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?
   8413. Because that is parameter estimate for carat. If diamond cut is same, then price will be depend on carat.

Review Note: Q1: The solution is correct! Indeed the predictive model produced a coefficient for carat, which means for every change in 1 carat, assuming all other attributes including cut remain the same, the price moves by that amount.

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?

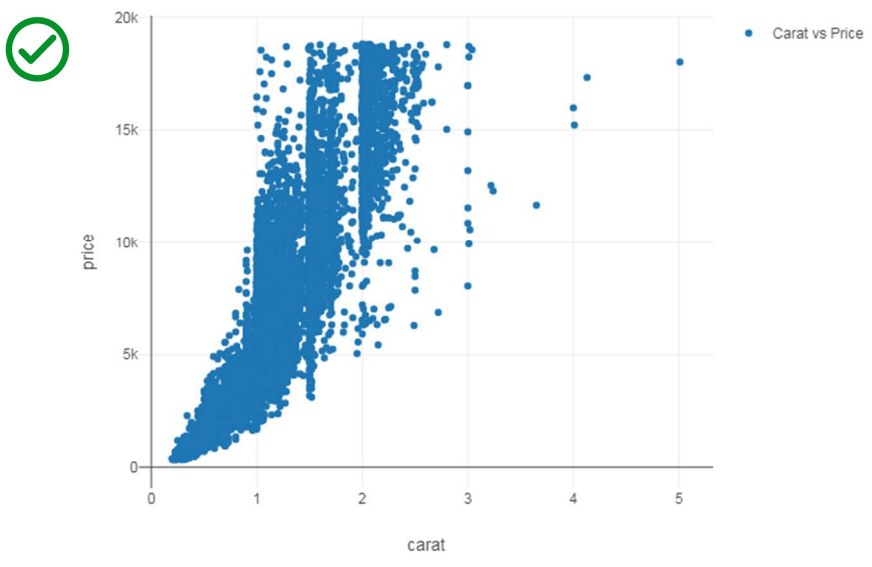
   Since Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity, then Price = -5,269 + 8,413 x 1.5 + 158.1 x 3 + 454 x 5 = 10,094.8; exclusive color-based price.

Review Note: Q2: The solution is correct, and you have done very well in developing the calculations in order to reach this solution. Good job!

Step 2: Visualize the Data

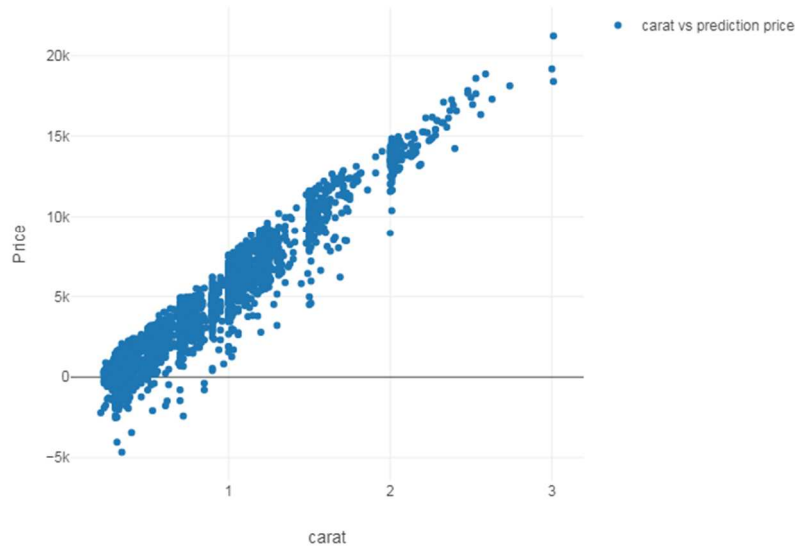
Make sure to plot and include the visualizations in this report. For example, you can create graphs in Excel and copy and paste the graphs into this Word document.

1. Plot 1 - Plot the data for the diamonds in the database, with carat on the x-axis and price on the y-axis.



Review Note: Q1: The graph is correct. Well done!

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



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- **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?

Prediction price plot has more linear correlation with carat than original one.
Yes, I confident.

Review Note: Q2: Nice job!, this graph is correct.

Review Note: Q3: Well done on you observation from the plot!

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.

Recommended price: 8,213,466.
I use carat, cut, and clarity data in new-diamonds.csv to calculate model Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity. The price it predicts is 11,733,522 for total diamonds sold. If company purchases diamonds from distributors at 70% of total price, then recommended bid price is 8,213,466.

Review Note: Q1: The solution is correct, well done! You have done very well in explaining how you have reached this solution. Good job!