



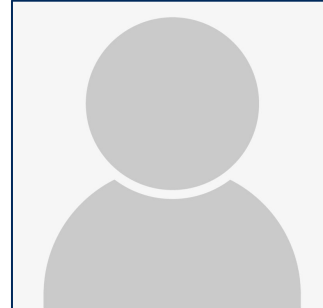
# Milwaukee Property Search Dashboard

Data visualization project using SQLite, Python, MongoDB, Flask, JS, HTML, ML

# Presenters



Elle Behnia



Navneet Kaur



Vivek Sarraf



Ajunjee Selvam

# Project Objective

Interactive UI that provides information on Milwaukee property listings to help users make informed decisions for purchasing residential properties within this area.

- **Milwaukee Property Insights:**
  - Get immediate access to detailed property information predicted 2025 house price
- **Customizable Searches:**
  - Filter properties by the number of bedrooms to find exactly what you need.
- **User-Friendly:**
  - Designed for simplicity, our dashboard makes finding and analyzing Milwaukee properties intuitive and effective.

# Dataset and Limitations

**No Free Toronto dataset found for our requirements!**

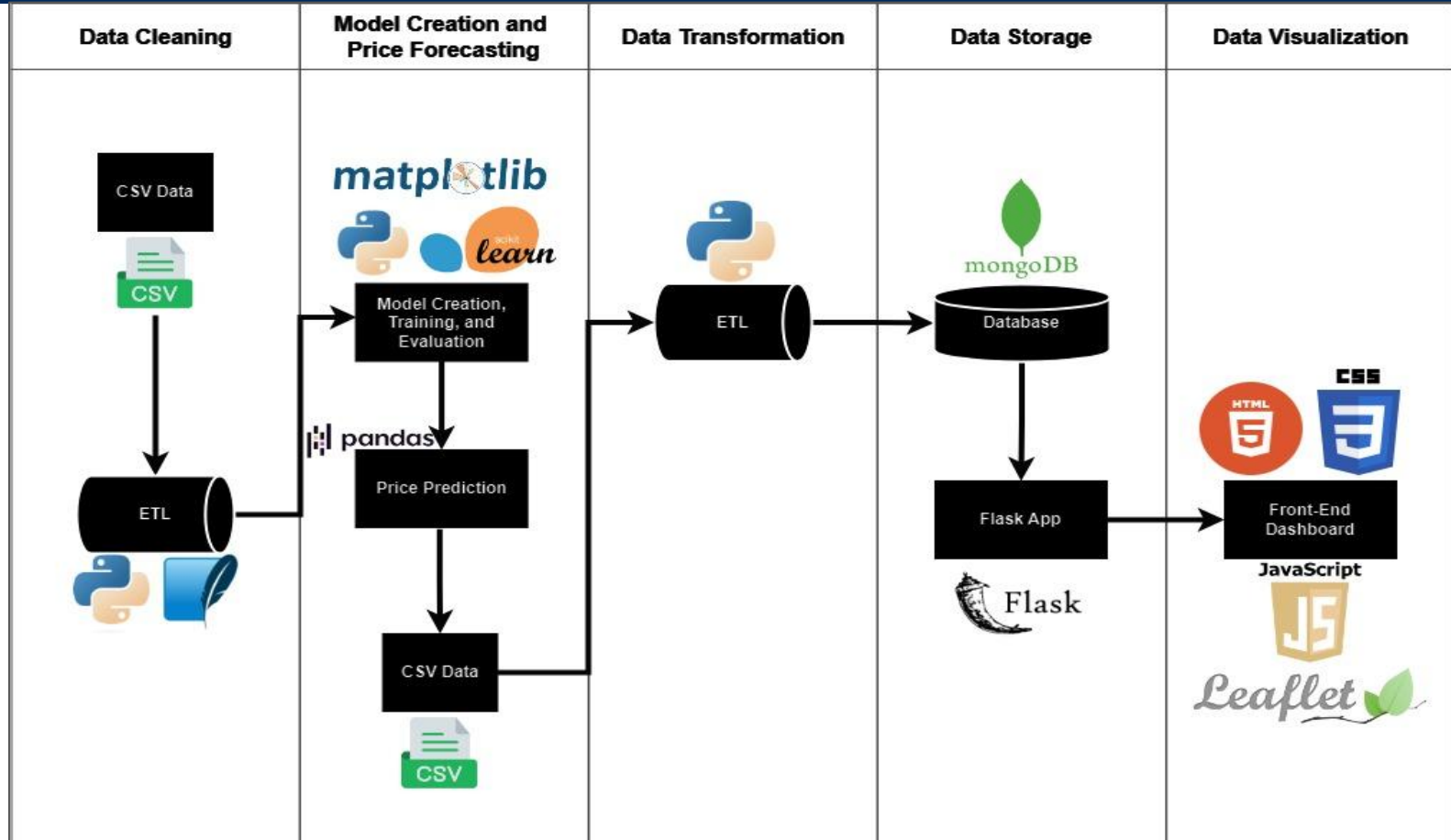
## **Dataset 1: Milwaukee Open Data - Individual Property Sales Data from 2013 to 2023**

