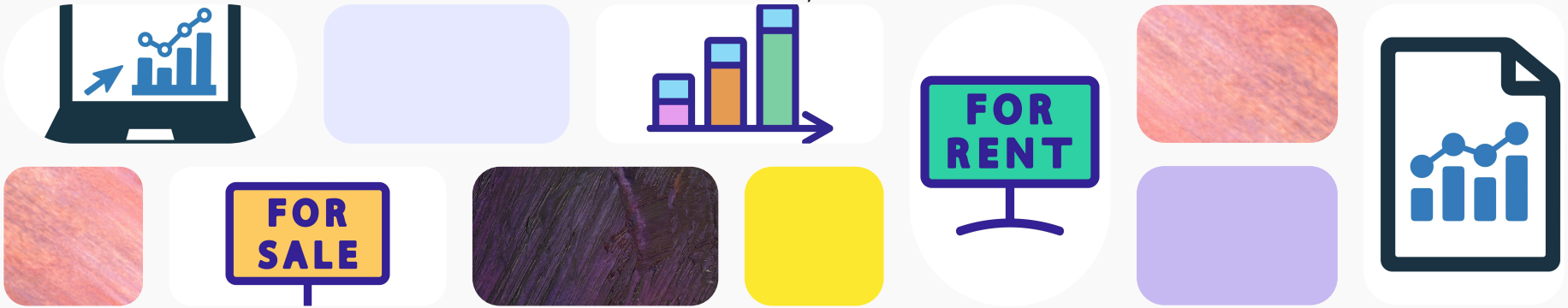
DATA SCIENCE HOUSEKEEPING PRESENTATION

Presented By: Amanda Farghli, Fatoumata Drammeh, Khadiza Khanom, Maisha Islam, Alexandr Voronovich, Sharmin Zaman

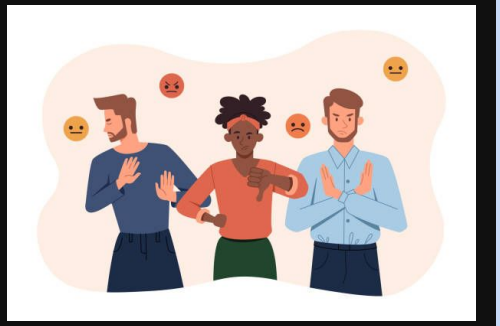
November 4th, 2025



AGENDA

1. Project Summary
2. Introduction of Problems
3. Method and Process
4. Datasets and Collection
5. The Data Visualization

BACKGROUND INFO



Lack of Prior Knowledge

Renters often rent think buying is not an option and buyers tend to buy, unaware of underlying costs and future problems. These issues stem from a lack of prior knowledge. A clear understanding of renting and buying costs can make all the difference.

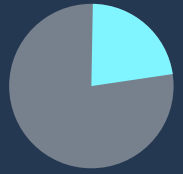
KEY PERFORMANCE INDICATORS

45% Renters who regret Renting

45%

8% of Buyers who regret Buying

8%



Needs and motivations

Rent takes up a lot of a person's income. Typically at least 1/3rd but many pay more.

With such high rent costs, and an even higher entrance fee of owning a house, it can be so overwhelming for a person to even start to consider if buying is an option for them. That's what we plan to solve

OUR MAIN OBJECTIVES

1

What is the problem?

With both rent and house prices rising, it's unclear which is the better option. What factors are in play to make it the better option?

2

Who needs it?

Any young-adult looking into a one-stop shop resource that will help them factor when would be the best time to buy or continue renting

3

Our Solution

A quick, fast, and simple information hub for a person to be able to discern whether renting or buying is better for their situation.

TEAM HOUSEKEEPING

HOW WE CAN HELP

Our project sets to build confidence in users and provide them the knowledge of knowing what to consider as they rent or buy.

By factoring in average rent costs, average home costs, insurance rates, mortgage interest rates, cost of livings indexes across NYC and New York State as a whole, we offer a one-stop shop for all users

OBSTACLE

Obstacles to consider is how exhaustive our data is and how to present it.

We currently have data separated into zip codes, counties, boroughs and more.

More work needs to be done to pinpoint how to present the data.

Methodology

Week 7-8

Identify our Problem

We realized a problem, and figured we could probably find a solution for it. Over the week we brainstormed ways we could potentially help New Yorkers easily figure out whether they should want to rent or buy.

Week 8-11

Extract and Transform Data

We are in the process of obtaining various data such as Rent vs Buy, Mortgage Rates, Insurance Rates, Income, Consumption Rates & Property Taxes.

We plan to look into data that is segmented by either county, borough, zip code and whether it's in the city or greater state of New York

Week 12 -15

Observe trends, and train model

Using our data we will look into better understanding the various factors that would go into determining whether renting or buying outright is preferable.

Week 13 -15

Create our Visualizations

We plan to create visualizations, on tableau with our findings. These will serve as an efficient way for people to visualize what factors go into the predictions.

Week 16

Present our Findings

With all our visualizations and info, we will present our findings and present our solution. After this, we hope that New Yorkers will have a simple way of confidently deciding whether they want to rent or buy.

