Helping a Car Collector Sell Their Home for an Amazing Price
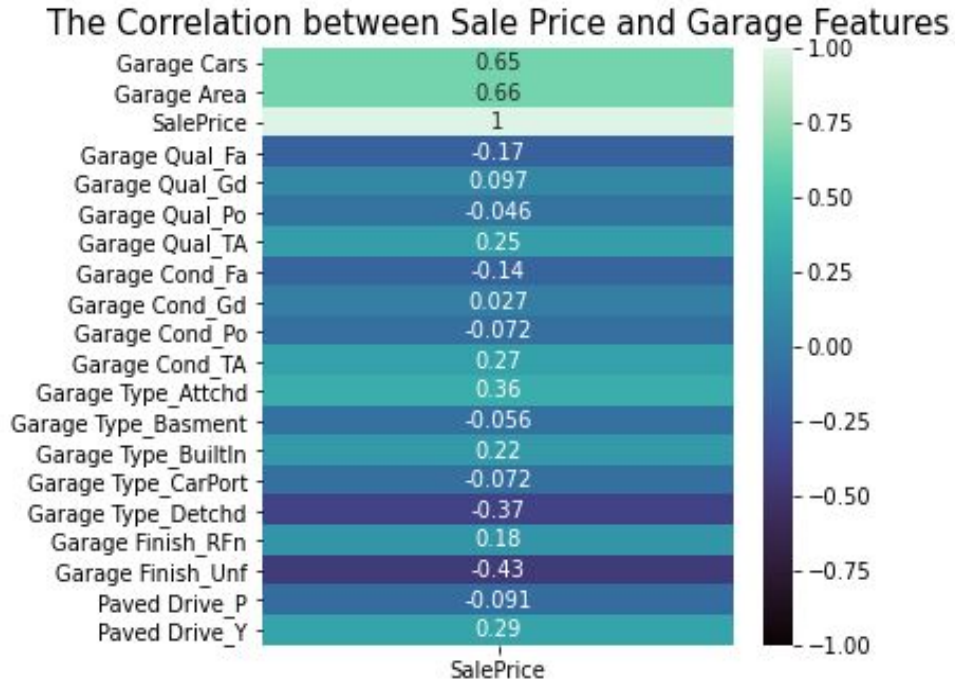
Modeling for Premium Home Price Prediction

A Client Comes to You…

- You're a big-shot Realtor in Ames, Iowa. Your mortal enemy is a Realtor across the street named Mike Snakerson.
- A new potential client approaches BOTH you and Snakerson, wanting to sell a home in Ames - but not just any home, a home with a large garage for their car collection. From across the street, Snakerson shakes his fist at you. It's on.

The Plan

- To compete with Snakerson, you have to develop the best model for this client.
- Using your data, look for the prices that homes with large garages have fetched.

The Correlation between Sale Price and Garage Features

|	SalePrice
Garage Cars	0.65
Garage Area	0.66
SalePrice	1
Garage Qual_Fa	-0.17
Garage Qual_Gd	0.097
Garage Qual_Po	-0.046
Garage Qual_TA	0.25
Garage Cond_Fa	-0.14
Garage Cond_Gd	0.027
Garage Cond_Po	-0.072
Garage Cond_TA	0.27
Garage Type_Attchd	0.36
Garage Type_Basment	-0.056
Garage Type_BuiltIn	0.22
Garage Type_CarPort	-0.072
Garage Type_Detchd	-0.37
Garage Finish_RFn	0.18
Garage Finish_Unf	-0.43
Paved Drive_P	-0.091
Paved Drive_Y	0.29

Preliminary Findings

- Strong correlations between Garage Area, Garage Cars, and unfinished garages.
- Develop a model that highlights these features and can be used to sell the client's home for a price suited to their needs!

