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?

    - **The additional one more carat would result in an additional $8,413 in price. Logically it's extracted according to the model, so for every increase in the carat, the price will increase times by the coefficient of carat.**

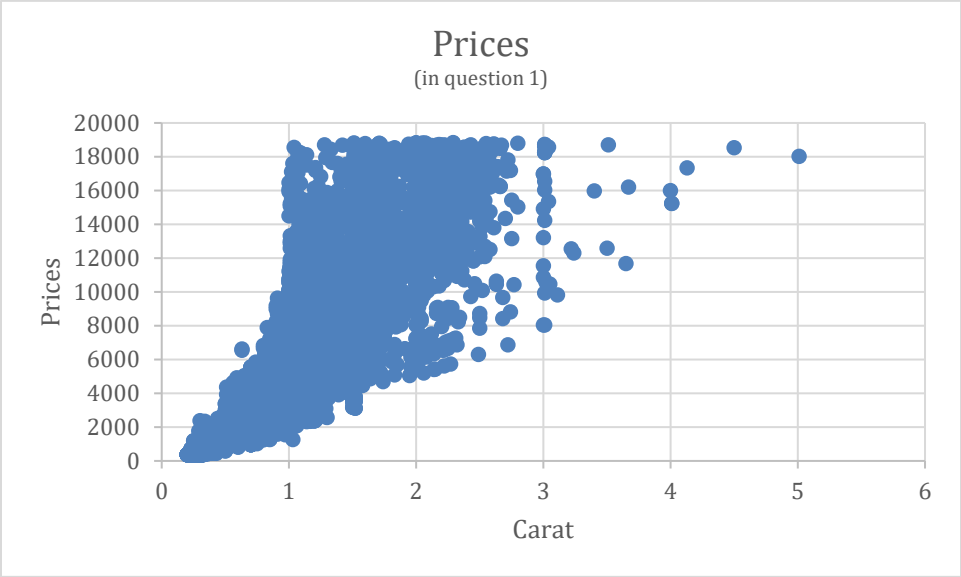
2. If you were interested in a 1.5 carat diamond with a **Very Good** cut (represented by a 3 in the model) and a **VS2** clarity rating (represented by a 5 in the model), how much would the model predict you should pay for it?

    - **The formula is Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity**
        - **So, if we trying to plug in the values of Carat, Cut, and Clarity**
        - **Price = -5,269 + 8,413 x 1.5 + 158.1 x 3 + 454 x 5**
        - **We will come up with this result.**
        - **Price = 10094.8**

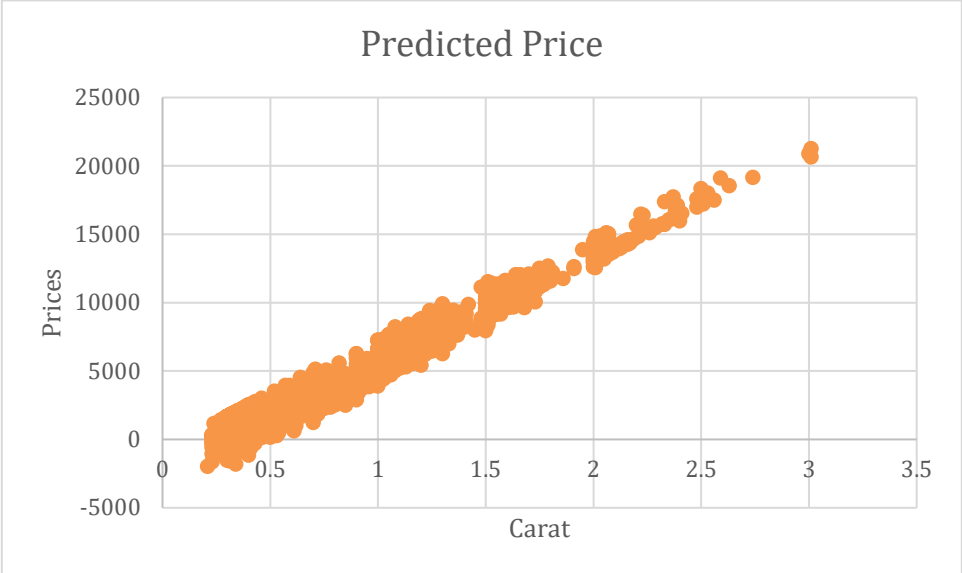
Step 2: Visualize the Data

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.



3. What strikes you about this comparison? After seeing this plot, do you feel confident in the model's ability to predict prices?
    - **The predicted prices are more stronger and association than the actual data which spread out in prices when carat began increase after 2 carat.**

      After looking at predicted plot the model appears on average to predict the prices very good that tell us about positive relationship, if there is increasing in carat then will be increasing in 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 summation all predicted prices that I extracted before using a formula from the regression model of predict diamond prices. I then factored in the margin the investors were looking for which was 70%, so I multiply the predicted amount 11733522.67 by 0.70.