Step 1: Understanding the Model

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

The model is:

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

According to the model, you should expect to pay 8,413. Carat has a coefficient of 8,413, which translates into an increase of 8,413 in price for every increase in carat.

Review Note: Q1: The solution is correct! Indeed the predictive model produced a coefficient for carat, which means for every change in 1 carat, assuming all other attributes including cut remain the same, the price moves by that amount.

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?

The model will predict a price of 10,0095 for the diamond. We can see this if we substitute the values in the model:

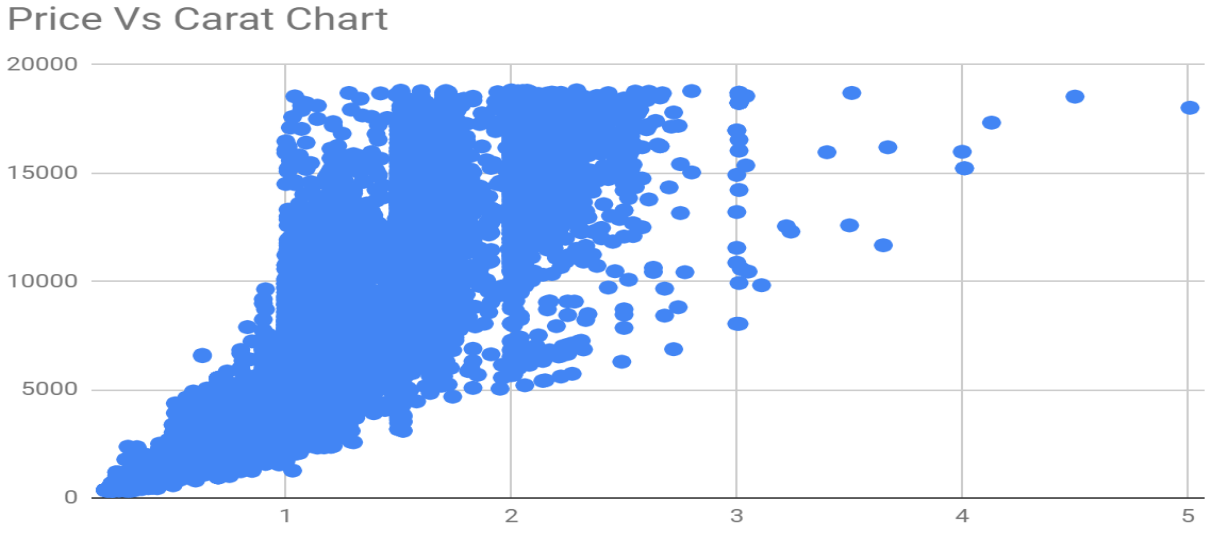
Price = -5,269 + 8,413 *(1.5) + 158.1*(3) + 454 *(5)

= 10,0094.8 ≅ 10,0095

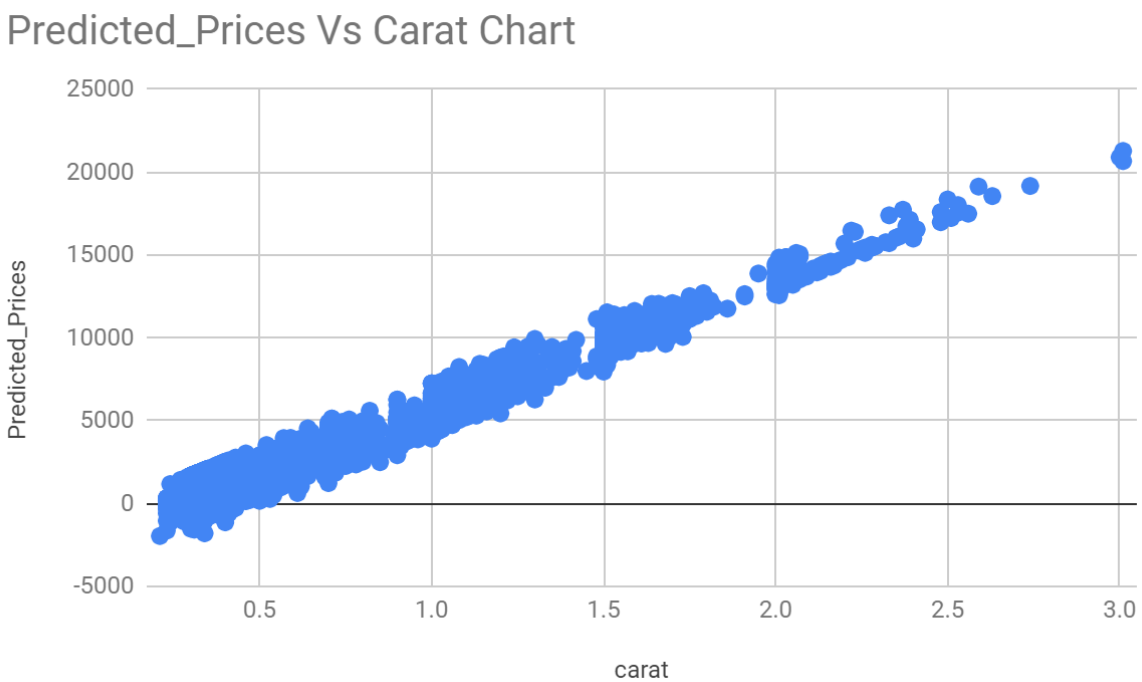
Review Note: Q2: The solution is correct, and you have done very well in developing the calculations in order to reach this solution. Good job!

Step 2: Visualize the Data

The Charts below shows the price of the diamonds against Carat and the Predicted Prices against the Carat prices respectively



Review Note: Q1: The graph is correct. Well done!



Review Note: Q2: Nice job!, this graph is correct.

Answer

From the above, we can see that the predicted price vs price chart is not as spread out as the price verus carat chart. These predicted prices are clustered around the regression line. This may partly be due to the oversimplification of the data by the model but generally the data is well explained by the model.

Review Note: Q3: Well done on you observation from the plot!

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

I recommend that the Company pays the price of 8213465.932 for the set of diamonds. This amount is gotten by summing the predicted prices and multiplying by 0.7 which represents the 70% the company pays the distributors.

Review Note: Q1: The solution is correct, well done! You have done very well in explaining how you have reached this solution. Good job!