



# ***Analyses of Housing Price data 2006-2010***

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# ***Agenda***

- Projective goals (slide 3)
- Overview of housing market 2006-2010 (slide 4)
- Process (slide 5)
- Hypotheses (slide 6)
- Analysis of style, foundation, and kitchen qualities (slides 7-9)
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# ***Project goals***

Investors like to find out which property is the best to invest their money in. Searching for an opportunity investment in real estate, here is some question they may ask.

- What house style, building type, or overall qualities of a house is best to invest in?
- What features like the foundation or kitchen types attract buyers the most?

# Overview housing market 2006-2010

## What house style, building type, or overall qualities of a house is best to invest in?

- Single-family detached (1 Fam) sale best in the housing market 2006-2010 (Fig.1)
- 1-story and 2-story houses 1946 and newer sell best (Fig.2)
- House overall quality rating from 1-10 (very poor-very excellent), house with a rating from 5-8 sale best (Fig.2)

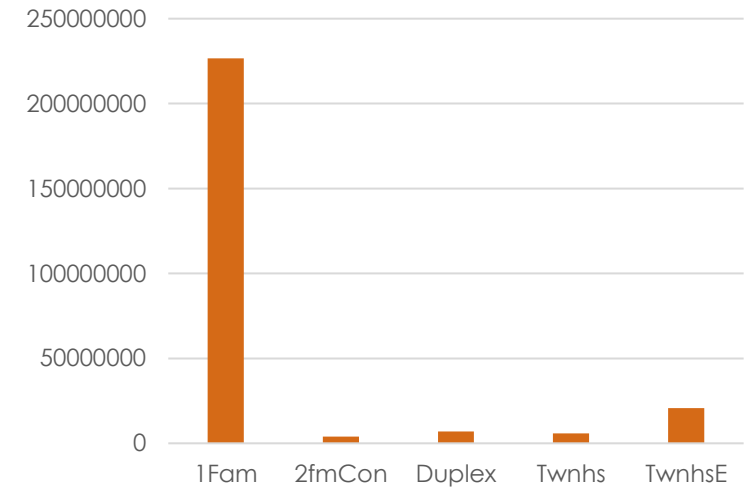


Fig.1

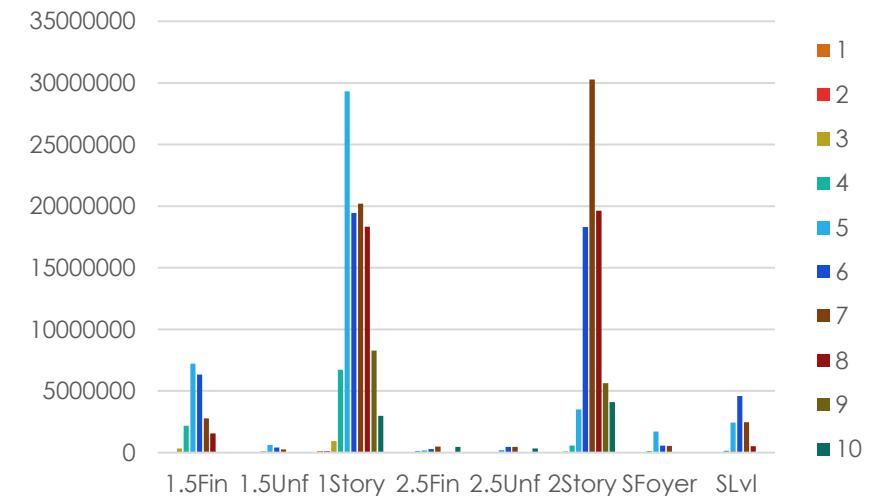


Fig.2

# ***Process***

- Data comes from the exploration of Ames housing data set from 2006-2010 with 1460 properties and 80 variances
- Conduct statistical analyses to see if there is any statistically significant between a one-story house and two-story houses, between poured concrete (Pconc) and cinder block (Cblock), and between kitchen quality typical/average (TA) and kitchen quality good (Gd)

