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?

Let's take an example if we have two diamonds that has same cut and clarity and differ to one carat.
The first diamond has 5 carat, 1 cut, and 2 clarity
The second diamond has 6 carat, 1 cut, and 2 clarity
From the equation:

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

First diamond price = -5,269 + 8,413 x 5 + 158.1 x 1 + 454 x 2 = 37862.1$
Second diamond price = -5,269 + 8,413 x 6 + 158.1 x 1 + 454 x 2= 46275.1$
Second price – First price = 46275.1 – 37862.1 = 8413$.
So, I can expect 8413$ for the diamond that heavier than another by 1 carat with same 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?

Direct substitution in this equation from Udacity:

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

Price = -5,269 + 8,413 * 1.5 + 158.1 * 3 + 454 * 5 = 10,094.8$

, so they should pay 10,094.8$.

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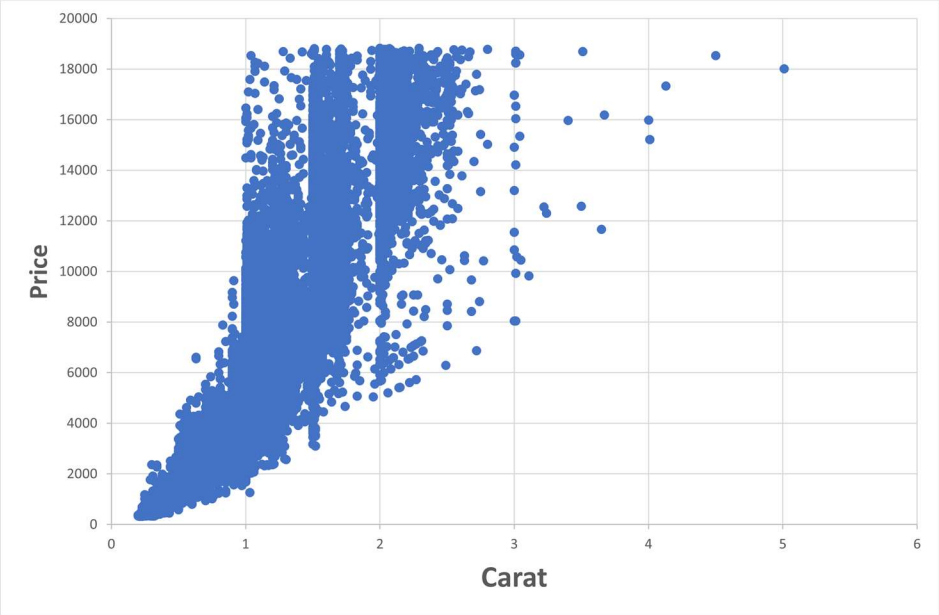
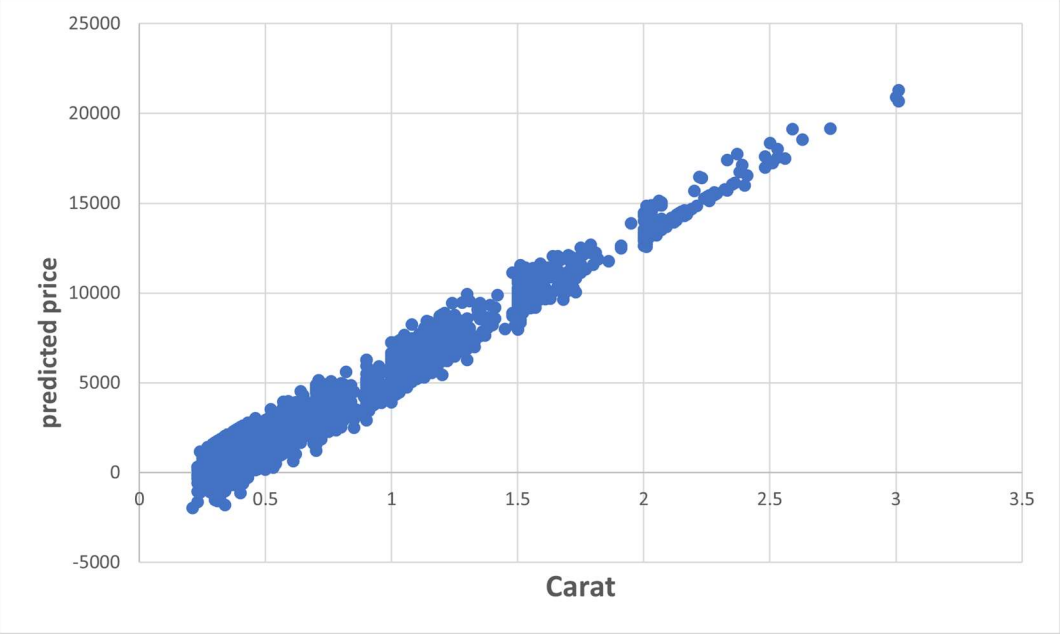
Step 2: Visualize the Data

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 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?

Surely, I feel confident about the ability to predict the prices because the relation between carat and predicted price are so strong and close to each other for instance the carat increases and the price increase too, but there is something that maybe affects the price like cut, color, and clarity of the diamond.

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.

In the new-diamonds excel file, we have 3000 diamonds information and in the previous step we calculated the predicted price for each diamond. After summation all the predicted prices will equal to 11,733,522.76$ then after taking 70%= 8,213,465.932$.

So, recommend price for the company to bid is 8,213,465.932$.