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?

A diamond has the weight of 1 carat more than another with the same type of cut and the same clarity, the additional carat of 8413 dollars, the formula created by the regression determines that the coefficient of a carat is 8413, each increase in carats increases the price in the amount of coefficient

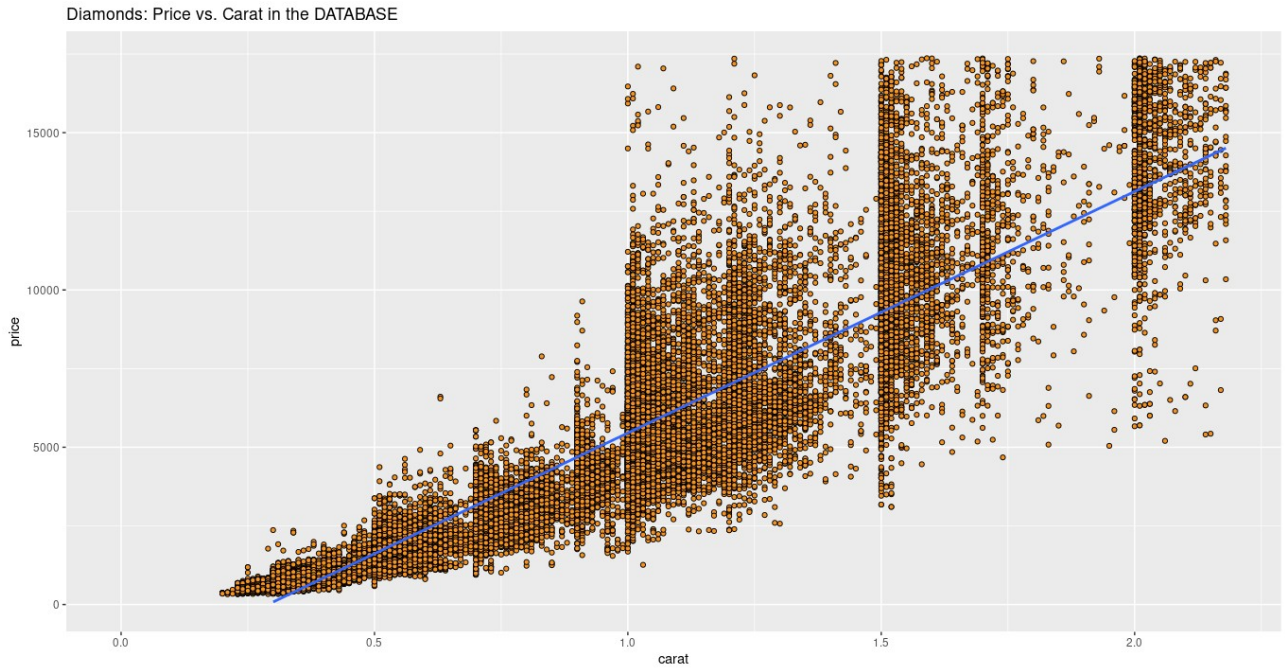
2. If you were interested in a 1.5 carat diamond with a **Very Good** cut (represented by a 3 in the model) and a **VS2** clarity rating (represented by a 5 in the model), how much would the model predict you should pay for it?

the formula of the equation is:
Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity
replace the variable "carat" by the value for which we are interested which is "1.5", the value of the cut "3" and the clarity "5" the equation would be as follows
Price = -5269 + 8413 * 1.5 + 158.1 * 3 + 454 * 5 = 10,194.8 dollars

