ONYEKABA NZUBECHUKWU JUDE

Project: Diamond Prices

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

Regression Model using Microsoft Excel Data Analysis

SUMMARY OUTPUT								
Regression Statistics								
Multiple F	0.941382							
R Square	0.8862							
Adjusted I	0.886194							
Standard E	1348.018							
Observati	50000							
ANOVA								
	df	*SS*	*MS*	*F*	*gnificance F*			
Regressio	3	7.07E+11	2.36E+11	129779.3	0			
Residual	49996	9.09E+10	1817153					
Total	49999	7.98E+11						
	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	-5255.22	30.31979	-173.326	0	-5314.65	-5195.8	-5314.65	-5195.8
X Variable	8363.417	13.56493	616.5471	0	8336.829	8390.004	8336.829	8390.004
X Variable	160.3786	5.512623	29.09297	1.5E-184	149.5738	171.1834	149.5738	171.1834
X Variable	457.8018	3.900625	117.3663	0	450.1565	465.4471	450.1565	465.4471

Price = -5255.22314647742 + 8363.416657654***Carat*** + 160.378582831032***cut*** + 457.80181293548***clarity***

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?

1. According to the model, if a diamond is 1 carat heavier than another with the same cut and clarity how much more should I expect to pay? Why?

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carat	cut_ord	clarity_ord	Price	Difference
1	1	1	3726.374	-8363.42
2	1	1	12089.79	

The change in carat value corresponds to the carat coefficient (8363.42) since other variables were constant too. An increase of 1 in the carat value will correspond to this value

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?

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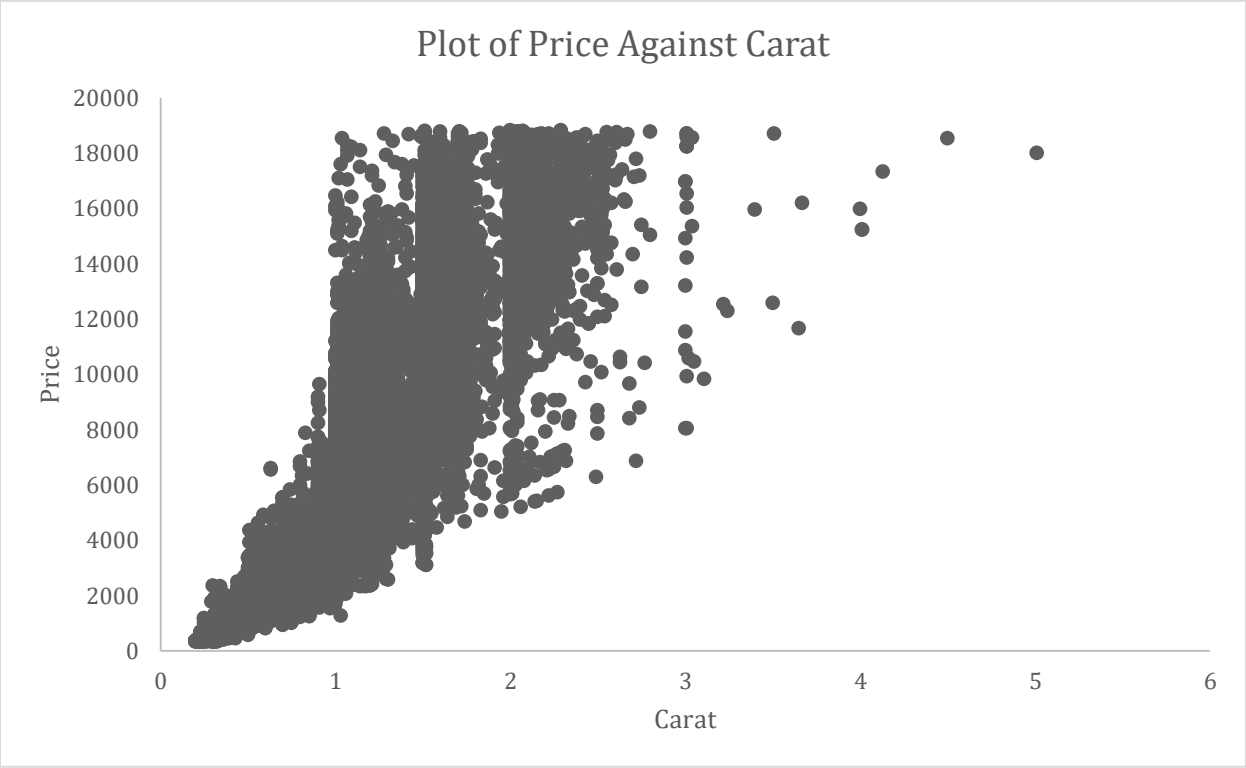
carat	cut_ord	clarity_ord	Price
1.5	3	5	10060.05