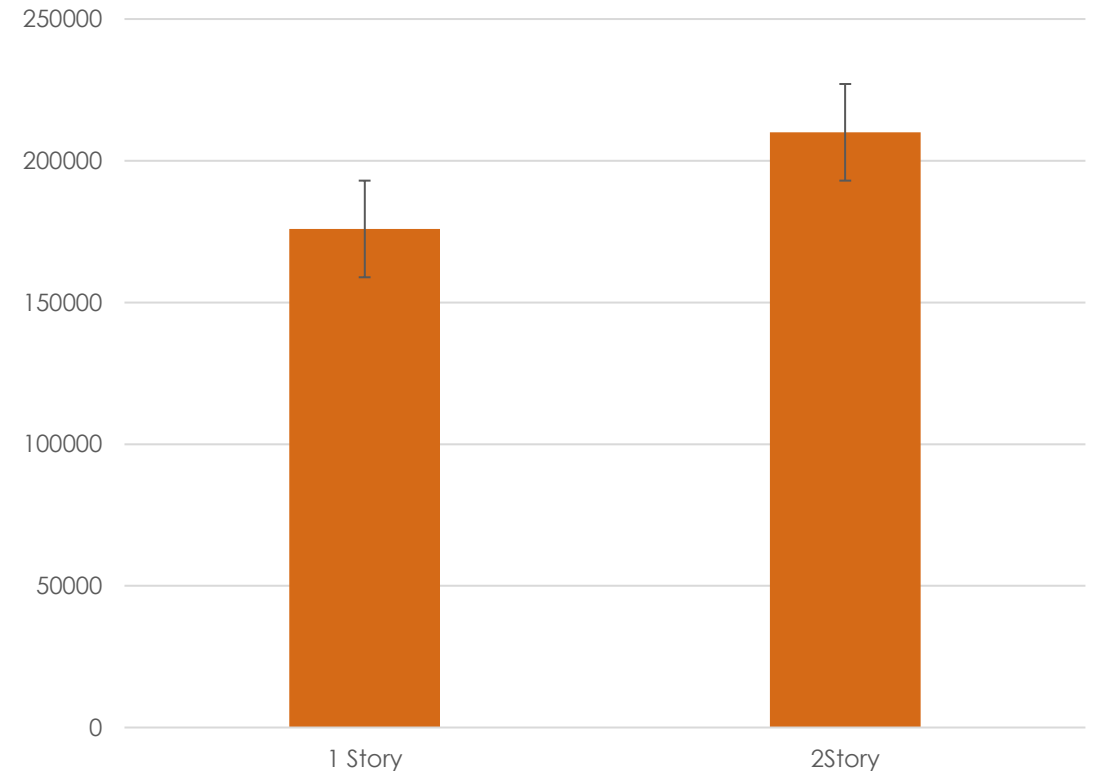
# ***Hypotheses***

- Statistically significant difference between single-story and two-story house style home sale price
- Statistically significant difference between Poured Concrete (Pconc) and Cinder block (Cblock) foundation home sale price
- Statistically significant difference between Kitchen Quality Typical/Average (TA) and Kitchen Quality Good (Gd) home sale price

# Analysis of one-story and two-story house sale price

- With 95% confidence, the average sales price for houses with the single story is between 24K to 44 K lower compared to houses with 2-story houses

