

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?

Ans. According to the model, if a diamond is 1 carat heavier than another then we need to pay 8413 more because 8413 is the coefficient of the carat variable.

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?

Ans. The model for the above conditions predicts a value of 10094.8.

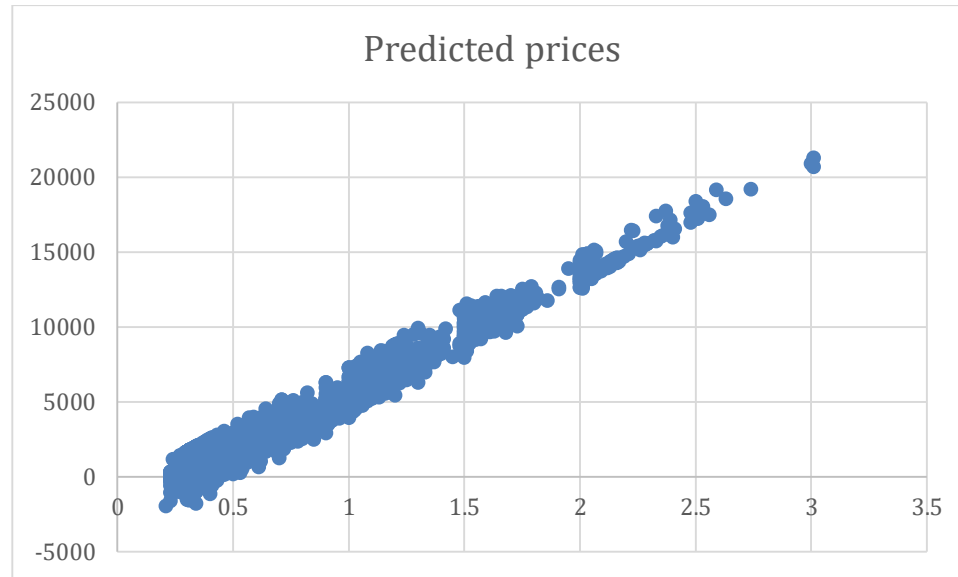
Step 2: Visualize the Data

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?

Ans. The model has been tested with carats lesser than or equal to 3, whereas the training data had carat values up to 5. The price of the diamonds increases when carat value is between 0 and 1. After the carat value crosses 1, the prices slowly start to become constant. This is probably due to the values of the other 2 variables as well.

I am not confident in the model's ability to predict values with carat values more than 3 as it has not been tested with it. Moreover, the model has not been tested on enough data values and hence proves the difference between the 2 graphs.

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.

Ans. The company should bid 8213466 as this is 70% of the sum of the predicted prices of the 3000 diamonds which is 11733523