

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? Why?

Answer: You will pay more 8,413\$ by the carat 1 with the other attributes are the same (clarity and cut).

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?

Answer:

Price = $-5,269 + 8,413 \times \text{Carat} + 158.1 \times \text{cut} + 454 \times \text{clarity}$

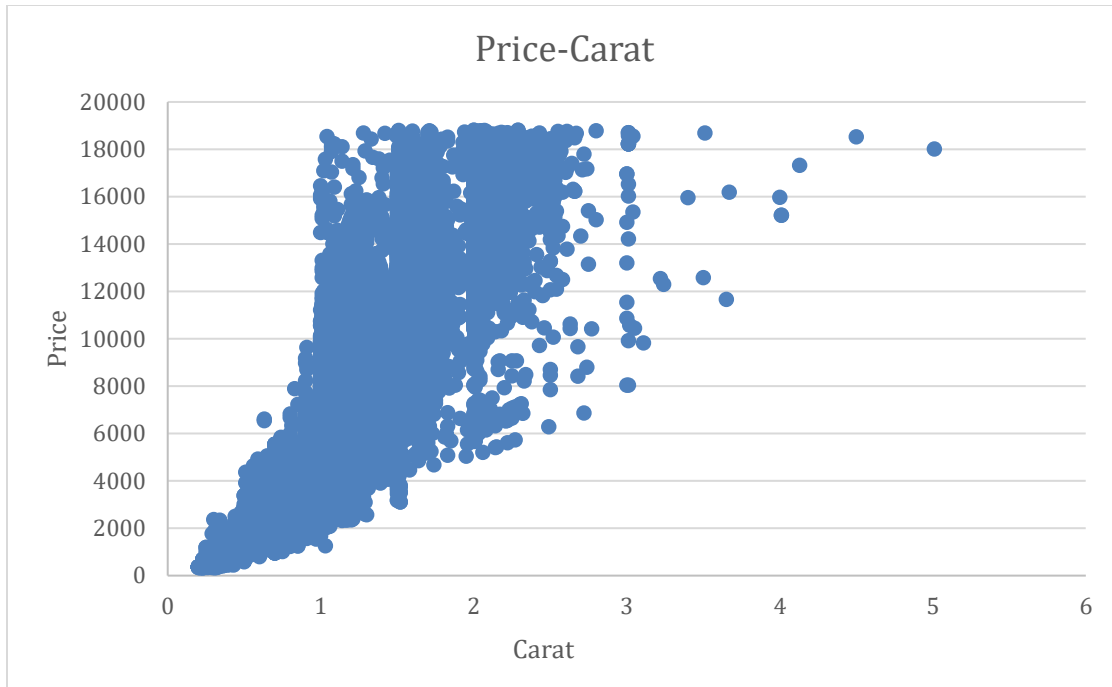
Price = $-5,269 + 8,413 \times 1.5 + 158.1 \times 3 + 454 \times 5$

Price = 10,094.8\$

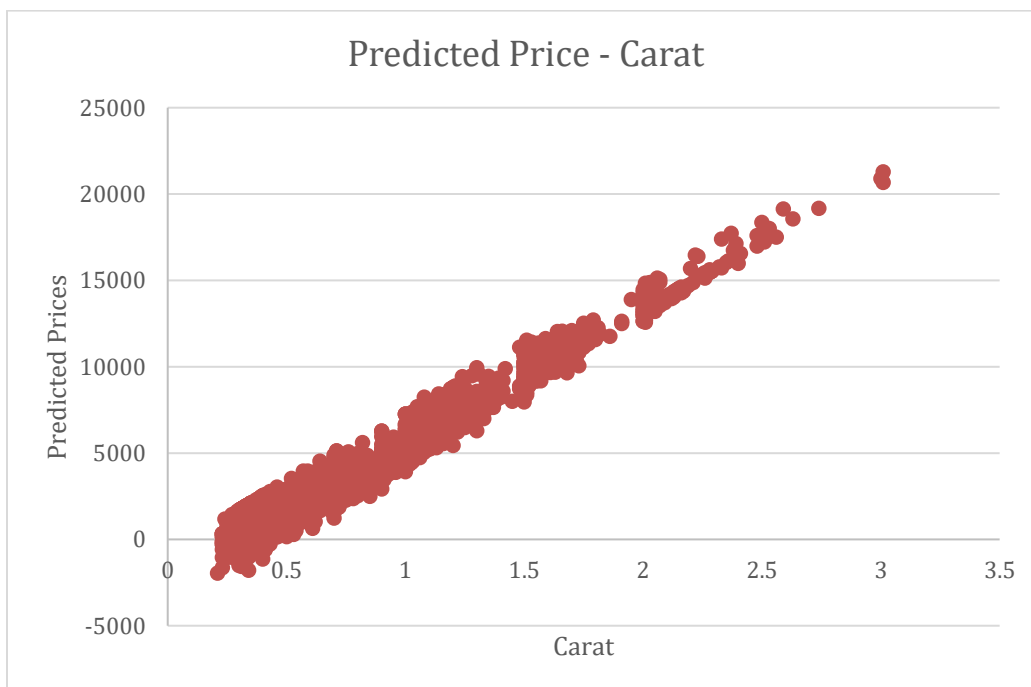
Step 2: Visualize the Data

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

Answer: I have noticed several points of comparison between plot 1 and plot 2:

- The model predicts poorly when carat is lower than 0.5, is negative prices which is impossible in real life.
- There is strong correlation between carat 1- 3.
- The model predicts poorly when carat is 3 and above .

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.

Answer:

The total predicted price of diamonds: 11,733,522.76\$

The company purchases diamonds from distributor at 70% = $0.7 * 11,733,522.76$.

Recommended price should be: 8,213,465.932\$