DATASETS
WE WILL NEED

Rent Rates

Buy Rates

Insurance Rates

Income

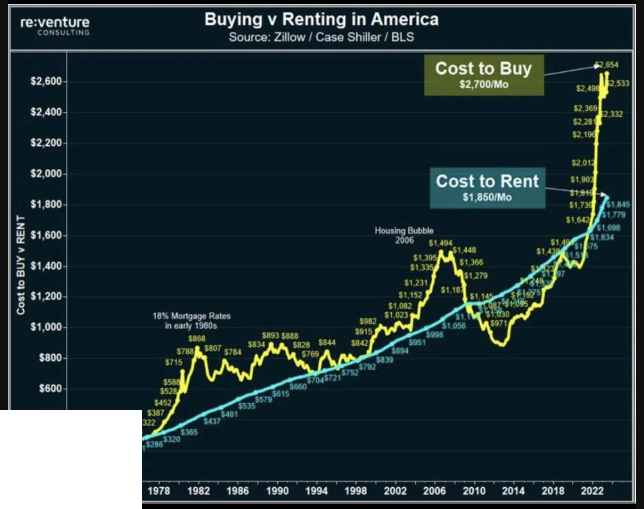
Consumption Rates

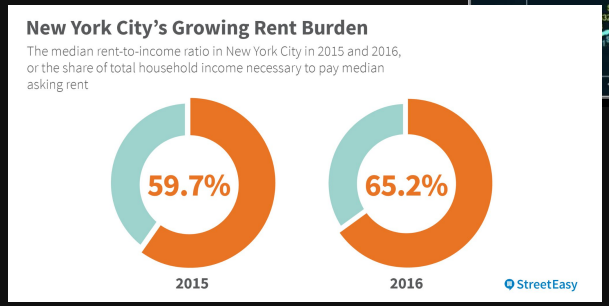
Property Taxes

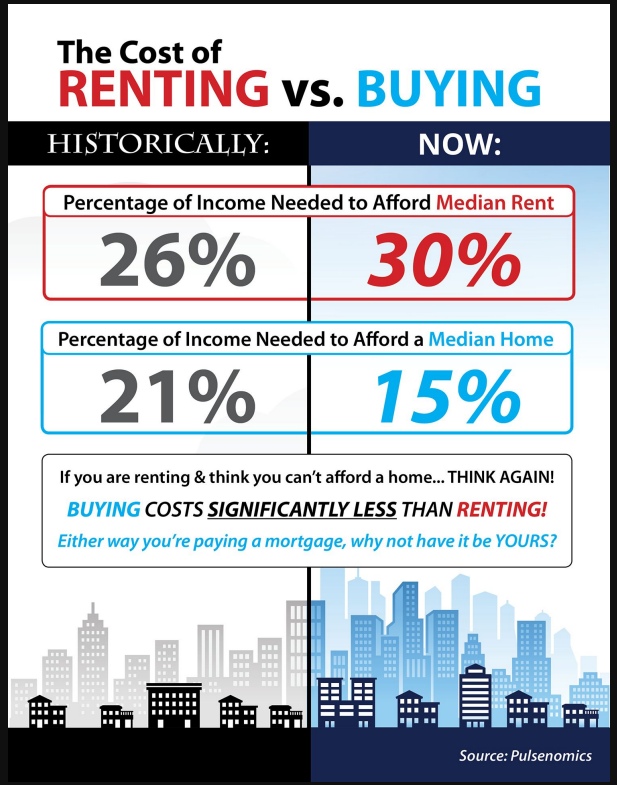
PROGRESS

What data we've pulled so far, and how	We've pulled data from a various of sources such as Zillow's housing data, formally named "Zillow Home Value Index" (ZHVI) and "Zillow Observed Rent Index" (ZORI) direct data.
What data we are still trying to pull	We've also requested API access to Zillow to obtain Mortgage Rates but are looking for other sources.
How we intend to clean it	Data cleaning: Use pandas to load the JSON into a DataFrame (pandas.json_normalize) and clean missing values, rename columns, etc.
How do we plan to visualize it	The data we've cleaned and transformed will be saved into a CSV file and then loaded into Tableau for dashboards.

Tableau


re:venture
CONSULTING
Buying v Renting in America
Source: Zillow / Case Shiller / BLS
Cost to Buy
$2,700/Mo
Cost to Rent
$1,850/Mo
Housing Bubble
2006
18% Mortgage Rates
in early 1980s
Cost to BUY v RENT
$2,600
$2,400
$2,200
$2,000
$1,800
$1,600
$1,400
$1,200
$1,000
$800
$600
1978
1982
1986
1990
1994
1998
2002
2006
2010
2014
2018
2022


New York City's Growing Rent Burden
The median rent-to-income ratio in New York City in 2015 and 2016, or the share of total household income necessary to pay median asking rent
59.7%
65.2%
2015
2016
StreetEasy


The Cost of
RENTING vs. BUYING
HISTORICALLY:
NOW:
Percentage of Income Needed to Afford Median Rent
26%
30%
Percentage of Income Needed to Afford a Median Home
21%
15%
If you are renting & think you can't afford a home... THINK AGAIN!
BUYING COSTS SIGNIFICANTLY LESS THAN RENTING!
Either way you're paying a mortgage, why not have it be YOURS?
Source: Pulsenomics

MEMBER ROLES

Fatoumata Drammeh

- Extract/Pull data for consumption rates and property tax
- Contribute to tableau visualizations
- Contribute to training data model with Python

Maisha Islam

- Transform data for consumption rates and property tax
- Contribute to tableau visualizations
- Contribute to training data model with Python

Amanda Farghli

- Extract/Pull data for rent rates and buy rates
- Contribute to tableau visualizations
- Contribute to training data model with Python

Khadiza Khanom

- Transform data for rent rates and buy rates
- Contribute to tableau visualizations
- Contribute to training data model with Python

Alex Voronovich

- Extract/Pull data for insurance rates and income
- Contribute to tableau visualizations
- Contribute to training data model with Python

Sharmin Zaman

- Transform data for insurance rates and income
- Contribute to tableau visualizations
- Contribute to training data model with Python

THANK YOU!