

# Ames Housing Price Prediction

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## Agenda

1. Opening Statement
2. What goes into Housing Prices
3. Analysis of Housing Data
4. Machine Learning Model Findings
5. Conclusion & Recommendations

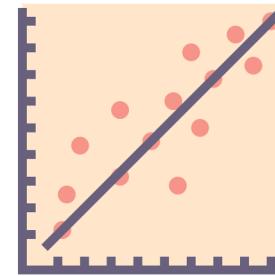
# Quantum Realty: New Direction



**Data Driven**



**Investing in High Margin Property**



**Machine Learning**

## 1. Opening Statement

### Target Market: Ames, Iowa

- Home to a population of 67,154



High Accuracy  
Predictions



Identify High Demand  
Features



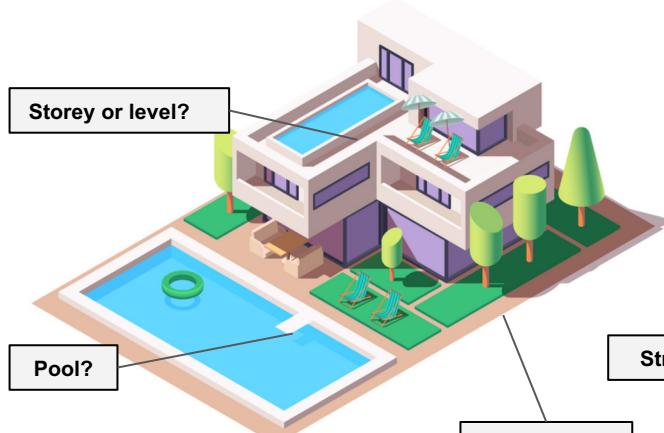
Development  
Potential

- How close is our **predicted sale price** of a house in Ames?
- Which **features** of a property have the strongest impacts on housing prices?

## 2. What goes into the AMES Housing Prices

- Location
- Property size
- General Conditions
- Amenities

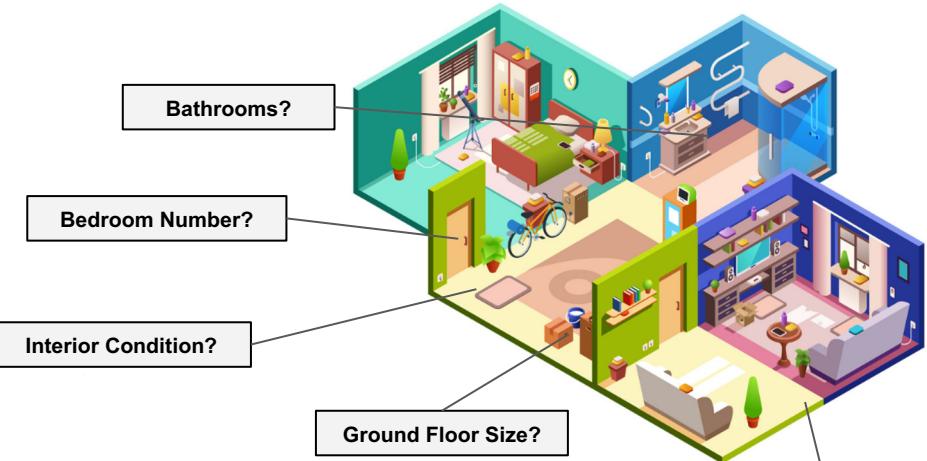
Some examples....



Storey or level?

Pool?

Floor Area?



Exterior?

Street?

Lot Area?

Garage?

### 3. Analysis of Housing Data

#### Data Cleaning



##### Incomplete Data

over **8,000**  
missing values!



##### Feature Overload

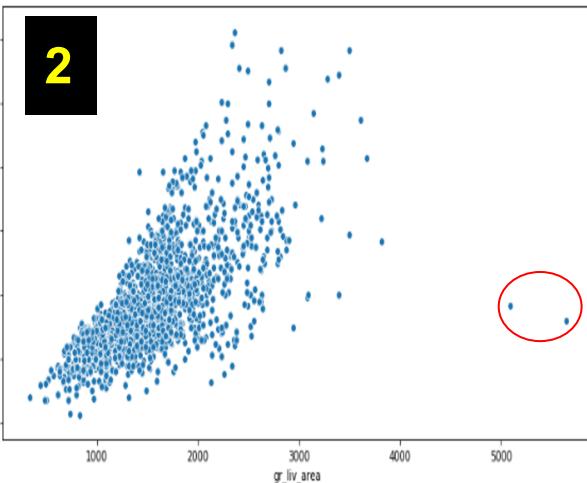
80 Original  
Features

### 3. Analysis of Housing Data

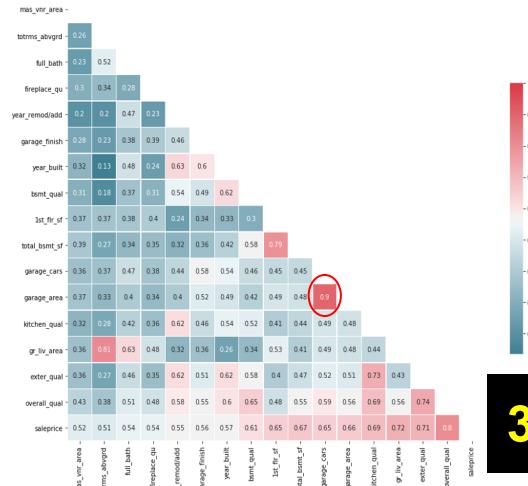
#### Identifying Statistically Insignificant Features



