and include the visualizations in this report. For example, you can create graphs in Excel and copy and paste the graphs into this Word document.

1. Plot 1 - Plot the data for the diamonds in the database, with carat on the x-axis and price on the y-axis.
2. Plot 2 - Plot the data for the diamonds for which you are predicting prices with carat on the x-axis and predicted price on the y-axis.
   - **Note**: You can also plot both sets of data on the same chart in different colors.
3. What strikes you about this comparison? After seeing this plot, do you feel confident in the model's ability to predict prices?





The predicted prices are more compact than the actual data is. This is because we are not accounting for everything that effects prices. There are many more things than carat that effect it. We had cut and clarity factored in to our formula but not even that will account for all the variation. For instance this formula might look very different depending on the carat
After looking at this plot the model appears on average to predict the prices ok, There appears to be an diamonds with only carat but sold for almost $2100 While the formula may not be accurate for an individual carat, it should do a decent job at predicting the price we should pay diamonds for at once since it on average looks representative.

Step 3: Make a Recommendation

Answer the following questions:

1. What price do you recommend the jewelry company to bid? Please explain how you arrived at that number.

I recommend a bid of $ 117335.2276 arrived at this number by using a formula from the regression model The company generally purchases diamonds from distributors at 70% of that price ,so your recommended bid price should represent that I then factored in the margin the investors were looking for which was 70% so I multiply the predicted amount 3911.174253by .30 to get the final predicted bid of $117335.2276