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?

   Taking the below example:

Carat	Cut	cut_ord	color	Clarity	Clarity_ord	Price	Bidding price
0.5	Ideal	5	E	SI1	3	1110	777
1.5	Ideal	5	I	SI1	3	9523	6666.1

   Consider two diamonds with 0.5 and 1.5 carats of the same cut, we need to pay 8.58 times more than the 0.5 cut diamond,
   Since in the linear regression formula the carat has more weightage than the cut and clarity of the diamond

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?

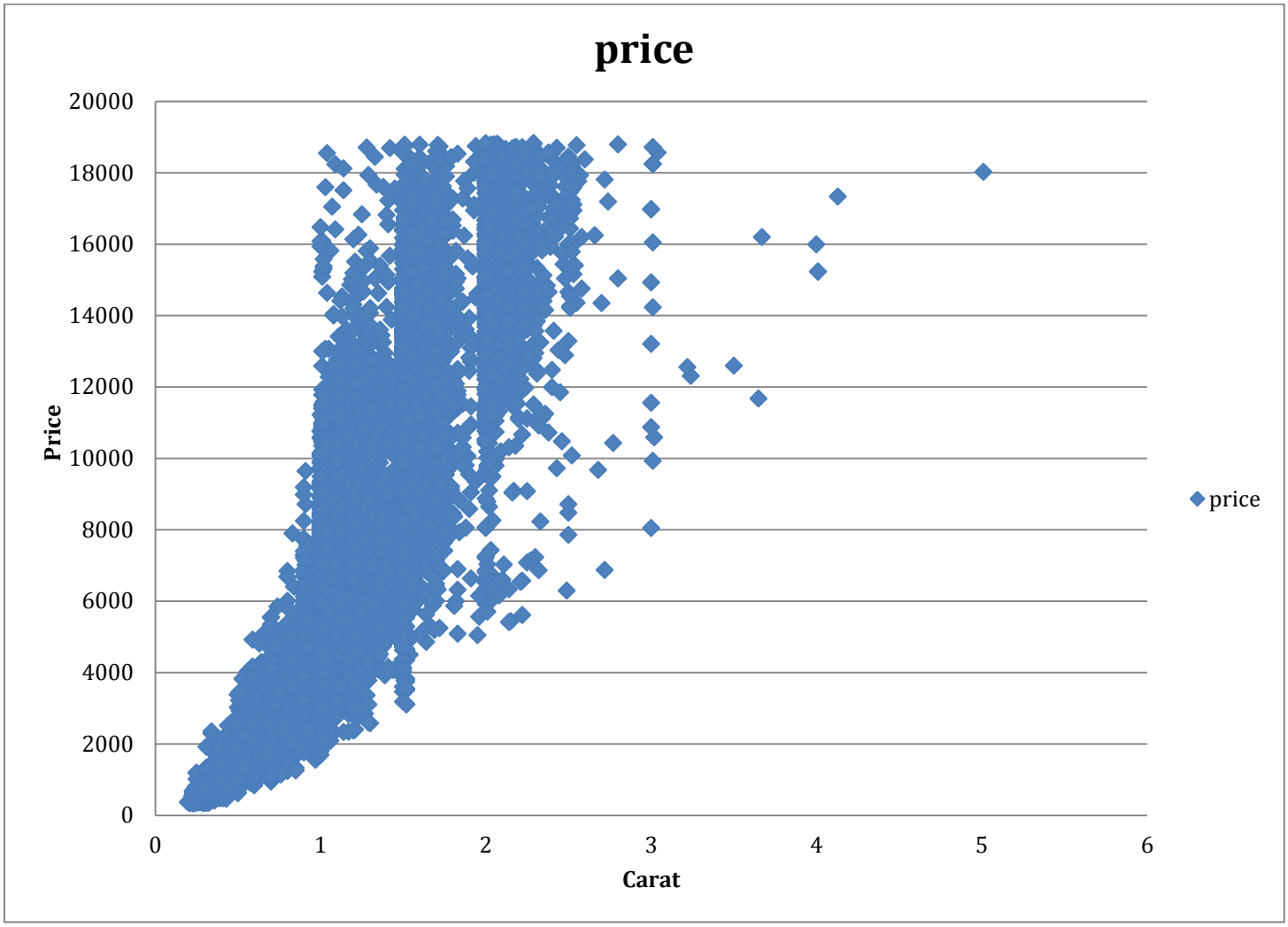
carat	***cut***	***cut_ord***	***color***	***clarity***	***clarity_ord***	***Price***	***Bidding Price***
1.5	Very Good	3	D	VS2	5	10114.8	7080.36
1.5	Very Good	3	J	VS2	5	10114.8	7080.36

