Ioanna Vasilopoulou | Project: Diamond Prices

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?
    *According to the equation (**Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity**), the coefficient number for the carat is 8,413. If a diamond, with the same cut, is 1 carat heavier than another, the increase in the price would be $8,413.*

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?
    *As per the equation **Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity**, the predicted price for this is $10,094.80*

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.
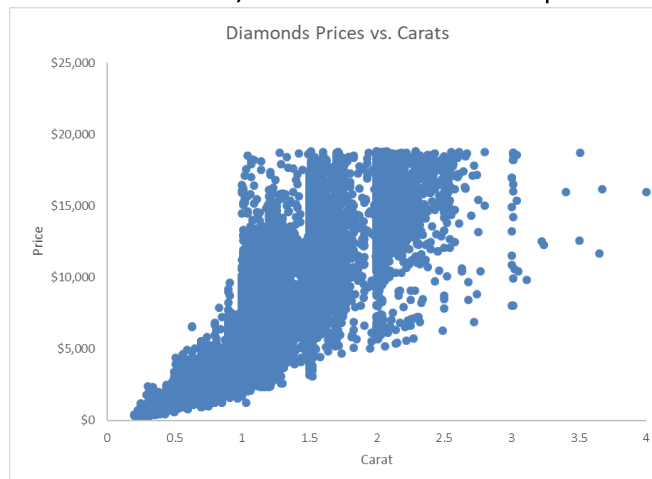
2. Plot 2 - Plot the data for the diamonds for which you are predicting prices with carat on the x-axis and predicted price on the y-axis.
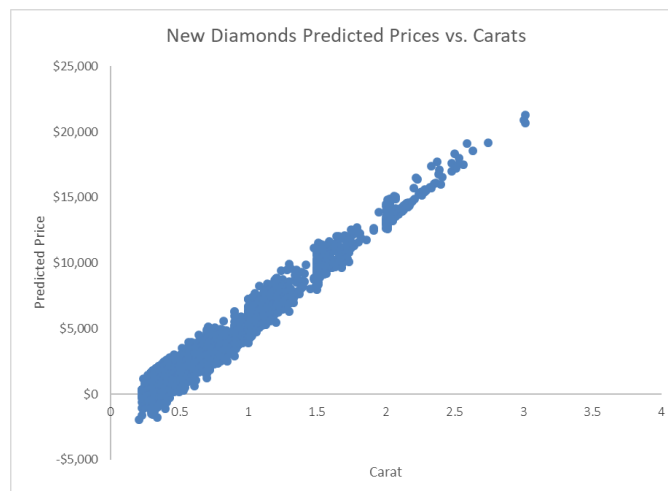
3. What strikes you about this comparison? After seeing this plot, do you feel confident in the model's ability to predict prices?
    From the plot for the diamonds data, we can see a positive correlation between price and carat, however it is quite moderate, especially for the diamonds with 1 to 3 carats.

    In the prediction model this correlation is positively strong, across all carats. The factors that could affect the predictive results showing negative results, as well as the differences in the correlation between the 2 data sets, are the cut and the clarity. These attributes have a great impact in the prices of diamonds, so converting them into numbers might not be the best approach.

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.
    As the jewelry company generally purchases diamonds from distributors at 70% of the retail prices, the recommended price will be $8,213,465.93. This is 70% of the total cost ($11,733,522.76) of the 3,000 diamonds.