

Step 1: Understanding the Model

Answer the following questions:

1. According to the linear model provided, if a diamond is 1 carat heavier than another with the same cut and clarity, how much more should we expect to pay? Why?

According to the Formula Given in the Materials

$$\text{Price} = -5,269 + 8,413 \times \text{Carat} + 158.1 \times \text{Cut} + 454 \times \text{Clarity} .$$

If a diamond is 1 carat heavier than another with same cut and clarity we should expect to pay \$8,413

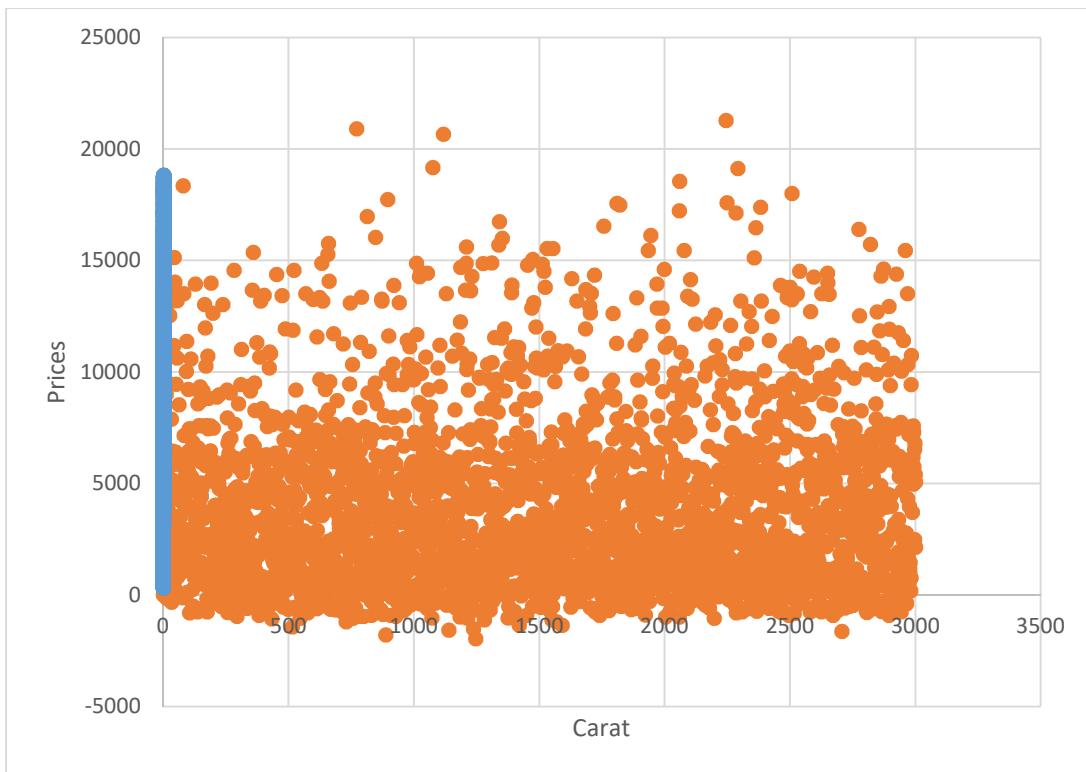
2. If you were interested in a 1.5 carat diamond with a **Very Good** cut (represented by a 3 in the model) and a **VS2** clarity rating (represented by a 5 in the model), how much would the model predict you should pay for it?

$$\begin{aligned}\text{Price} &= -5,269 + 8,413 \times \text{Carat} + 158.1 \times \text{Cut} + 454 \times \text{Clarity} \\ &= -5269 + 8413 \times (1.5) + 158.1 \times (3) + 454 \times (5) = \$10094.8\end{aligned}$$

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?



So I have made Both The Series In The Same Model.

Now According To it what I understand is that Predicted Price And carat have high prices then the previous data.

It also predicts a higher price for diamond larger than 3 carat

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. HINT: The number should be 7 digits.

Total price predicted for all diamonds is \$ 11,733,522.96

Bid is 70% of Sum (total) = \$ 8,213,466.10