   For a 1.5 carat with a Very Good cut and a VS2 clarity rating diamond, the model predicts that $7080.36 can be paid

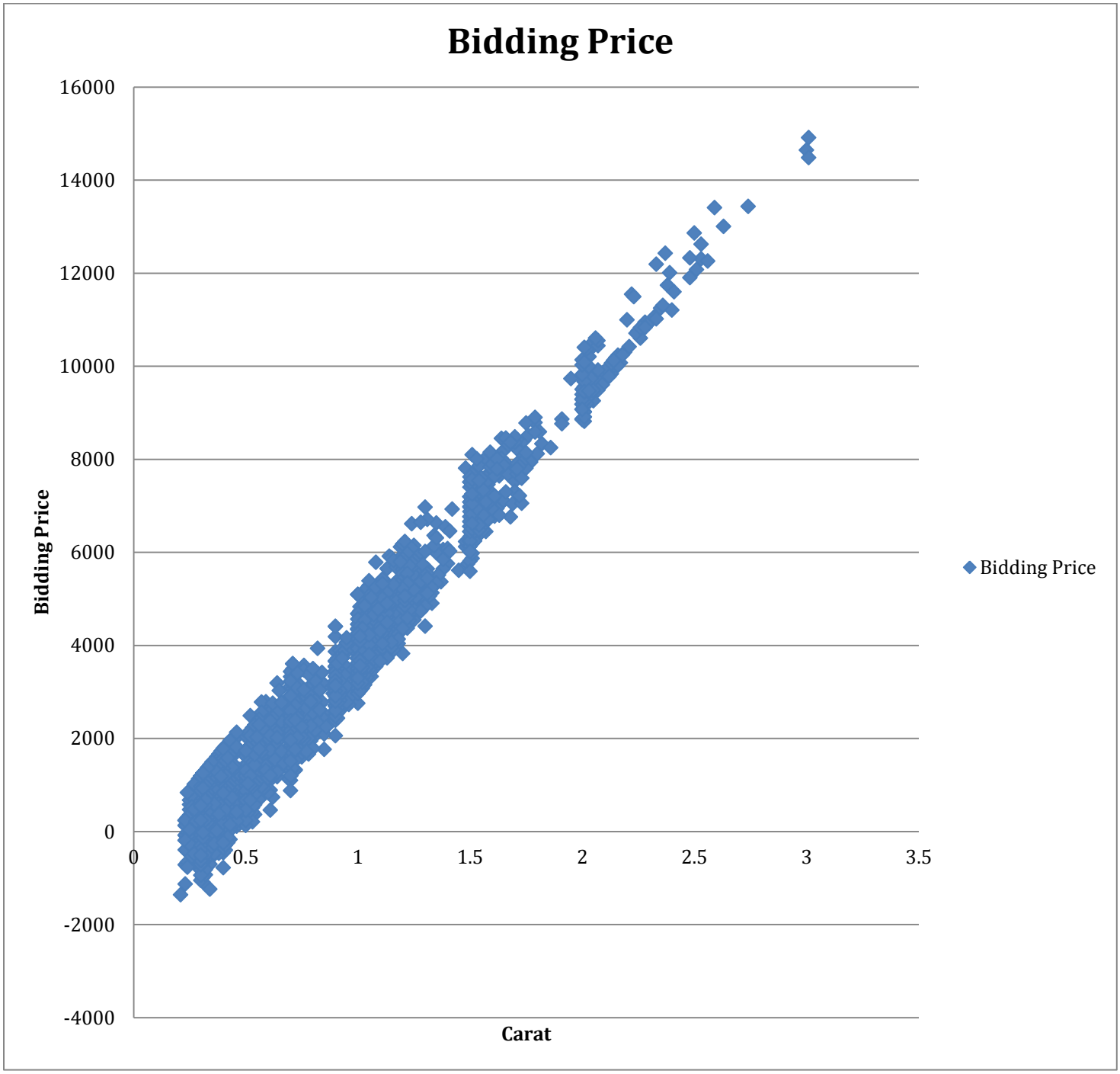
Step 2: Visualize the Data

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.

