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?

$price$ = -5255.22 + [$457.80*(clarity)] + [$160.38*(cut)] + [$8363.42 * (carat)]

{Starting price}

If a diamond were 1 carat heavier, we should expect to pay approximately $8363.42 more. This number was arrived at using a 95% confidence interval.

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?

Plugging in the given parameters, our model uses a 95% confidence interval to predict that the price of the diamond should be:

a. $\$10{,}060.05$ = -5255.22 + [$457.80*(5)] + [$160.38*(3)] + [$8363.42 * (1.5)]
b. The company generally purchases diamonds at 70% of value.
    i. $\$7{,}042.035 = \$10{,}060.05 * .7$

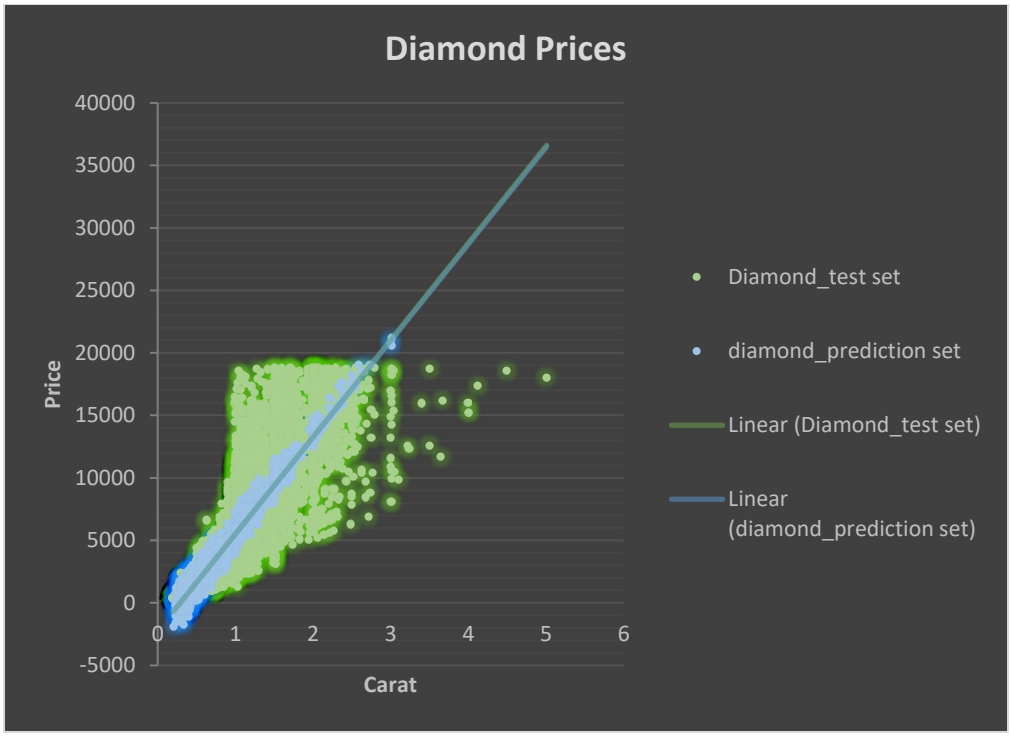
Plot 1 - Plot the data for the diamonds in the database, with carat on the x-axis and price on the y-axis.

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.

o Note : You can also plot both sets of data on the same chart in different colors.

What strikes you about this comparison?

After seeing this plot, do you feel confident in the model's ability to predict prices?



Our prediction set of prices go through the core of the observed data along the linear trendline. This plot increases my confidence in the model's ability to predict prices accurately.

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

I used the regression tool in excel with the given data as a training set. This resulted in the price prediction model at the beginning of this document. Using this excel, I input the data from the new_diamond set into the price prediction model. I then summed theses prices and multiplied it by .7 to represent the company standard of paying 70% of the predicted value.

I recommend a bid of $8,211,163.15 for the entire set of diamonds.