

## 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?

**According to the equation provided to predict diamond prices for every increase of the carat the price will increase by \$ 8413 more**

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 equation provided is: **Price** = -5,269 + 8,413 x **Carat** + 158.1 x **Cut** + 454 x **Clarity**

**So, by adding the variables on the question:**

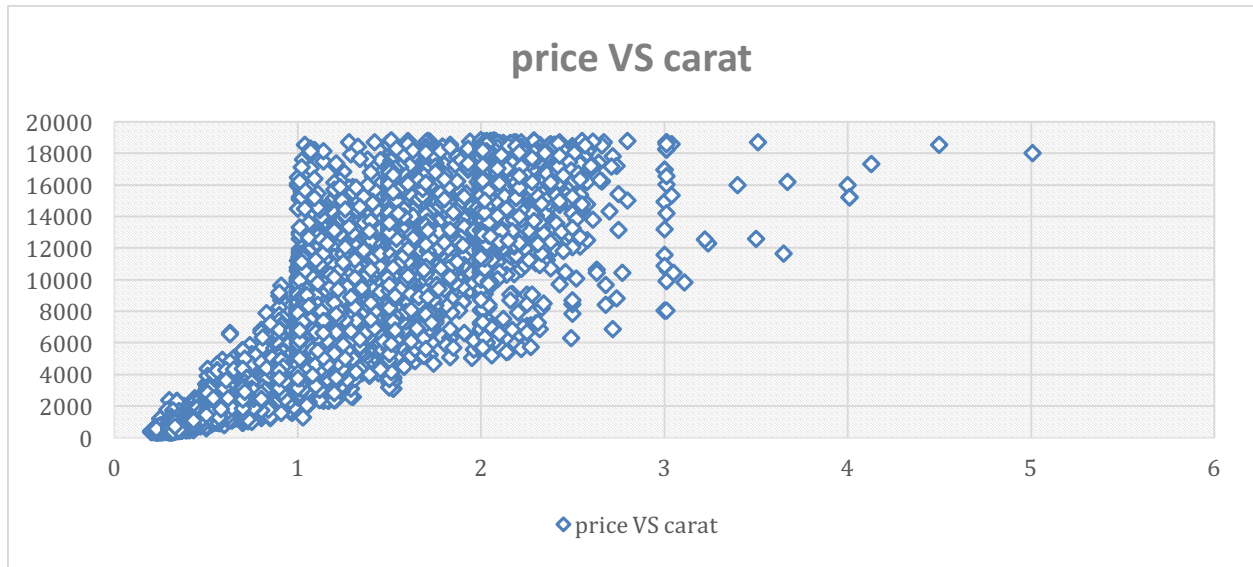
**Price** = -5,269 + 8,413 x 1.5 + 158.1 x 3 + 454 x 5

**Price = \$10,094.8**

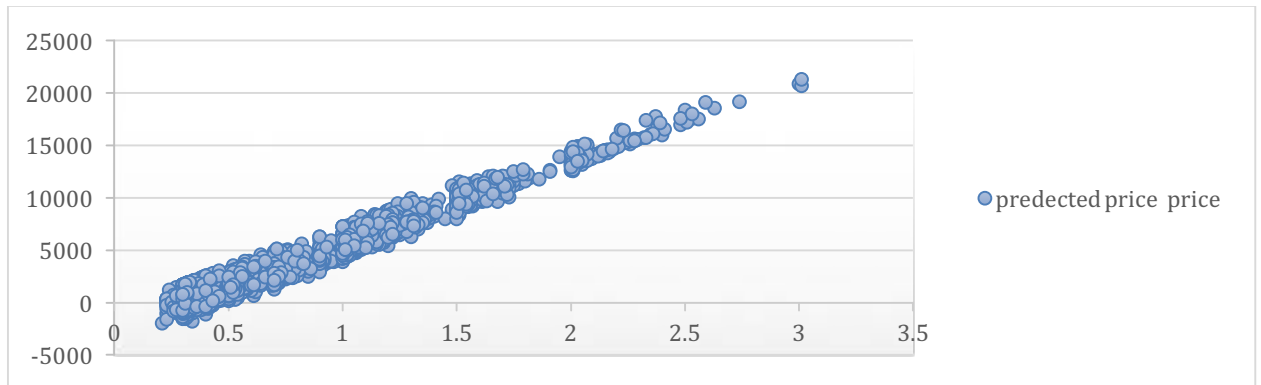
### Step 2: Visualize the Data

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 is clearly the relationships between carat and price are strong 0.5 to 2, more heavy diamonds carat (3) brings more price. however, there are carat 0.5 and less, have price less than 0, which is not possible in real world.

## 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.

To get final predicted bid, sum predicted price (11733522.76) and multiply it by .70 (The purchased diamonds from distributors at 70% of that price)

The recommend jewelry bid is = \$ 8213465.932