

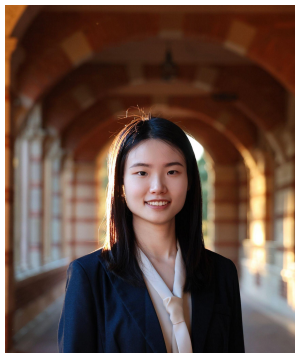
# CALIFORNIA HOUSING

# PRICE ANALYSIS

Team: Home Sweet Home



# MEET OUR TEAM



Joyce  
Chen



Casey  
Truong



Celeste  
Vargas



Haomin  
Mai



Sungwon (Alex)  
Lee



Euijun (Jun)  
Kim

# TABLE OF CONTENTS



## 01 INTRODUCTION

Provide an introduction to our topic and objectives

## 02 METHOD

Describe our method for analysis

## 03 HYPOTHESIS

Describe our hypothesis

## 04 RESULTS

Provide our analysis result

## 05 CONCLUSION

Provide our conclusion

## 06 FUTURE DIRECTION

Provide direction for future research



# 01

## INTRODUCTION

Provide an introduction to  
our topic and objectives





California is one of the  
states that has the largest  
population.

# PROJECT OBJECTIVE

Understand what factors affect California housing prices

- Age of the house
- Number of rooms
- Households
- Income
- Location
- .....



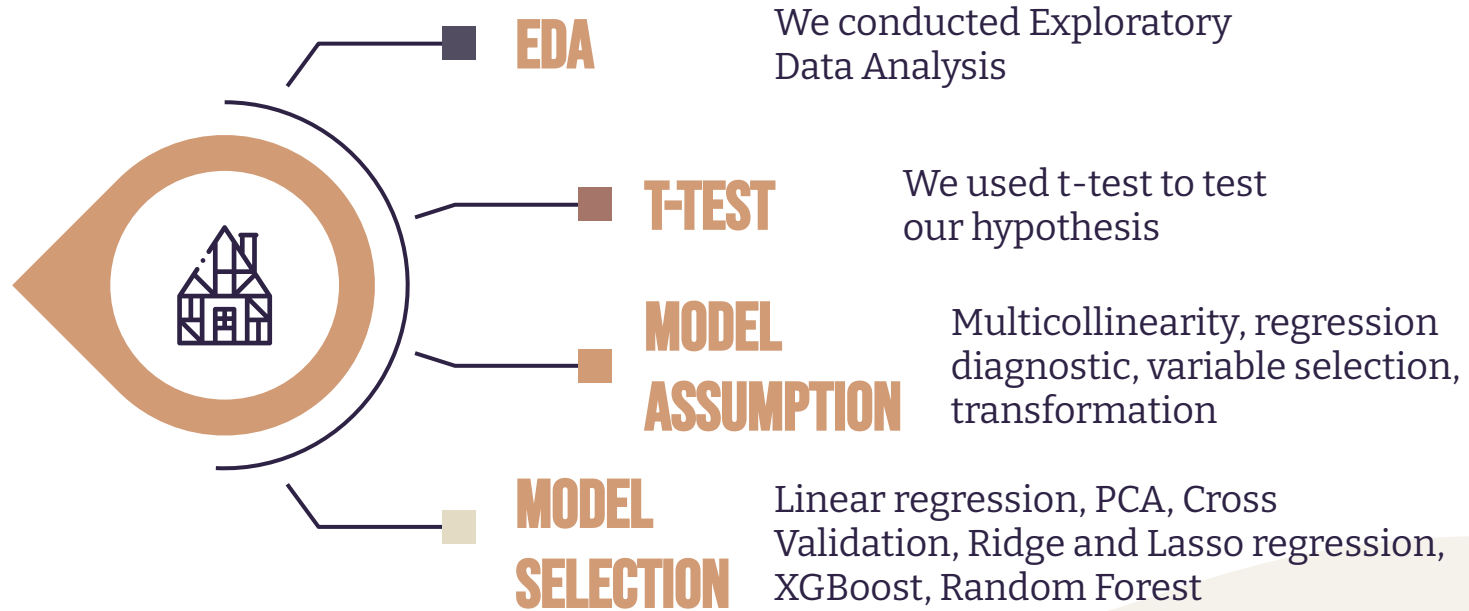
# 02

## METHOD

Describe our method for  
analysis



# METHOD





# 03

## HYPOTHESIS

Describe our hypothesis



# HYPOTHESIS

- Home's ocean proximity affects median housing value
- Home's median age affects median housing value
- Population increases median housing value



