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?

   If a diamond is 1 carat higher than another one with the same cut and clarity, on an average it will be worth $8,413 more. It is because carat's unit of weight is 200mg, and so for increase in each 200mg of weight, on an average a diamond is worth $8,413 more.

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 formula, the price for 1.5 carat diamond with a Very Good cut and VS2 clarity would be $10,094.80

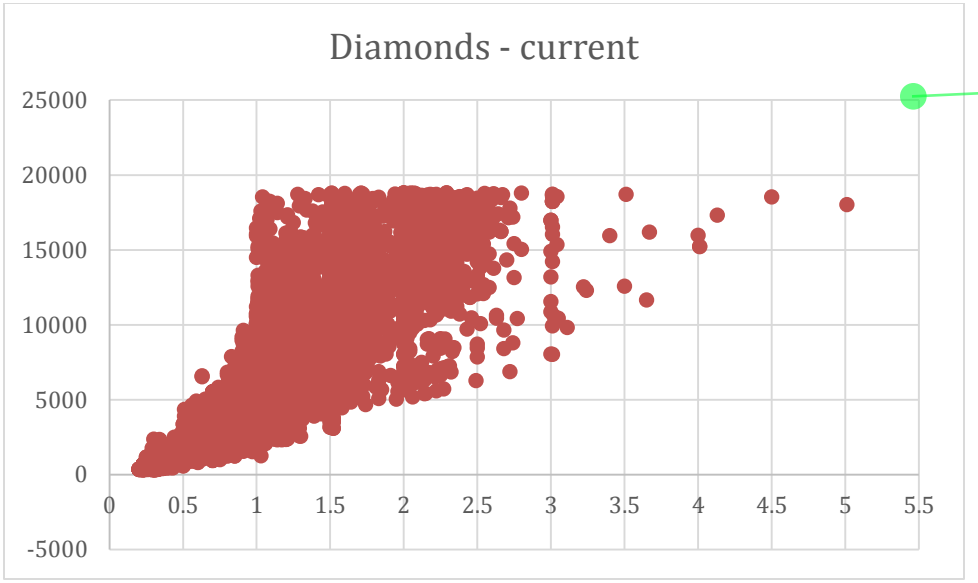
: : Awesome: This question is aimed to understand what the carat coefficient means. The predictive model (Price = - 5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity
) produced a coefficient for carat of $8,413, which means for every change in 1 carat, assuming all other attributes including cut remain the same, the price moves by that amount.

: : Awesome: The solution is correct, good work!.

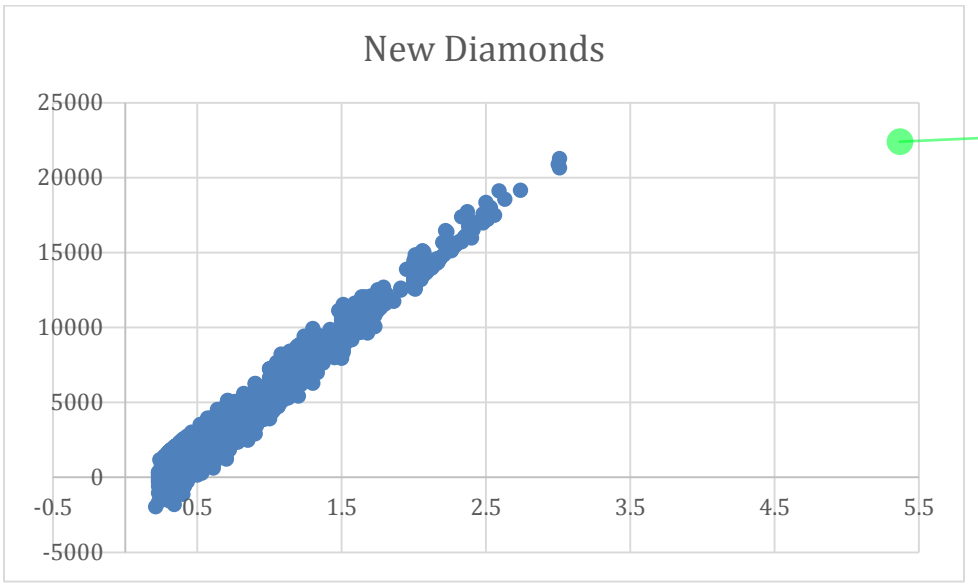
Step 2: Visualize the Data

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?



: : Awesome: The graph is correct. Well done!



: : Awesome: Nice job!, this graph is correct.

The predicted price of the new diamonds is kind of similar to the existing estimate. So, I feel confident in the model's ability to predict prices.

: : Suggestion: Your answer is almost correct. If you look at the graphs, you notice that while on average the model may do a good job, for any particular diamond the prediction could be way off. The reason for this could be that there are other factors that are not included that could help improve the accuracy of the model. We can see that the predicted prices are in a much narrower range than the actual set of prices. We would not be confident using this to set prices for each diamond, though it seems like it would still be somewhat useful to set a bid 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.

The overall price comes to $11,733,523. However, this is the retail price. Since the company generally purchases diamonds from distributors at 70% of the retail price,

the price would be $8213466. Considering there were few diamonds with poor quality (negative values in the price), my suggested price would be $8,000,000 ($8 Million).

: : Awesome: The solution is correct ($8,213,466), well done!. On the other hand, you have done very well in explaining how you have reached this solution. Good job!