Project: Diamond Prices

Complete each section. When you are ready, save your file as a PDF document and submit it here: https://classroom.udacity.com/nanodegrees/nd008/parts/235a5408-0604-4871-8433-a6d670e37bbf/project#

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?

   There are three factors in the model Carat, Cut and Clarity.

   "Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity "

   For 1 Carat heavier and same cut, the price will be increased by 8,413 + (454*'difference of the clarity'). Because it is not mentioned about the clarity. Assuming the same clarity the price will be increased by 8,413 only.

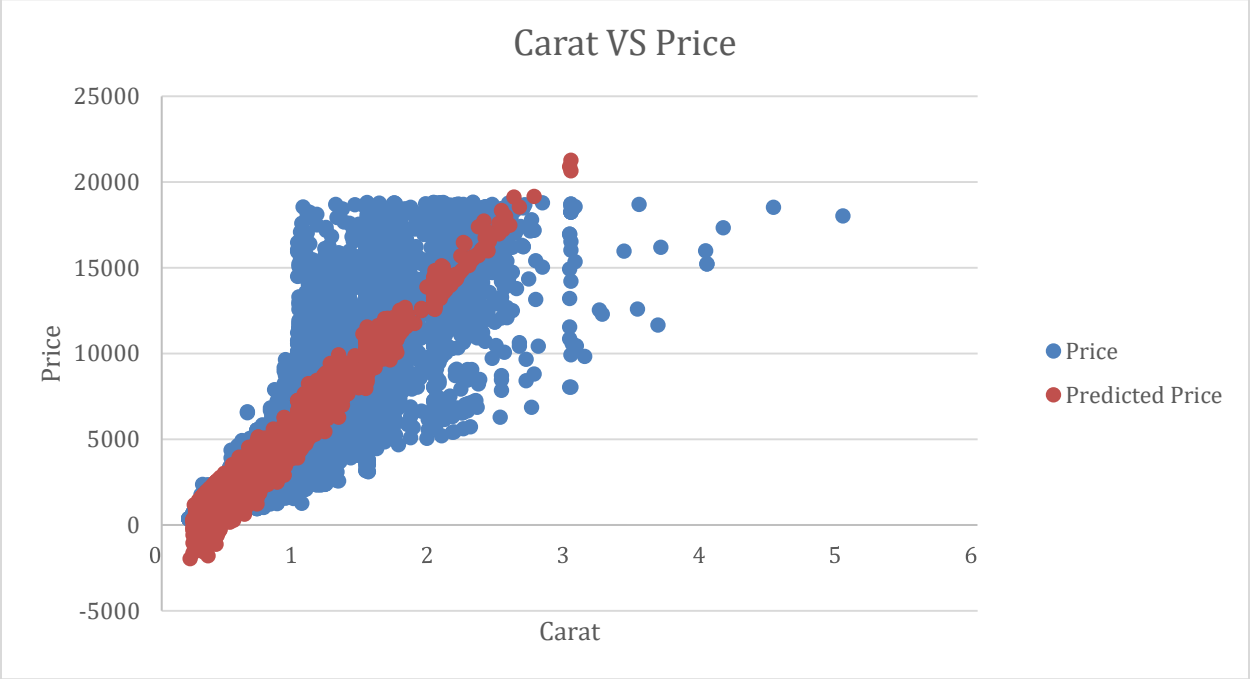
2. If you were interested in a 1.5 carat diamond with a **Very Good** cut (represented by a 3 in the model) and a **VS2** clarity rating (represented by a 5 in the model), how much would the model predict you should pay for it?

   Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity
   Price = -5,269 + 8,413 x 1.5 + 158.1 x 3 + 454 x 5 = 10,094.8

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 price increasing as Carat increased but there is small range of difference because Carat is not the only factor effecting the price.

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 $8,213,465.93. I arrived at this number by using a formula from the regression model already provided and applied it to the diamonds that were up for bid. I then multiplied the sum of the predicted prices by 0.70 as the company purchases diamonds from distributors at 70% of the price.