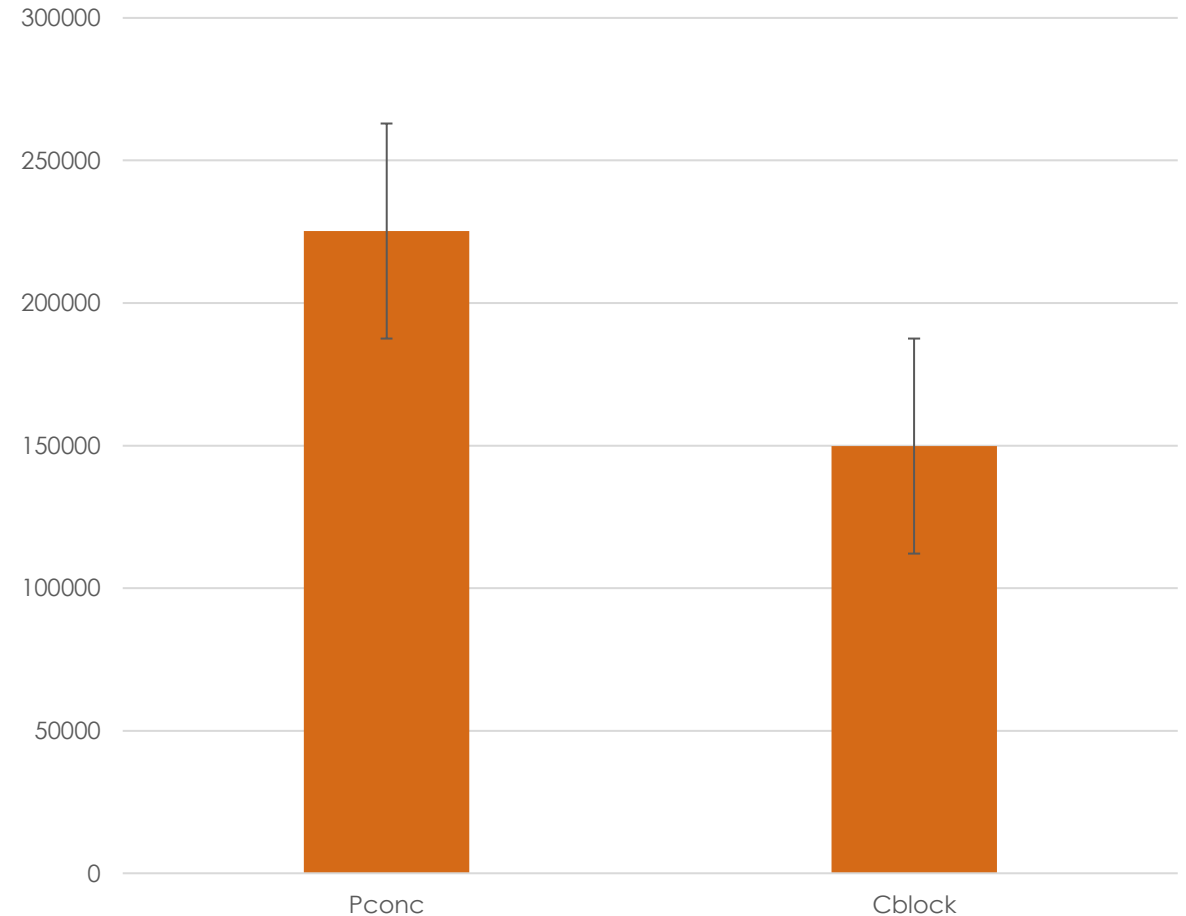
➡ **Conclusion: invest in houses with 2-story house**



# Analysis Pconc and Cblock foundation home sale price

- With 95% confidence, the average sales price for houses with Pconc is between 67K to 83K higher compared to houses with Cblock foundation