# 04

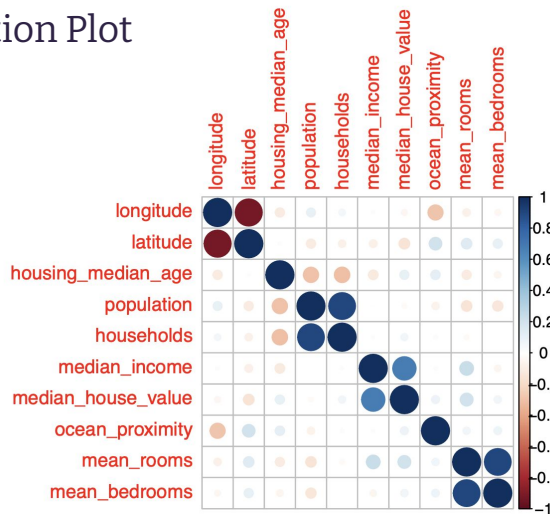
## RESULT

Describe our analysis result

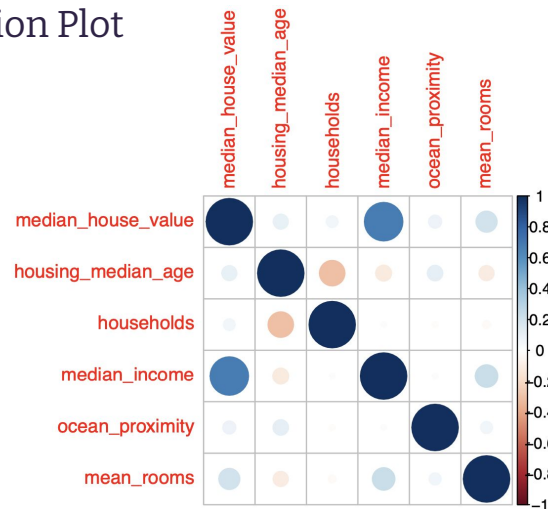


# RESULTS - CORRELATION ANALYSIS

Correlation Plot



Correlation Plot



Delete high VIF variables

VIF Analysis

longitude	latitude	housing_median_age	population
9.606833	9.563355	1.249570	6.584204
households	median_income	ocean_proximity	mean_rooms
6.524942	2.240176	1.157229	11.545648
mean_bedrooms			
10.769868			

VIF Analysis

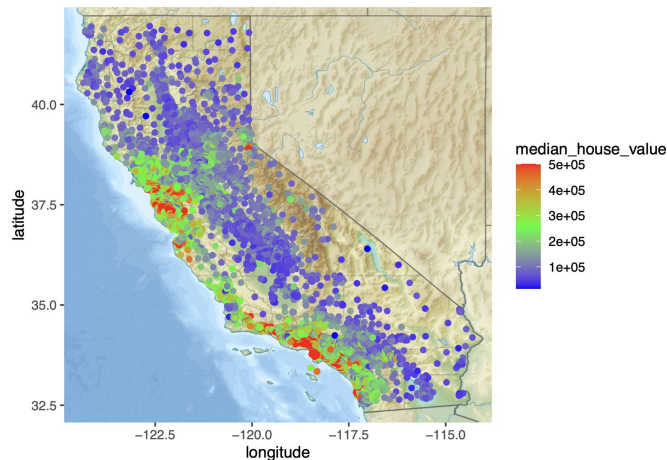
housing_median_age	households	median_income	ocean_proximity
1.143878	1.106133	1.069671	1.020414
mean_rooms			
1.078304			

# RESULTS - HYPOTHESIS TEST 1



Hypothesis 1: Home's ocean proximity affects median housing value

Plot Analysis



T-test

Welch Two Sample t-test

```
data: data$ocean_proximity and data$median_house_value  
t = -256.16, df = 20432, p-value < 2.2e-16  
alternative hypothesis: true difference in means is not equal to 0
```



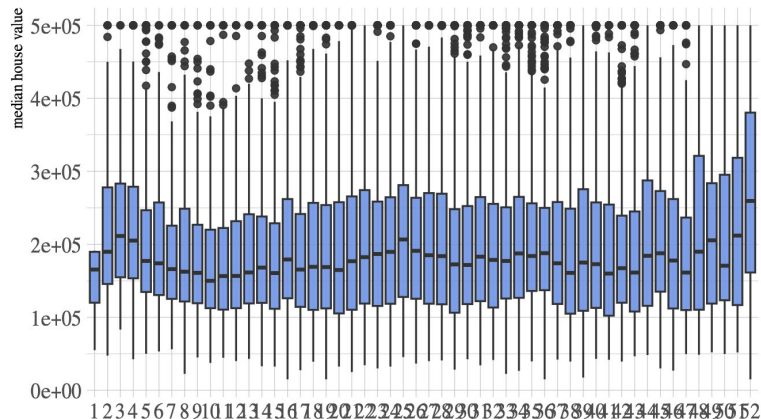
We reject the null hypothesis. We can conclude that ocean proximity is a significant predictor that affect median housing value.

