Predictive Analytics for Business Nanodegree
Project: Predicting Diamond Prices
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Step 1 - Understanding the Model:

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 would the retail price of the heavier diamond be? Why?

Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity
All other factors remaining the same, a 1 carat heavier diamond will cost $8,413 more.

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), what retail price would the model predict for the diamond?
Price = -5,269 + 8,413 x Carat + 158.1 x Cut + 454 x Clarity = $10,094.8

Step 2 - Visualize the Data:

Create two scatter plots. If you're not sure what a scatter plot is, see here.

• Plot 1 - Plot the data for the diamonds in the database, with carat on the x-axis and price on the y-axis.
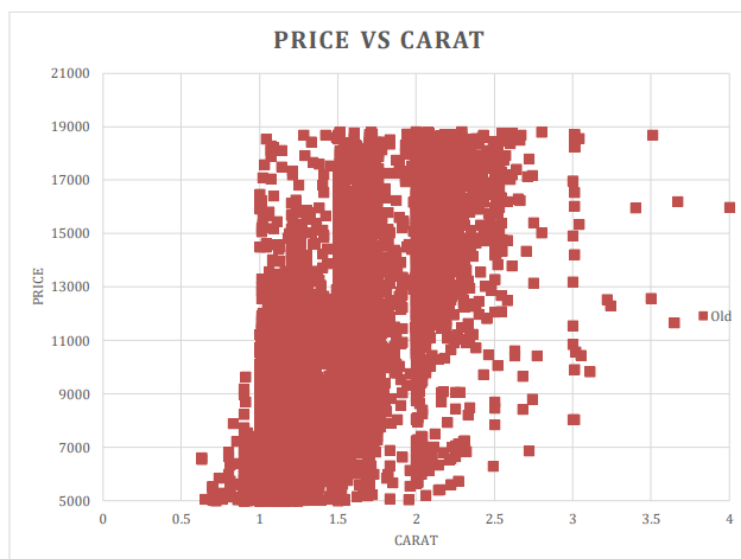
• Plot 2 - Plot the data for the diamonds for which you are predicting prices with carat on the x-axis and predicted price on the y-axis.
• Note: You can also plot both sets of data on the same chart in different colors.
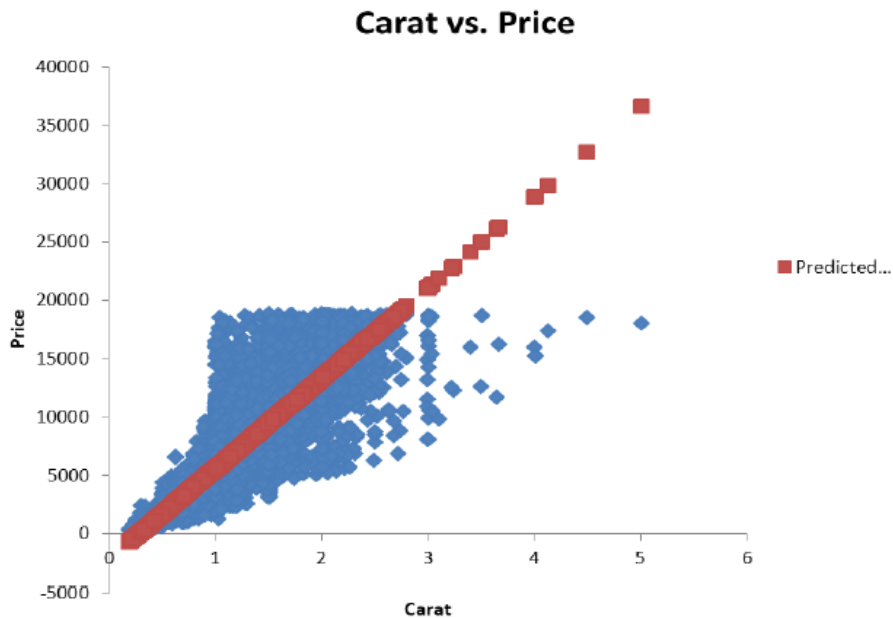
Carat vs. Price

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

From Carat vs. Price plots above, we conclude that the linear model probably is not an ideal model to use for individual diamond price predictions as this has negative values as well. There is a positive relationship between carat and price. Also, there is a strong positive correlation between carat and price when carat is 0.5 and below 3.

Step 3 - The Recommendation:

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

I will use the Linear Regression Model to predict the price. The company generally purchases diamonds from distributors at 70% of total price, so I will recommend a bid price of (11733522.76) * 0.7 = $8,213,465.93