# Project: Diamond Prices

# 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?

    - Due to the provided function of the model, we know that for every carat the value of diamond will increase by 8,413 $.

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

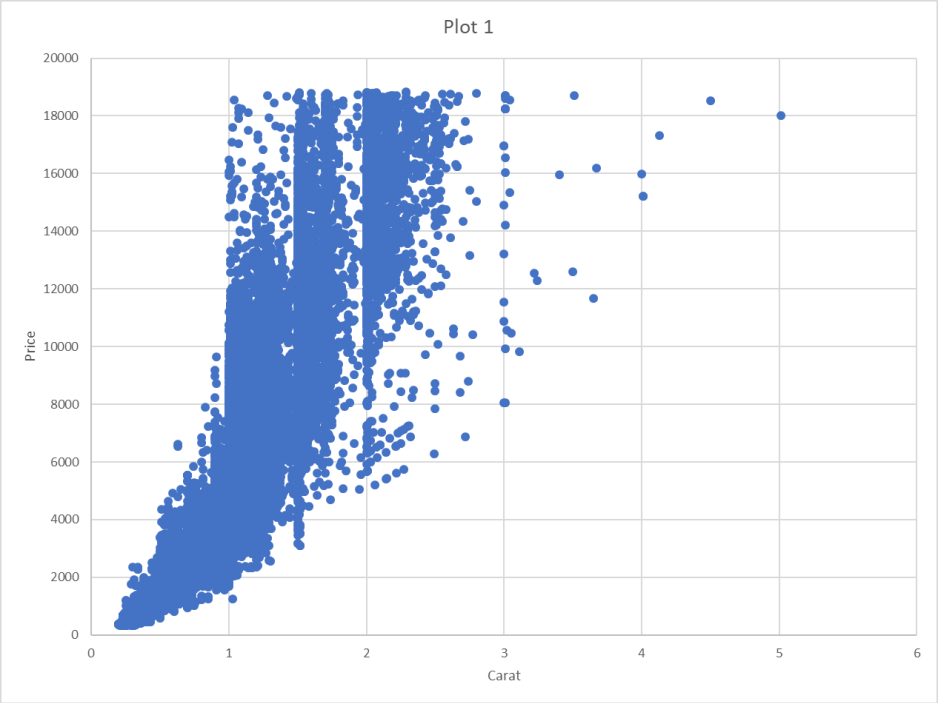
2. If you were interested in a 1.5 carat diamond with a **Very Good** cut (represented by a 3 in the model) and a **VS2** clarity rating (represented by a 5 in the model), how much would the model predict you should pay for it?

    - The Model would predict a price of 10,094.80 $.

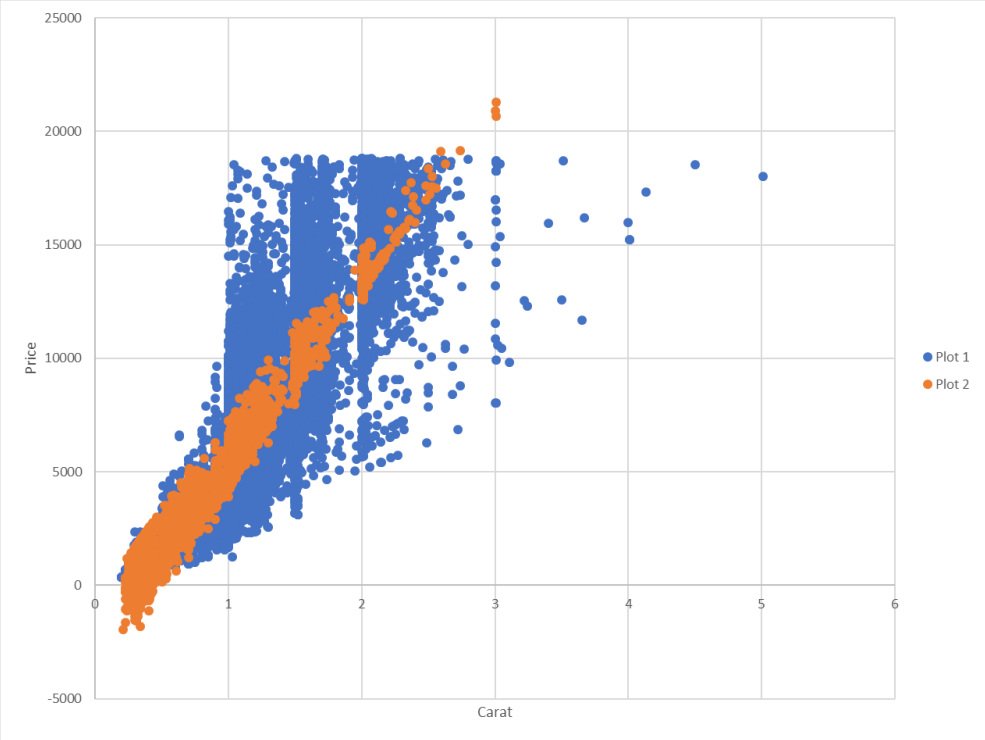
# Step 2: Visualize the Data

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.




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?

    - It seems that the model has some problems predicting prices of diamonds above 1 carat. The data used to create the model shows more diversified prices even for diamonds above 1 carat. There are probably other factors which influences the price of diamond. Maybe the history, color, its origin…

# 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.

    - By using the above model to predict the prices of all 3,000 diamonds we can calculate a total sum of 11,733,522.76 $ to be paid for the full set of diamonds.