According to my model, the final price of a diamond with the aforementioned specification would be 10060.05

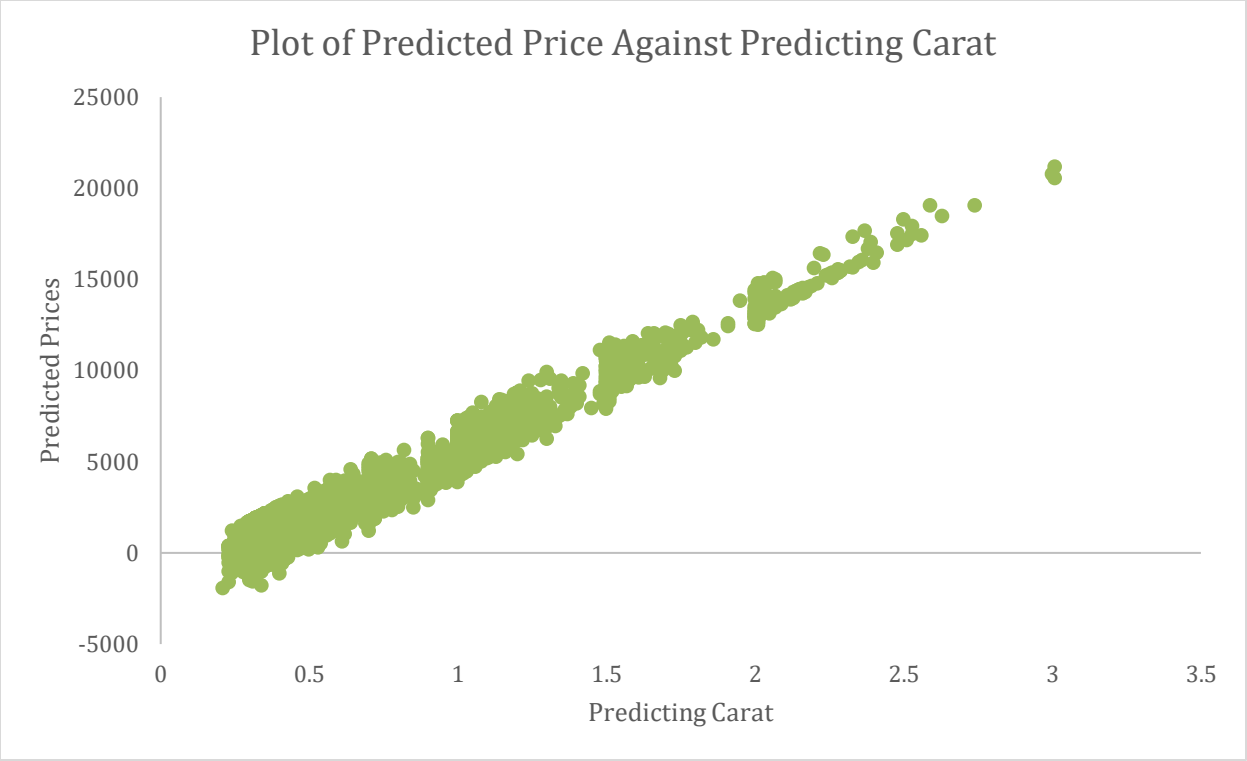
Step 2: Visualize the Data

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?

I don't feel very confident in my model's ability to predict prices because in the predicted values, some diamonds are predicted to have negative values, which doesn't make any sense. There's no such thing as a negative price.

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.

I recommend 8211163.146. I arrived at this number by summing up the predicted prices and multiplying by 0.7.

Formula = SUM(D2:D50001) * 0.7