

Project: Diamond Prices

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?

Probably additional \$8413

Model formula:

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

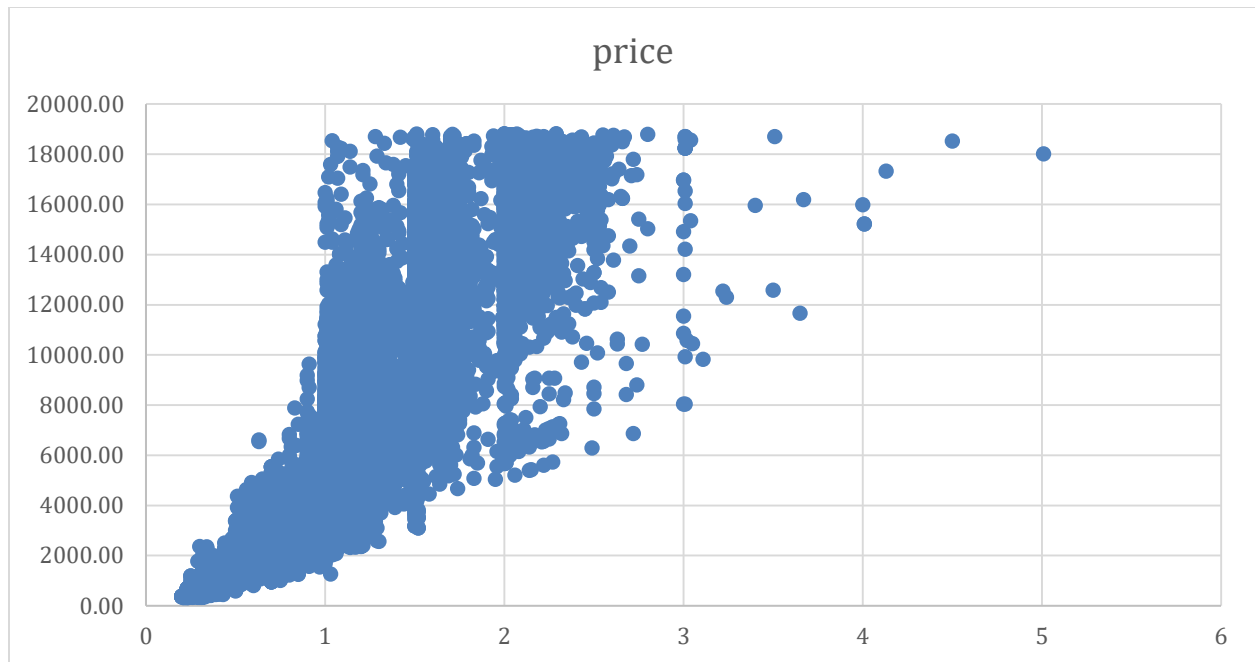
2. If you were interested in a 1.5 carat diamond with a **Very Good** cut (represented by a 3 in the model) and a **VS2** clarity rating (represented by a 5 in the model), how much would the model predict you should pay for it?

Based on the formula above, the price will be around \$10094.8

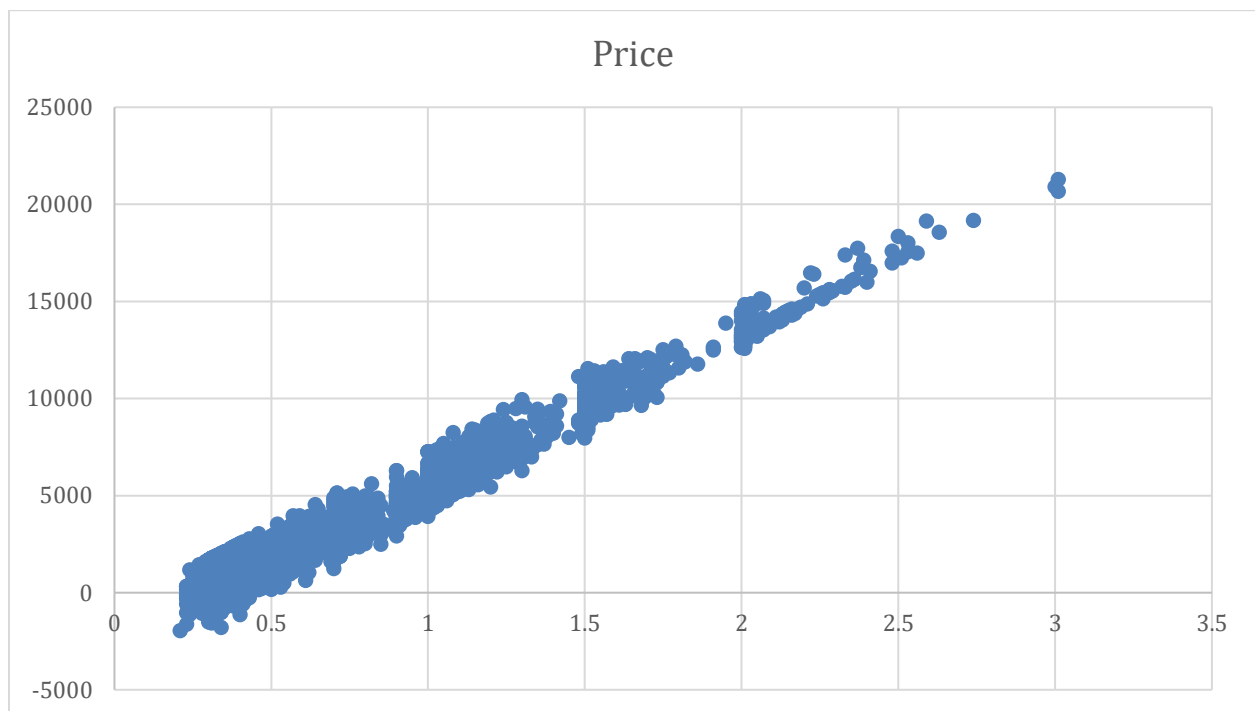
Step 2: Visualize the Data

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 predicting model is more like multiple linear regression model. All spots are sitting in one line. However, we did not count on the **Color** feature for price prediction. Additionally, the data in original chart have a larger spread and have some outliers. I am not that confident with my predict price model.

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.

Total price for 3000 diamonds: 11733522.76

Bid price = Total price * 0.7 = $11733522.76 * 0.7 = 8213465.9$