#### Identifying Outliers



#### Identifying Correlated Features



80 → 44

final factors

### 3. Analysis of Housing Data

## Feature Selection



## 4. Findings



### Quality Counts

- Overall material and finish quality of the house
- Exterior material quality

### Popular Neighbourhoods

Stone Brook Northridge preferred

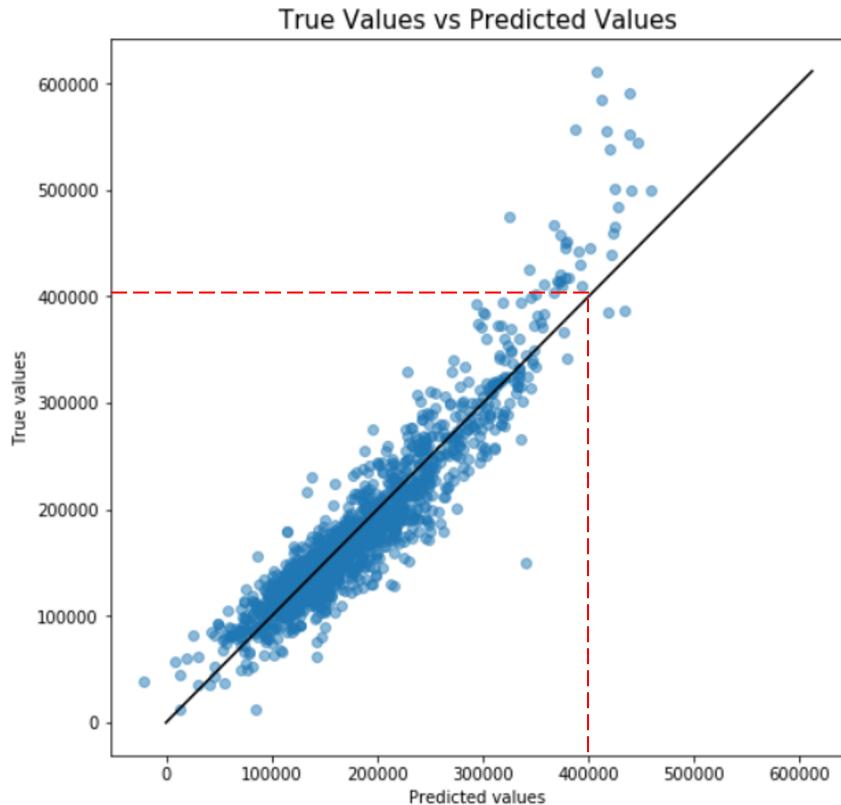
### When was property last renovated?

Remodel year (or construction date)

### Size Matters

- Above grade (ground) living area in square feet
- Total square feet of basement area
- Size of garage in square feet

## 4. Findings



## Model Performance

**Good  $\leq$  USD 400,000**  
**Not So Good  $>$  USD 400,000**

## 5. Conclusion & Recommendations

### Why were these features strong predictors?



**Above Ground &  
Basement Size**

- ✓ Utility
- ✓ Value
- ✓ Climate



**Garage  
(& Size)**

- ✓ Ownership
- ✓ Mode
- ✓ Protection



**Neighbourhood  
(Stone & North-R)**

- ✓ University
- ✓ Facilities
- ✓ Protection

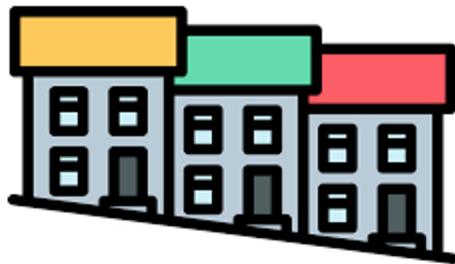


**Quality /  
Build Year**

- ✓ Integrity
- ✓ Newness
- ✓ Value

## 5. Conclusion & Recommendations

**Stay Clear**



**Townhouses Or  
Planned Unit Development  
(PUD)**



**Too many  
repeated  
features**



**Less Desirable  
Neighbourhoods**

## 5. Conclusion & Recommendations

### What next?

- i. Get more Demographic Info
- i. Examine Crime Rates
- i. Examine notable geographic establishments
- i. Economic Factors



**Thank you for your attention**

**Any Questions?**

# References

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