**Step 1 - Understanding the Model:**

1. According to the linear model provided, if a diamond is 1 carat heavier than another with the same cut and clarity, how much more would the retail price of the heavier diamond be? Why?

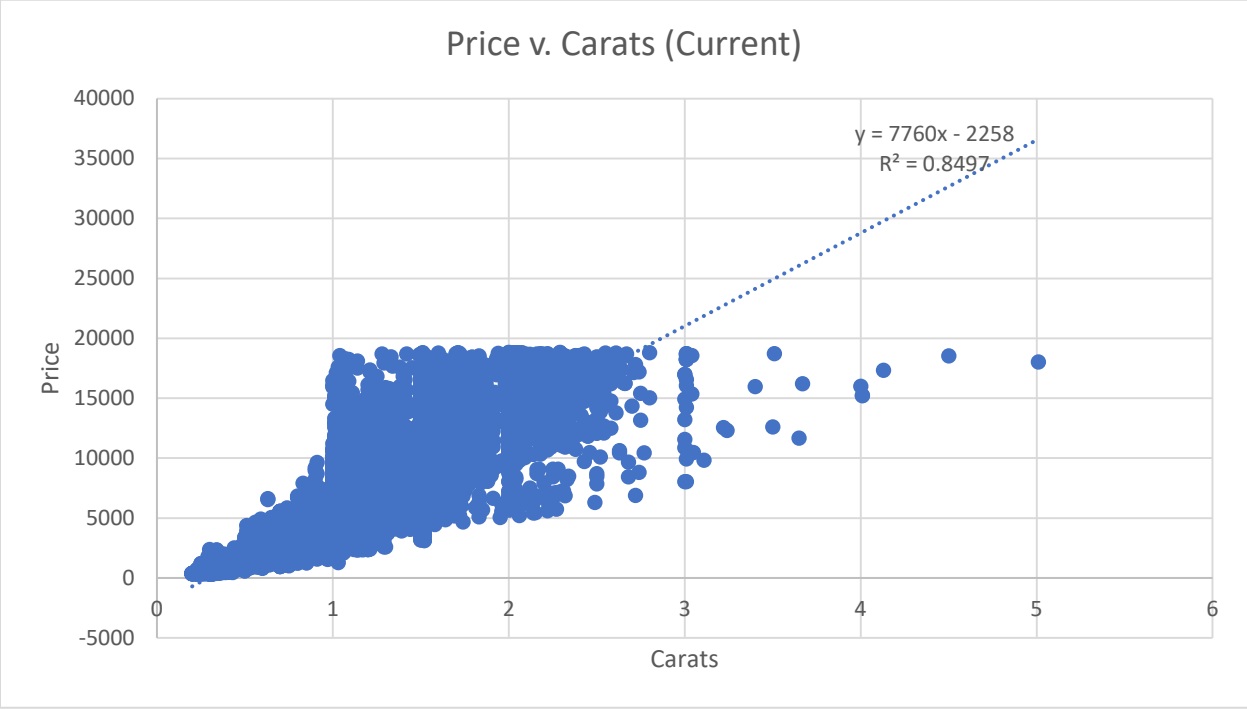
   The retail price of the heavier diamond would increase by $8,413. The reason behind this is that the linear model multiplies the carats by that amount.

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), what retail price would the model predict for the diamond?

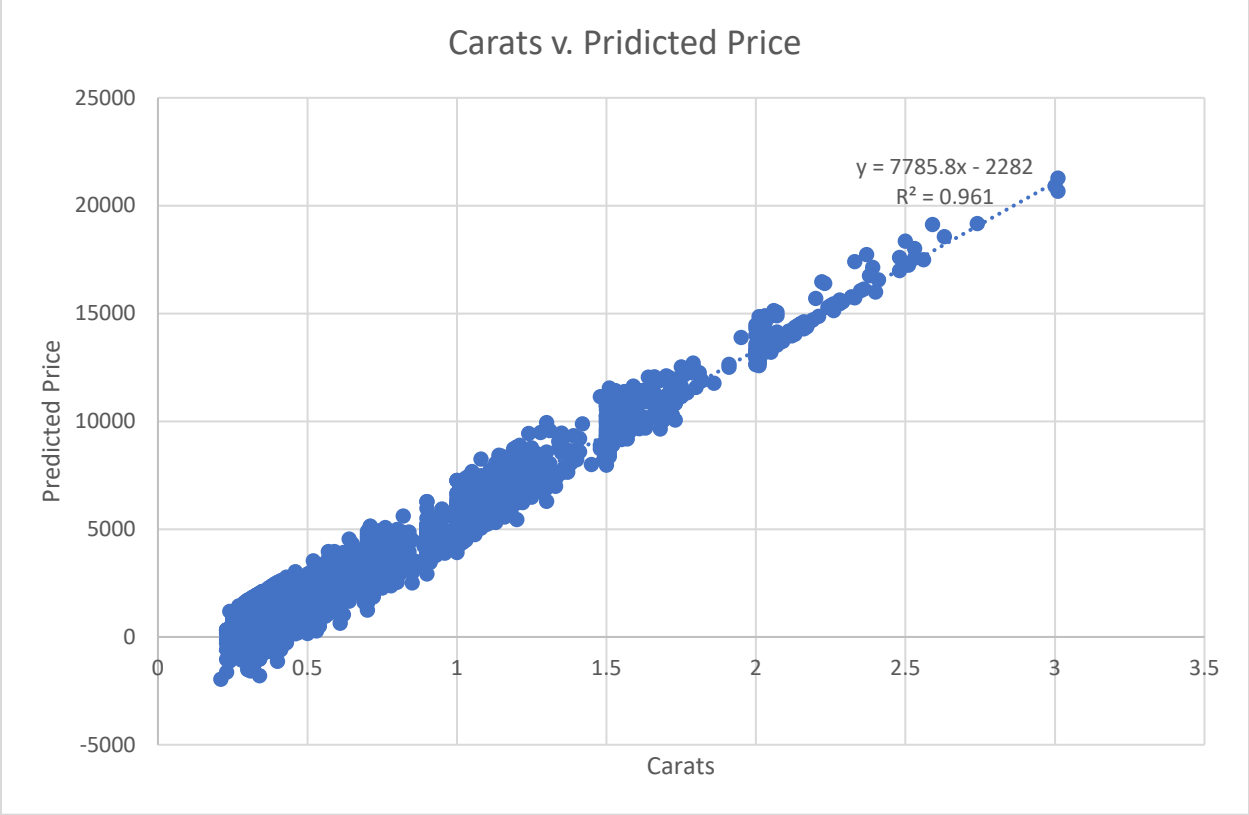
   Price = -5,269+8,413 * 1.5 + 158.1 * 3 + 454 * 5 = $10094.8

**Step 2 - Visualize the Data:** Create two scatter plots. If you're not sure what a scatter plot is, see here.

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



- 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.




- What strikes you about this comparison? After seeing this plot, do you feel confident in the model's ability to predict prices?
    - The model seems to predict negative prices when a diamond is less than 0.5 carats.
    - Most prices are concentrated in the 1-2 carat range.
    - The predicted prices seem to increase by a large amount when a diamond is heavier than 2.5 carats
    - Other factors than what was used in the equation can affect a diamond's price

**Step 3 - The Recommendation:** What bid do you recommend for the jewelry company? Please explain how you arrived at that number.

Using the predicted prices generated by the linear regression equation, I found a sum of $11,733,522.76 for the total retail price of the diamonds. After factoring in the 70% price that a distributor would pay, the recommended bid comes down to $8,213,465.93