The Effect of Total Garage Space on Sale Price
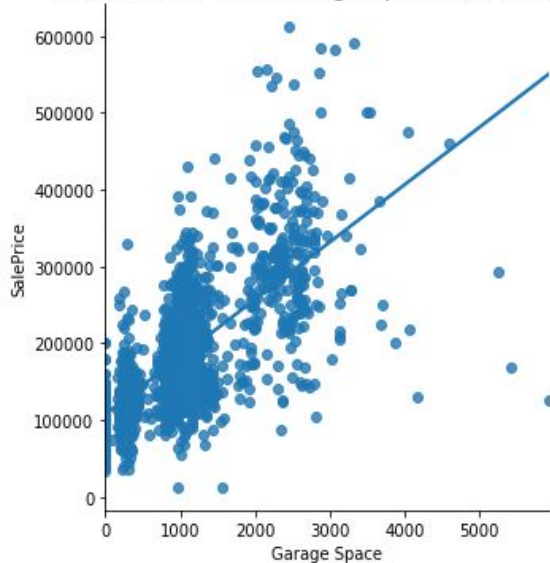
The Effect of an Unfinished Garage on Sale Price
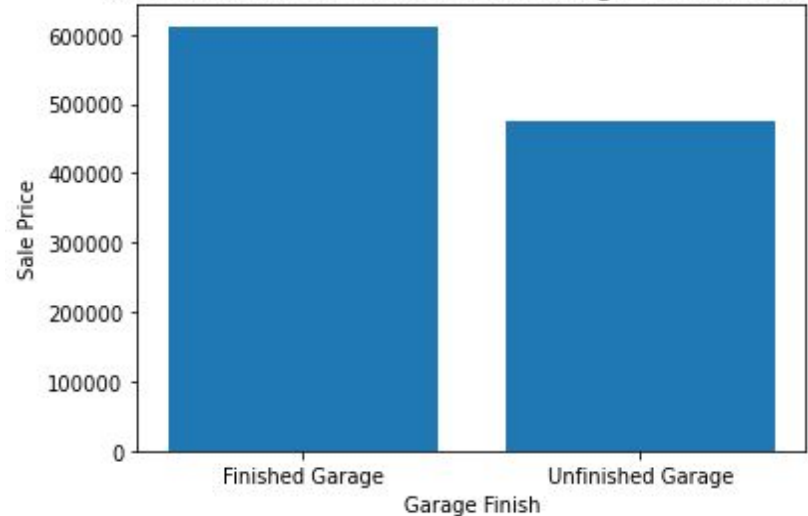
Model Development

- Using a linear regression model, your best R2 score was 0.62, and your RMSE was $49239.09. Not great. It won't beat Snakerson. So how can you improve, while staying true to your client's needs?
- Using some of the features with the strongest correlation to sale price from the original model, and creating interaction columns between those.
- Columns with strongest correlation: Overall Qual, Gr Live Area (essentially above-ground square footage), first floor sq. ftg, and total basement sq. ftg.

Dataset	Metric	Score
Testing	R2 Score	0.88006
Training & Testing	RMSE	$27474.89

Conclusions

- You've now built a functioning model to predict the prices of your client's home could potentially fetch - and you have strong advice for the client.
- Finish the garage, F I N I S H   S N A K E R S O N

Predictions vs. Reality
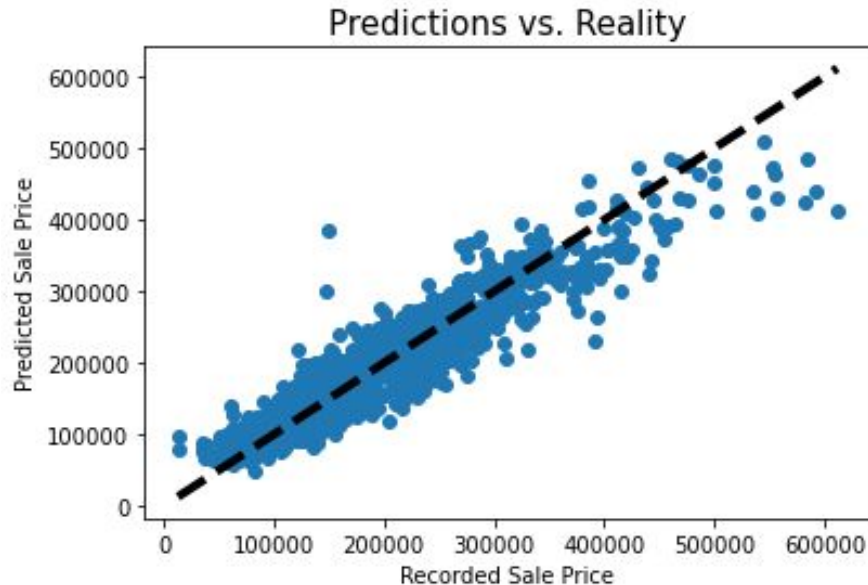
Next Steps

So, it's the end of the line for Snakerson. You can see him weeping in his office across the street. Now, how can you improve your new client's experience?

- What does it cost to finish a garage in Ames? Does the probable increase in selling price offset those costs?
- Improve the model and build out a listing: brag about the garage's area, how many cars can fit, the finish on it - but also, the home's square footage and overall quality, and possibly other features not included in the production model.
- Profit.