

Title - Predicting Diamond Price

Description - Predicting the diamond price given features such as Carat, Cut, Clarity

Problem Statement - The client have past diamond sales data and he is looking for precise price estimation method for new diamonds, as a data professional my objective is to find out a method

Approach and Technique Used - Multiple regression models perfectly work for this problem.

Tool - Google Sheets

What I Learned - Build multiple linear regression model to predict real value
Training multiple linear regression model
Evaluate multiple linear regression model
Make prediction using the trained model

Project Questions

According to the linear model, 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?

If a diamond is heavier than another by 1 carat, the client needs to pay an extra 8413 dollars, with the same cut and clarity.

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?

$$Y = -5269 + 8413 * \text{carat} + 158.1 * \text{cut} + 454 * \text{clarity}$$

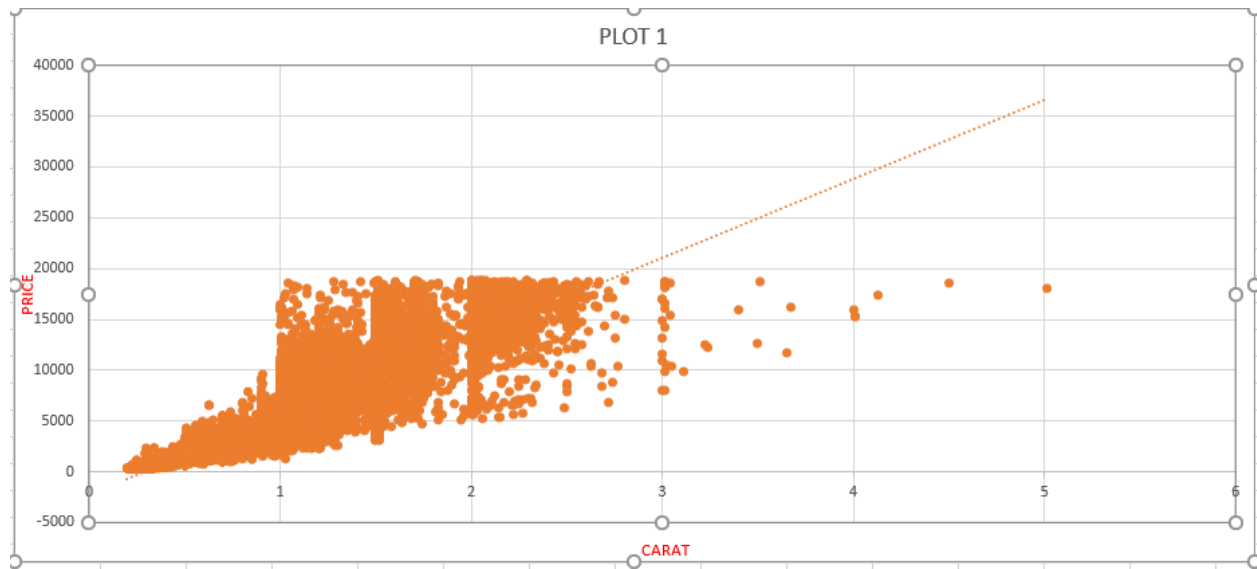
$$Y = -5269 + 8413 * 1.5 + 158.1 * 3 + 454 * 5$$

$$Y = 10,094.8 \text{ Dollars}$$

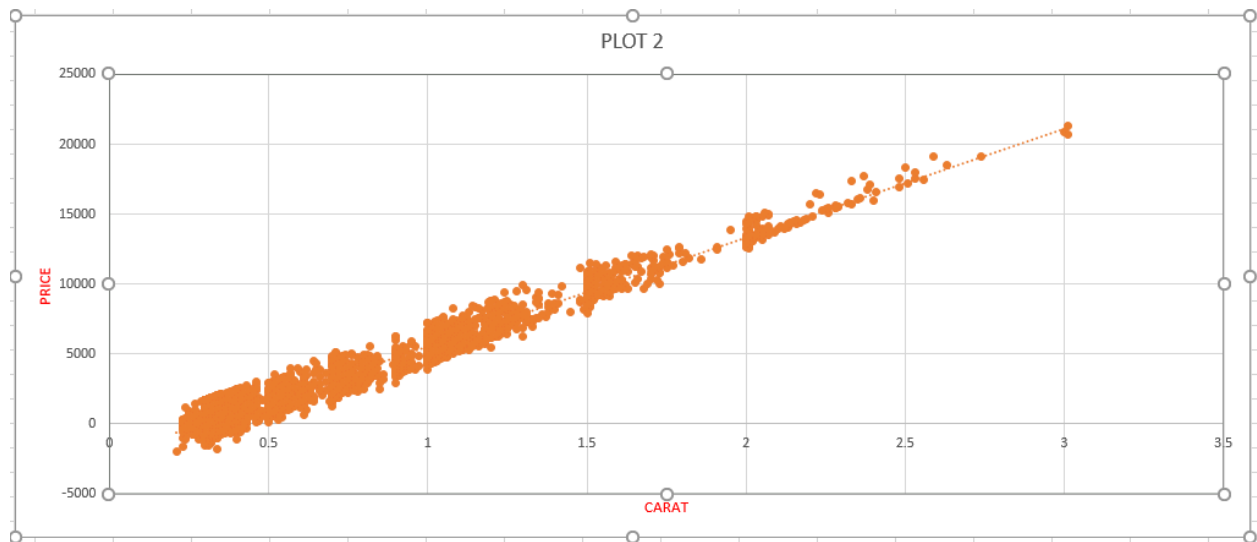
The diamond would cost 10,094.8 Dollars.

Visualizations

Plot 1 - Plot the data for the diamonds price along with carat in the dataset (carat on the x-axis and price on the y-axis)



Plot 2 - Plot the diamonds price which is predicted by trained model with carat (carat on 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?

I am confident about this model's ability to predict price because the carat features have the highest predictive power among other variables. We can also add more independent variables which would add more noise to the model.

The Recommendation

What bid do you recommend for the jewelry client? Please explain how you arrived at that number.

The total price predicted by the model for all diamonds is 11,733,522.76 dollars.

The company generally purchases diamonds from distributors at 70% of the price. So 70% of the total retail price is 8,213,465.932 dollars. Approximately 8, 213, 000 good price bidding.