- ~46,000 records before cleaning → ~37,000 records after cleaning
- Columns: 'district', 'nbhd', 'style', 'extwall', 'stories', 'year\_built', 'rooms', 'finishedsqft', 'units', 'bdrms', 'fbath', 'hbath', 'lotsize', 'sale\_date', 'sale\_price'
- Issues: null values, 0s, and incomplete/inaccurate data

## **Dataset 2: Kaggle - 2023 United States House Listings: Zillow Extract**

- Filtered for Milwaukee
- Columns: 'finishedsqft', 'bdrms', 'baths', 'lotsize', 'state', 'city', 'address', 'zipcode', 'latitude', 'longitude', 'ppsq', 'convertedlot', 'lotunit', 'marketestimate', 'rentestimate', 'price'
- Issues: null values, 0s, incomplete data
  - Required manual population based on similar characteristics
  - Large difference in features may result in inaccurate 2025 house price forecast predictions

# Architecture



# Data Model Optimization

Model Information	Performance
Linear Regression <ul style="list-style-type: none"><li>- Trained with all 53 input features</li></ul>	Accuracy: 0.55 Mean Squared Error: 3657767974.09

# Data Model Optimization - Coefficients and P-Values

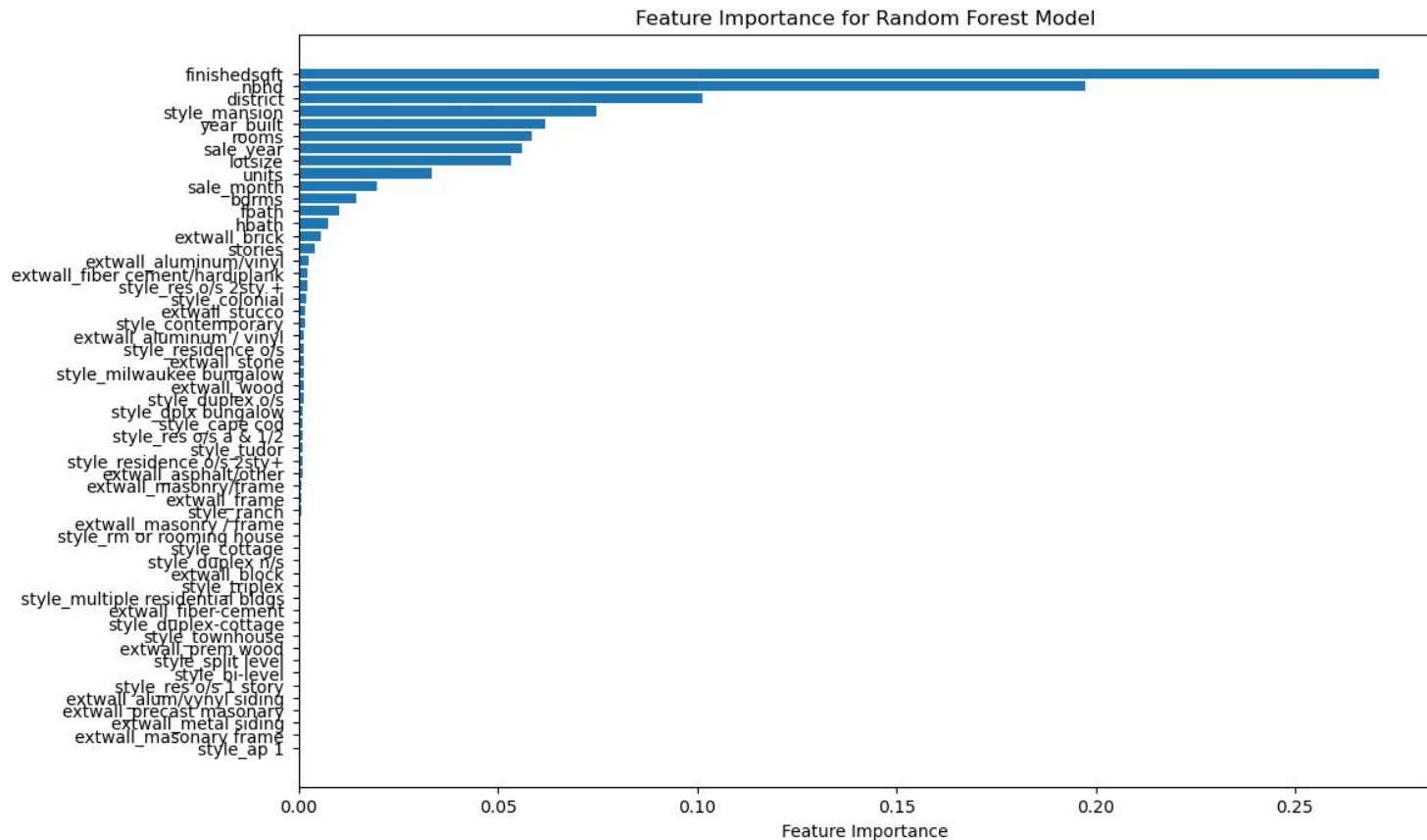
	Coefficient	p-value
district	-2.249098e+03	1.998269e-73
nbhd	2.292663e+01	0.000000e+00
stories	1.322653e+04	1.220916e-12
year_built	2.111880e+02	8.306841e-13
rooms	1.476720e+02	3.422613e-01
finishedsqft	7.278040e+01	0.000000e+00
units	-4.933133e+04	3.369052e-36
bdrms	-8.492239e+01	7.903038e-03
fbath	3.337901e+04	0.000000e+00
hbath	1.762184e+04	2.684586e-108
lotsize	1.782317e+00	2.171756e-76
sale_year	1.010315e+04	0.000000e+00
sale_month	7.463099e+02	5.250358e-11
style_ap 1	-5.886605e+05	1.835462e-19
style_bi-level	-8.193872e+05	0.000000e+00
