BENJAMIN OWUSU BEDIAKO

Project_0: 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/235a5408-0604-4871-8433a6d670e37bbf/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 and clarity, how much more should I expect to pay? Why?

Answer: Considering the model expression:

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

We look at the two diamonds with similar parameters except 1 carat difference

(i) Price = -5,269 + 8,413 (1) + 158.1(3) + 454(4) = 5434.30
(ii) Price = -5,269 + 8,413(2) + 158.1(3) + 454(4) = 13847.30

Therefore the expected payment = $8413.

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:

For the specific diamond, we can simply place the values in the prediction model.

Price = -5269 + 8413 (1.5) + 158.1(3) + 454 (5) = $ 10,094.80

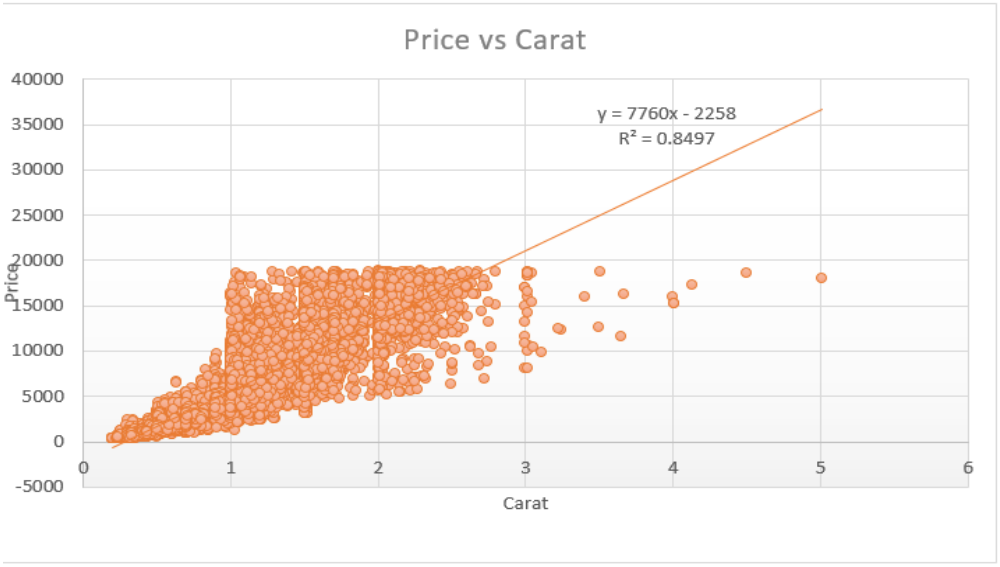
Therefore the predicted price is $10,094.80

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.

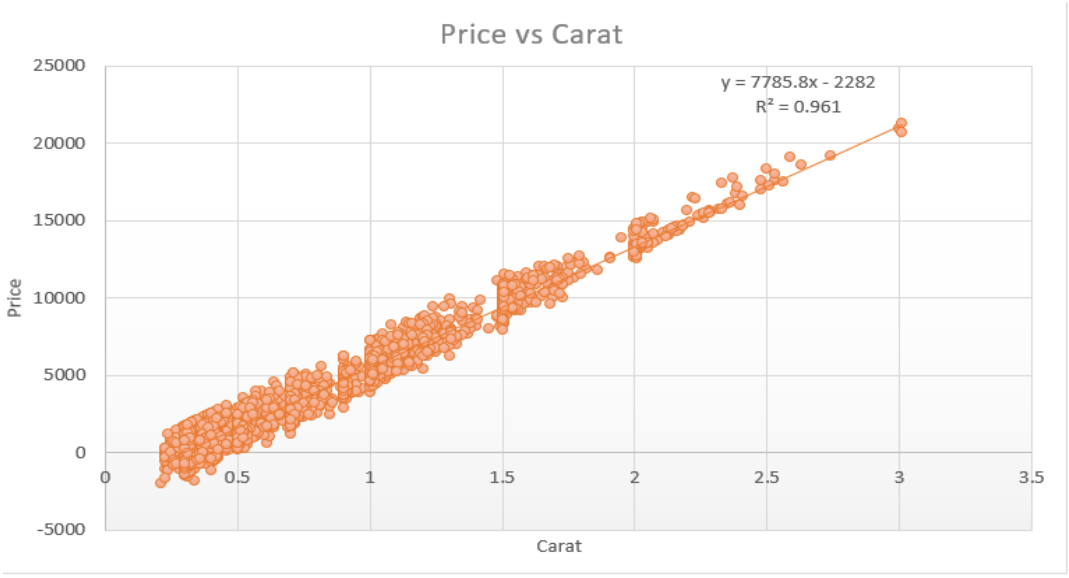
1. Plot 1 - Plot the data for the diamonds in the database, with carat on the x-axis and price on the y-axis.

Answer:



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.

Answer:



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. The model shows a strong correlation between carat and price when carat is between 0.5 to 2

ii. The relationship between price and carat are less obvious when the diamond carat is less than 0.5 because the predicted price can often fall below $0 which is not possible
iii. It predicts a higher price for diamond which is larger than 3 carat

Step 3: Make a Recommendation

Answer the following questions:

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

Answer:

For this section you are expected to calculate the predicted price for all the diamonds in the sample and summarize the predicted prices.

Distribution price =70% = 0.70

The bid price after considering the margins is $8,213,465.