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?

   According to the model the Pridicted Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity.

   Based on this information from the above model we can pay $8413 for a 1 carat heavier diamond.

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?

   Carat = 1.5
   Cut = 3
   Clarity = 5

   Substitute values in the equation of the Linear Regression model.
   Pridicted Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity
   = -5,269 + 8,413 x 1.5 + 158.1 x 3 + 454 x 5

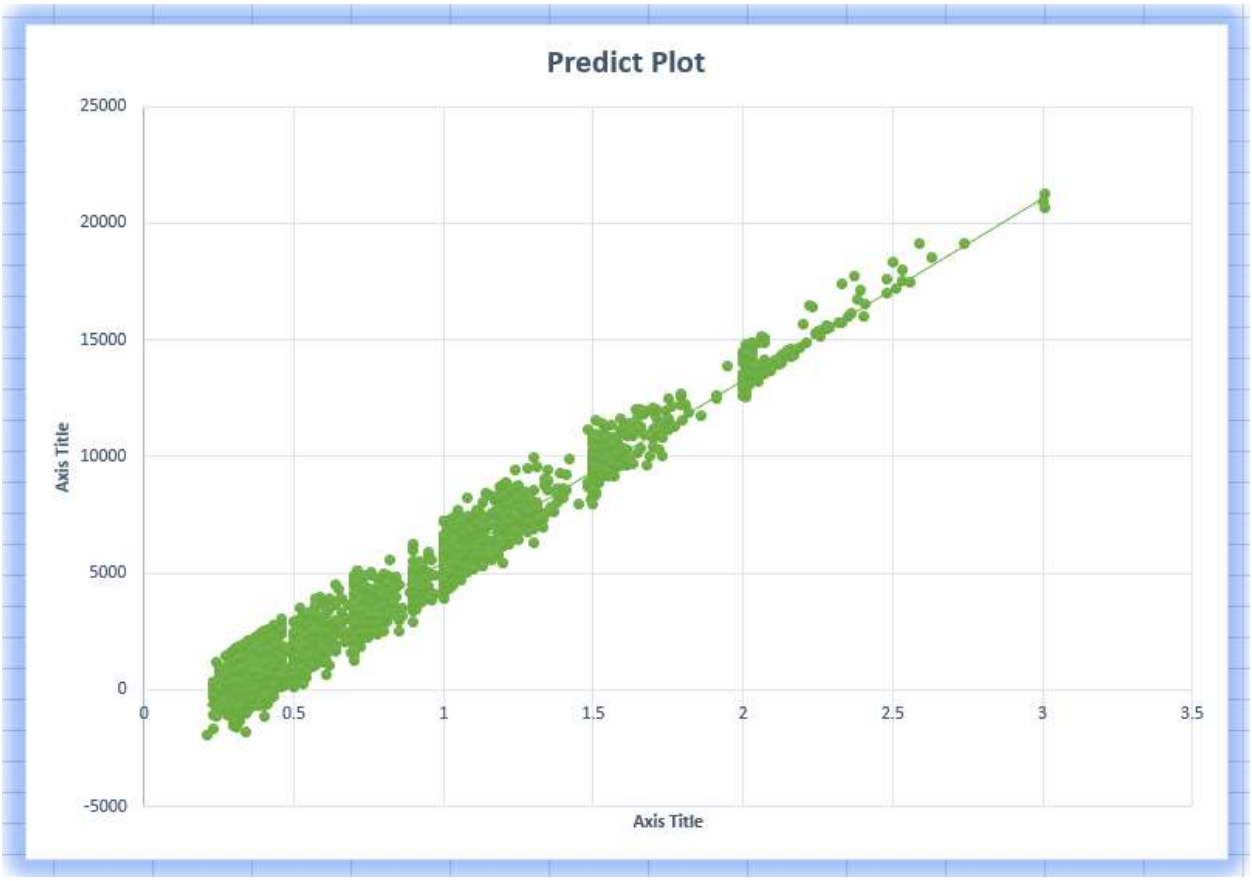
   = $ 10094.8

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.


Predict Plot
25000
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Axis Title
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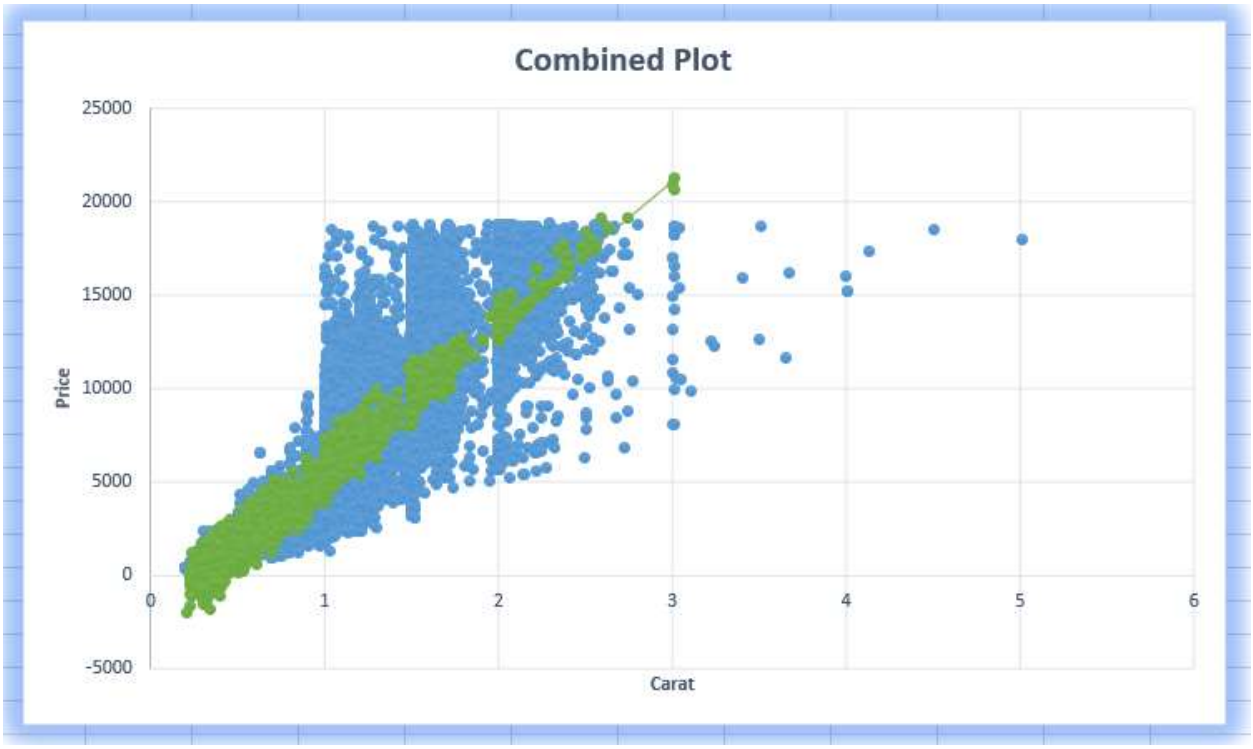
Combined Plot
25000
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0
-5000
Price
0
1
2
3
4
5
6
Carat

3. What strikes you about this comparison? After seeing this plot, do you feel confident in the model's ability to predict prices?

Since there is a significant overlap between the training data and the predicted data it is fair to say the model is good to predict prices except for some data in the negative region.

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.

Since the company makes a bid of 70 % from the distributors the recommended price should be 70 % of the mean price of the predicted price.

70 % of 3911.174 = $ 2737.8218