# RESULTS - HYPOTHESIS TEST 2



Hypothesis 2: housing's median age affect median house value

Plot Analysis



T-test

Welch Two Sample t-test

```
data: data$housing_median_age and data$median_house_value  
t = -256.12, df = 20432, p-value < 2.2e-16  
alternative hypothesis: true difference in means is not equal to 0
```



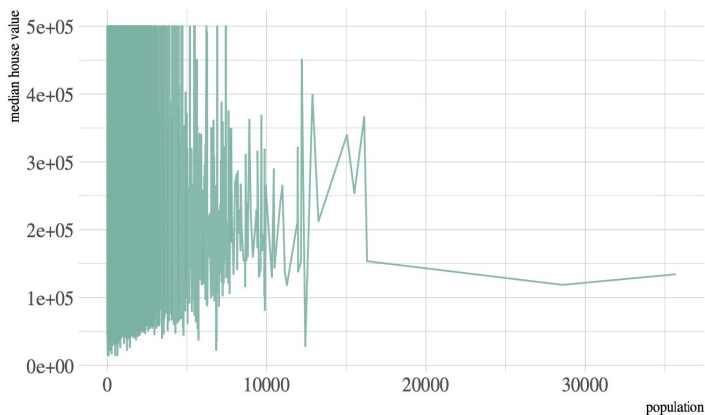
We reject the null hypothesis. We can conclude that housing median age is a significant predictor that affect median house value.

# RESULTS - HYPOTHESIS TEST 3



Hypothesis 3: Population (total number of people residing within a block) affect median house value

## Plot Analysis



## T-test

Welch Two Sample t-test

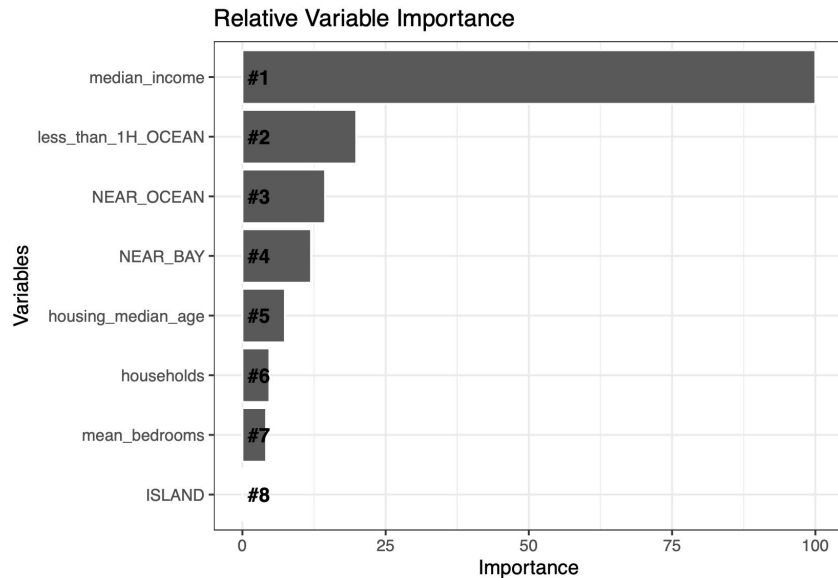
```
data: data$population and data$median_house_value  
t = -255.75, df = 20643, p-value = 1  
alternative hypothesis: true difference in means is greater than 0
```



We failed to reject the null hypothesis. We can conclude that population is NOT a significant predictor that affect median house value.

# RESULTS - BEST PREDICTION MODEL

Our best prediction model is XGBoost model



$R^2 = 0.69\%$



# 05

## CONCLUSION

Provide our conclusion



# CONCLUSION

Based on the XGBoost, our most significant variables are: median income, ocean location, housing median age, households, mean bedrooms, and island location

We observed a higher mean housing price at Island and <1 hr ocean location



# 06

## FUTURE DIRECTION

Provide direction for future  
research



# FUTURE DIRECTION

These significant variables can be helpful for predicting California Housing Prices in the future.

Future research can work on improving the  $R^2$  value and finding other best model to predict housing prices



# REFERENCE

California Housing Prices Dataset:  
<https://www.kaggle.com/datasets/camnugent/california-housing-prices>

CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, infographics & images by **Freepik**



# THANK YOU!