style_cape cod	-8.121571e+05	0.000000e+00
style_colonial	-8.114070e+05	0.000000e+00
style_contemporary	-6.379182e+05	3.126325e-132
style_cottage	-8.334216e+05	0.000000e+00
style_dplx bungalow	-8.577632e+05	0.000000e+00
style_duplex n/s	-8.492868e+05	0.000000e+00
style_duplex o/s	-8.564366e+05	0.000000e+00
style_duplex-cottage	-8.699977e+05	0.000000e+00
style_mansion	-4.341570e+05	1.168804e-124
...		

# Data Model Optimization

Model Information	Performance
<b>Random Forest Regressor</b> <ul style="list-style-type: none"><li>- Trained with all 53 input features</li></ul>	<b>Accuracy: 0.8365</b> <b>Mean Squared Error: 1497358586.32</b>



# Data Model Optimization - Feature Importance



# Live Demonstration

Minimum Number of Bedrooms: 4

Submit

+

-

Street

Topography

All Properties

Address	City	State	Zip Code	SQFT	Bedrooms	Price
North Sherman BOULEVARD UNIT 4326	Milwaukee	WI	53216	1500	4	124900
West Good Hope ROAD	Milwaukee	WI	53224	1816	5	249900
North Sherman BOULEVARD	Milwaukee	WI	53216	1972	4	163300
West Green Tree ROAD	Milwaukee	WI	53223	2007	4	205000
North 85th STREET	Milwaukee	WI	53222	2118	5	334900

Address	City	State	Zip Code	Style	External Walls	Year Built	SQFT	Lot Size	Bedrooms	Bathrooms	Price	2025 Price Prediction
North Sherman BOULEVARD UNIT 4326	Milwaukee	WI	53216	ranch	aluminum / vinyl	1969	1500	27007.2	4	2	124900	232054.75

# Future Improvements

- Toronto data
  - More relevance and applicability
- Paid datasource
  - Data reliability and completeness
- Dashboard Improvements
  - Additional filter logic
  - Other points of interests
    - POIs in the vicinity of the selected property
  - Styling and layout

**Thank you! Questions?**