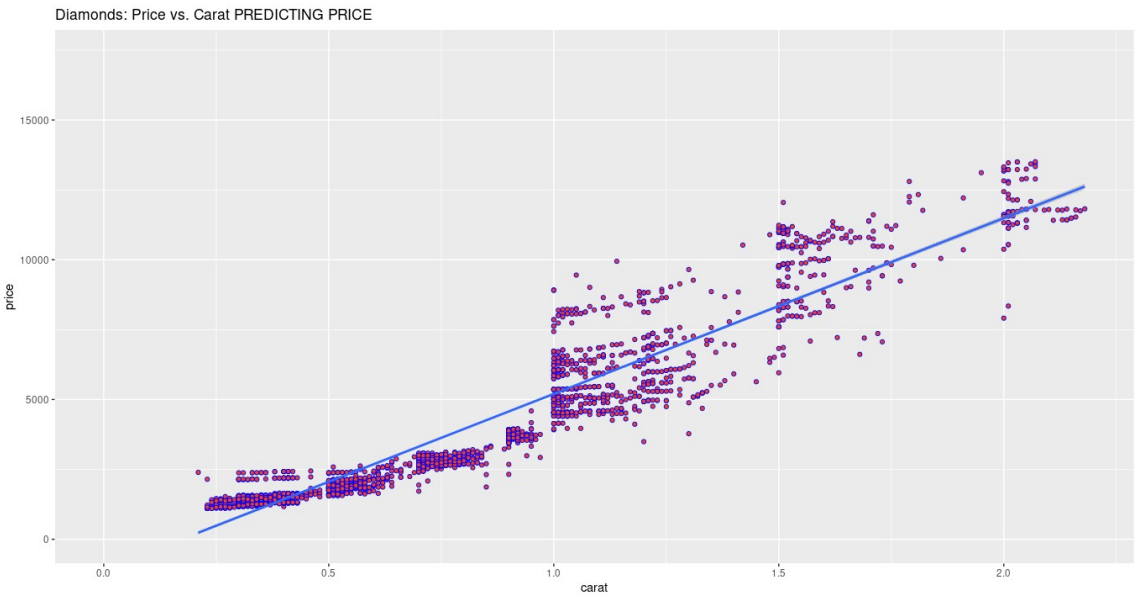
Step 2: Visualize the Data

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.

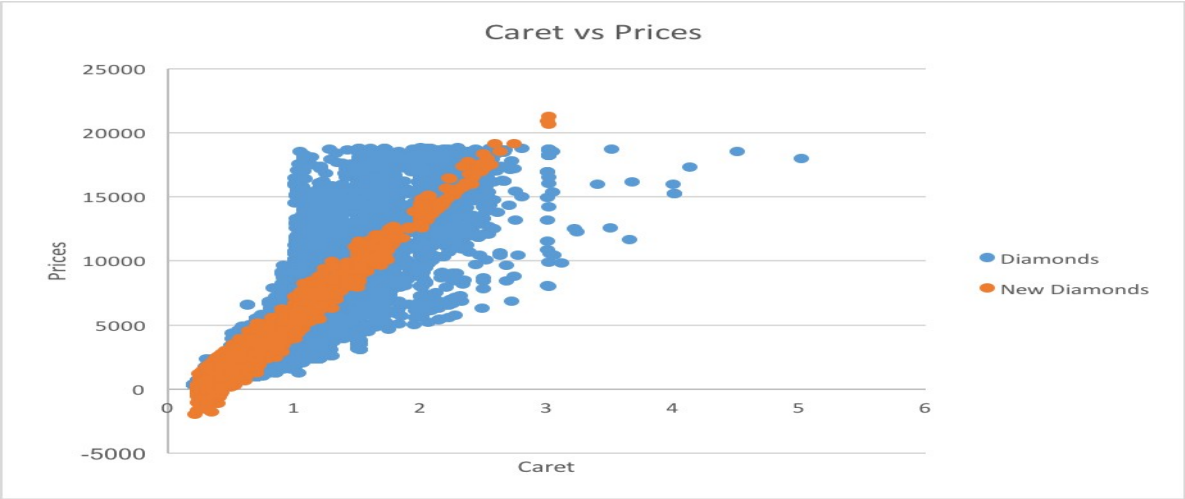
1. Plot 1 - Plot the data for the diamonds in the database, with carat on the x-axis and price on the y-axis.



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 prices expected for the lot to be purchased may not be reliable in some situations, the model takes into account variables such as carat, clarity, and cut, there are more factors that influence, such as shape and color, than they will also affect the price of the diamond. When looking at the scatterplot, the model predicts that prices are good on average, but some diamonds may be out of place and negative values are also observed, although the model may not be as accurate for individual values, it could be accurate to predict set we want to buy.

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.

For the lot of 3000 diamonds, I recommend bidding 8166501 US $, arrive at this number using a regression model based on previous diamond sales and apply to the set of 3000 diamonds on offer, since it is usually bought at 70% of that price, I multiplied the expected amount of $ 11666430 by 0.70 to get the offer of $ 8166501.