➡ **Conclusion: invest in houses with Pconc foundation**

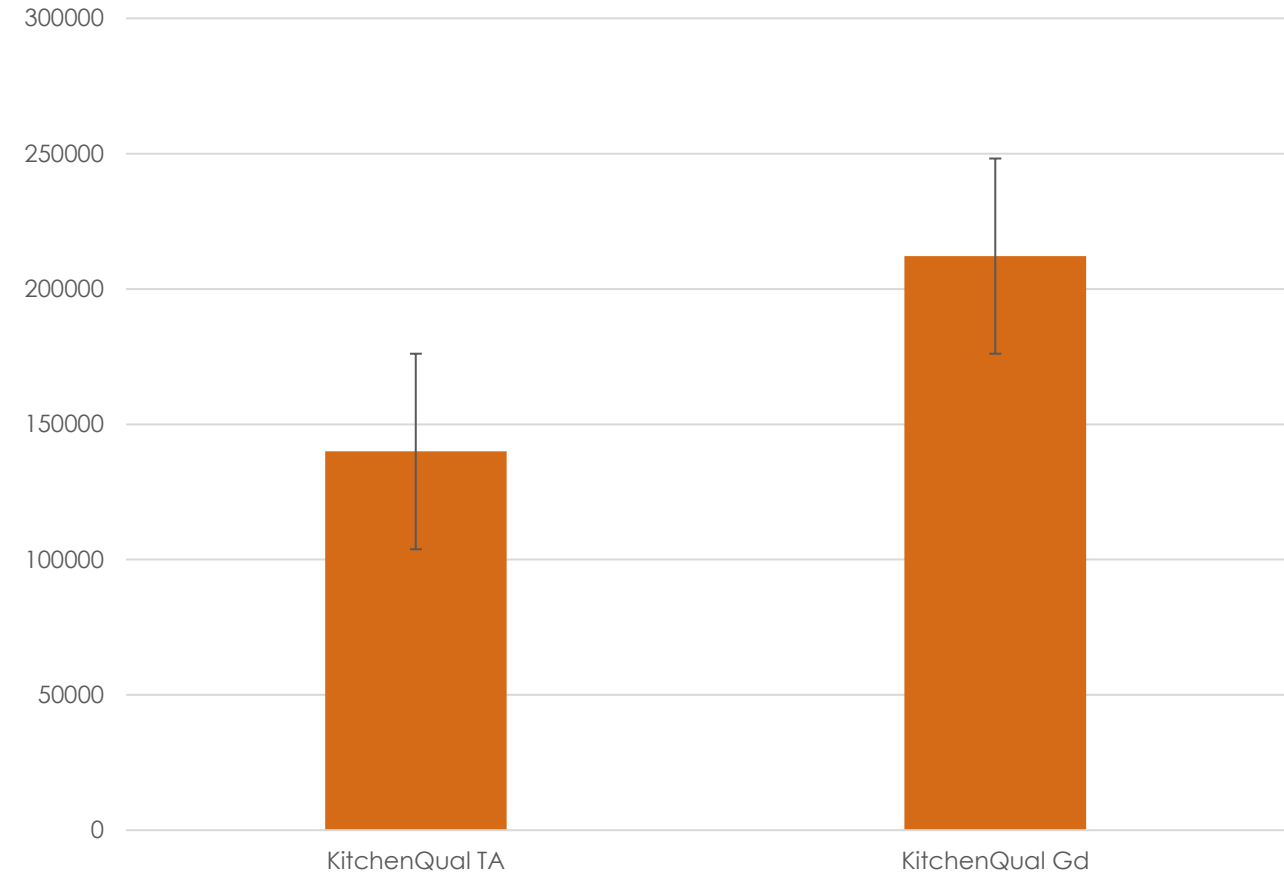




# Analysis kitchen qualities Typical/Average (TA) and KitchenQual Good (Gd) in home sale price

- With 95% confidence, the average sales price for houses with KitchenQual TA is between 78K to 66K lower compared to houses with KitchenQual Gd

➡ **Conclusion: invest in houses with KitchenQual Gd**



## ***Results with 95% confidence***

- The average sales price for houses with the one-story house is between 24K to 44 K lower compared to houses with 2-story houses
- The average sales price for houses with Pconc is between 67K to 83K higher compared to houses with Cblock foundation
- The average sales price for houses with KitchenQual TA is between 78K to 66K lower compared to houses with KitchenQual Gd

# ***Recommendations***

Invest in houses has the following features:

- Single-family house detached
- House quality rating 5-8
- Two-story house 1946 and newer
- House has poured concrete (Pconc) foundation
- House has kitchen quality good (KitchenQual Gd)

*For reference, the analysis workbook*



***Thank You***



# ***Appendix***

## ***Method for housestyles***

- Used pivot table filter house style with the sum of sales, inserted chart to see which style sale most.
- Using pivot tables filter by the one-story house and the two-story house
- Ran descriptive statistics
- Two samples of T-test between a one-story house and the two-story house
- Created chart visualization

## ***Method for Pconc and Cblock foundation***

- Used pivot table filter foundation with the sum of sales, inserted chart to see which foundation sold most.
- Using pivot tables filter by Pconc foundation house and Cblock foundation houses
- Ran descriptive statistics
- Two samples T-test between Pconc and Cblock foundation
- Created chart visualization

## ***Method for kitchen Qual TA and Kitchen Qual Gd***

- Used pivot table filter kitchenQual with the sum of sales, inserted chart to see which style sale most.
- Using pivot tables filter by kitchenQual TA house and kitchenQual Gd
- Ran descriptive statistics
- Two samples T-test between kitchenQual TA and kitchenQual Gd
- Created chart visualization