<u>Project: Diamond Prices</u>

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?

By assuming that we have the same cut and clarity, and if a diamond is 1 carat heavier than another, the price difference would be 8413.

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, putting the values in the equation (Price = -5,269 + 8,413 x 1.5+ 158.1 x 3 + 454 x 5), price = 10094.8, so 10094.8 should be paid.

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.

price

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.
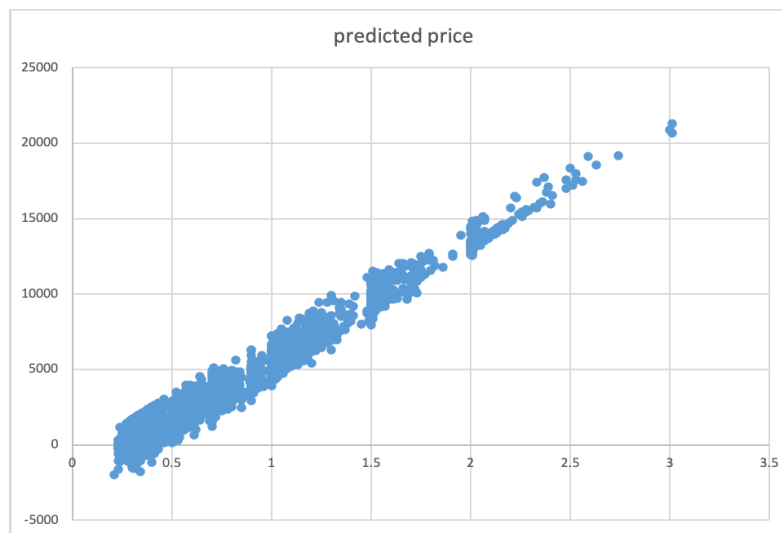
predicted price

- o **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?

As shown the predicted prices are not really accurate due to the absence of some factors in the regression equation, moreover there are some negative values which is not logical.

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 sum of all predicted prices = 11733522.76.
   - 11733522.76 * (70/100) = 8213465.
   - So the recommended bid is 8213465.