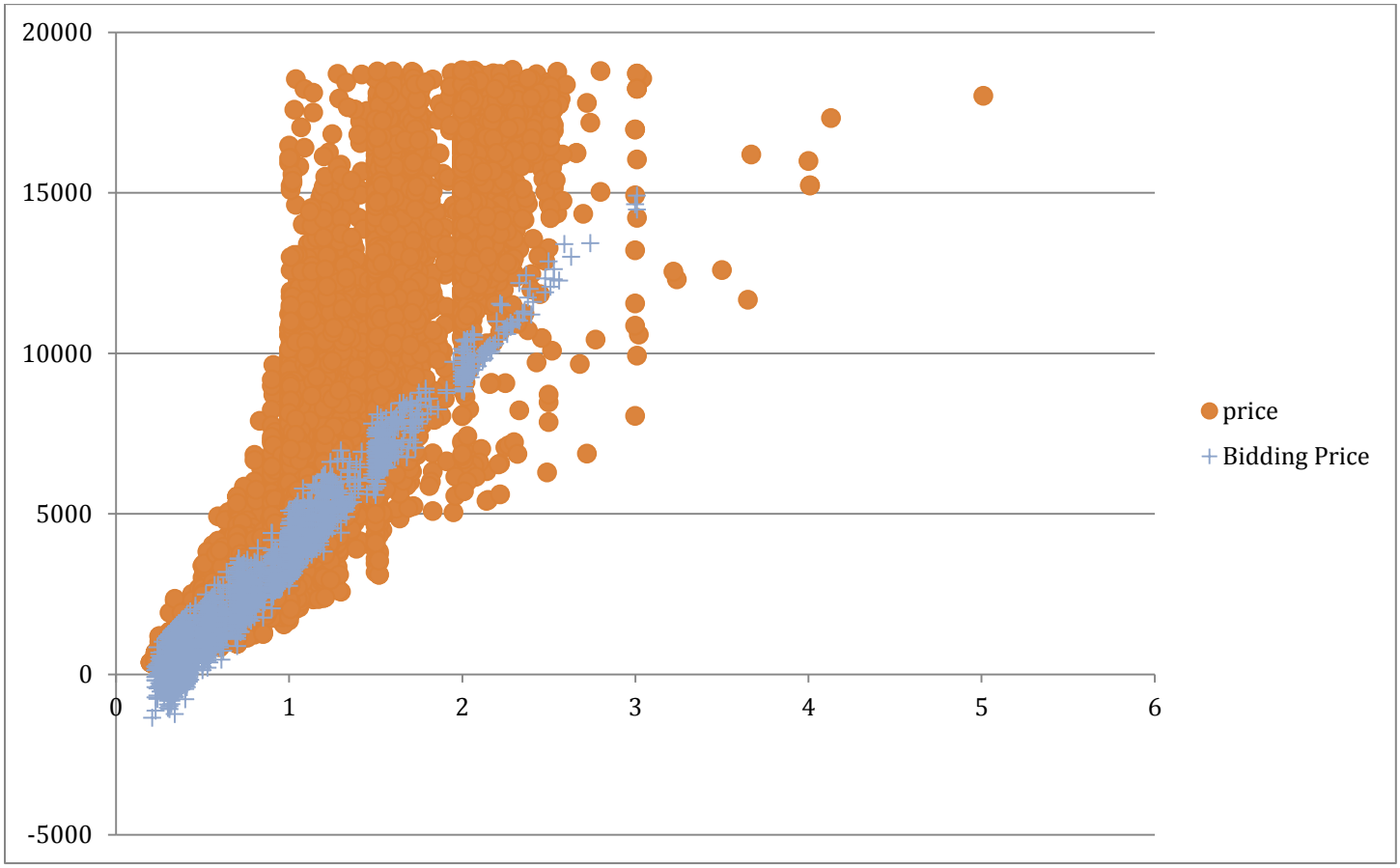
1. Plot 1 - Plot the data for the diamonds in the database, with carat on the x-axis and price on the y-axis.



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?



After seeing these two plots, I feel that the predicted prices are much better than the price mentioned in the diamonds.csv sheet because by using the linear regression we have arrived at the fair price for the diamonds using all the parameters.

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.

The nominal price for the bidding is the value what we got as bidding price for the diamonds, After solving the linear regression equation and the 70% of that value, which the company generally uses as a bench mark for buying of the diamonds.

Please find the calculations used to arrive at the above plots

Assignment 1.xlsx