

Project: Diamond Prices

Complete each section. When you are ready, save your file as a PDF document and submit it here: <https://classroom.udacity.com/nanodegrees/nd008/parts/235a5408-0604-4871-8433-a6d670e37bbf/project#>

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?

8,413 more

Why?

Because the coefficient in the linear model for carat is 8,413

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?

Using the linear model and replacing every feature value the price to pay is:

Price = -5,269 + 8,413 x **Carat** + 158.1 x **Cut** + 454 x **Clarity**

The price will be

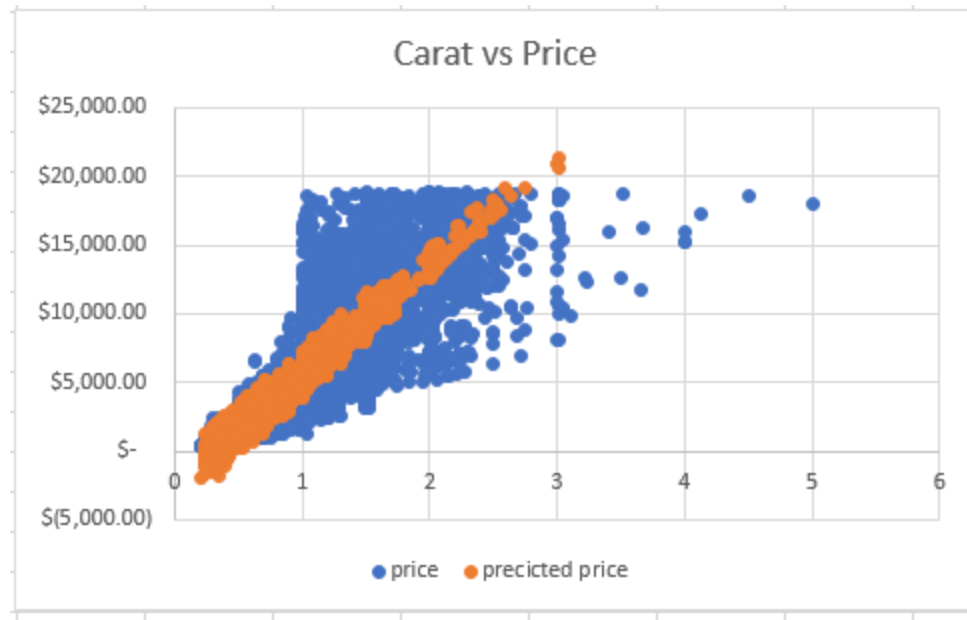
Price = -5,269 + 8413 * 1.5 + 158.1 * 3 + 454 * 5

Price = 10,094.8

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?

the historical prices can be used as a good reference to predicted the predicted prices with good level of confidence, since the both sets have a similar range of values depending on the carat number.

After seeing this plot, do you feel confident in the model's ability to predict prices?
Yes, it displays a linear increasing depending on the carat number

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.

Because the company generally purchases diamonds from distributors at 70% of that price we will sum the total predicted price and multiply by 0.7. So, we can get the final price with the discount applied.

\$ 11,733,522.76 * 0.7

Suggested price for the purchase is:

\$ 8,213,465.93