Project: Diamond Prices

Complete each section. When you are ready, save your file as a PDF document and submit it in your classroom.

Step 1: Understanding the Model

Answer the following questions:

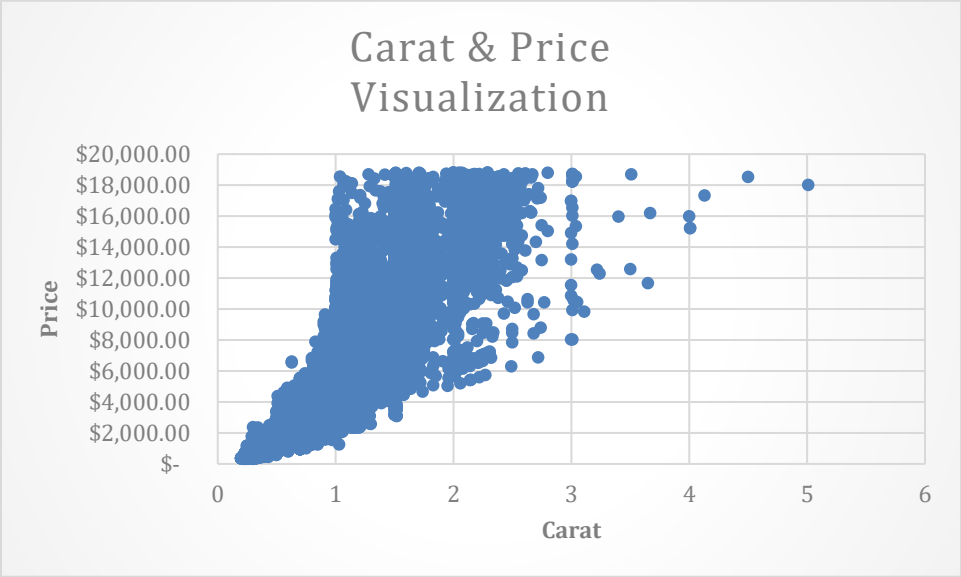
1. According to the model, if a diamond is 1 carat heavier than another with the same cut, how much more should I expect to pay? Why?
   The equation:
   Price = -5,269 + 8,413 x Carat + 158.1 x 454 x Clarity
   Using the equation provided from the lesson we can conclude that the coefficient for one carat is $8431, Therefore every increase in the carat with the same cut will be multiplied in 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?
   Carat:1.5 Cut:3 Clarity:5
   = -5269+(8413*1.5) +(158.1*3) +(454*5)
   Likewise, we should pay $10,094.80 per 1.5 carat diamond.

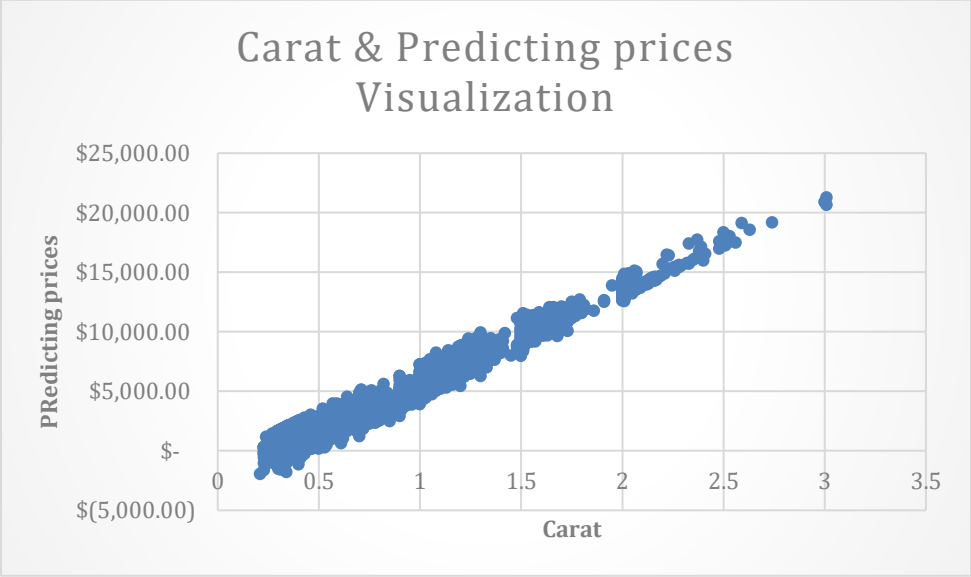
Step 2: Visualize the Data

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.



3. What strikes you about this comparison? After seeing this plot, do you feel confident in the model's ability to predict prices?
   Plot 1:
   I've noticed that the price and the carat is not in a straight linear and the correlation is not strong due to other independent factors for example the color and the clarity.

   Plot 2:
   The correlation in the price and carat is strong in plot 2, however in some cases the price is negative, which indicate that the linear regression approach is not the appropriate model to solve this problem.

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.

Finding out that the linear regression is not the right way to approach this problem. we take the next method in the methodology map, decision tree (70% of the Sum of predicting prices) as shown in the project details $ 8,213,465.9