Project: Diamond Prices

Step 1: Understanding the Model

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?

For the heavier one:

= -5,269 + 8,413 x **4** + 158.1 x **3** + 454 x 4 = $ 30,673.3

For the least heavy one:

= -5,269 + 8,413 x **3** + 158.1 x **3** + 454 x **4** **=** $ 22,260.3

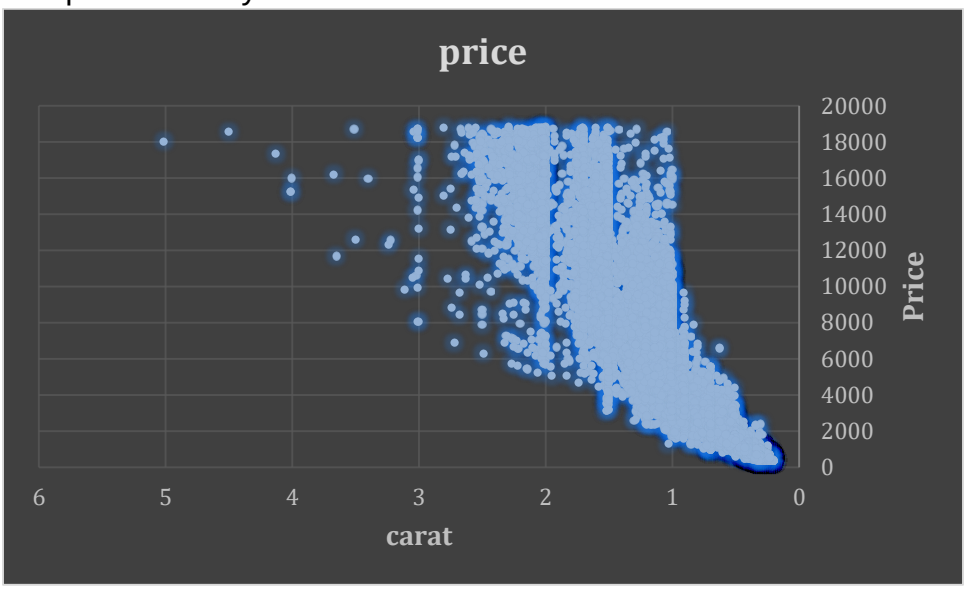
$ 2,318.68 - $ 2,310.27 = $ 8,413 because it is heavier than another one.

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?

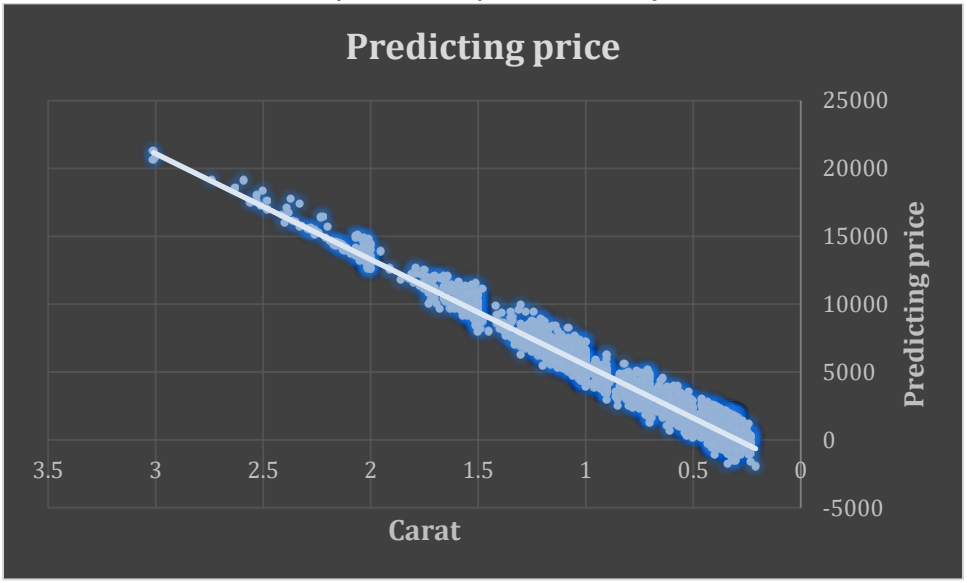
= -5,269 + 8,413 x 1.5 + 158.1 x **3** + 454 x **5** **=** $10,094.80

Step 2: Visualize the Data

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.



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

- The projected prices are tighter than the actual prices.

- Yes, but the model is somewhat useful (for forecasting prices) but linear regression is not completely reliable because it does not take into account all the factors that affect price. Besides the carat, there are many other factors that affect the price of a diamond. Plus, we see negative prices, which are unrealistic and won't happen in (real life).

Step 3: Make a Recommendation

1. What price do you recommend the jewelry company to bid? Please explain how you arrived at that number.

I recommend $ 8,213,465.93, because after calculating the total expected prices, which are equivalent to $ 11,733,522.76, the company generally buys diamonds from distributors for 70% of that price, which equates to $ 8213,465.93, and this makes profits equal to $ 3,520,056.83.