Milwaukee Property Search Dashboard

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

Presenters

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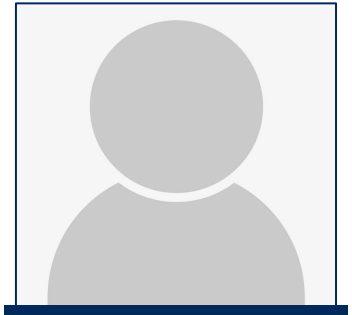
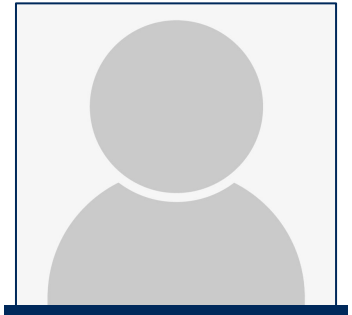
Navneet Kaur



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 !

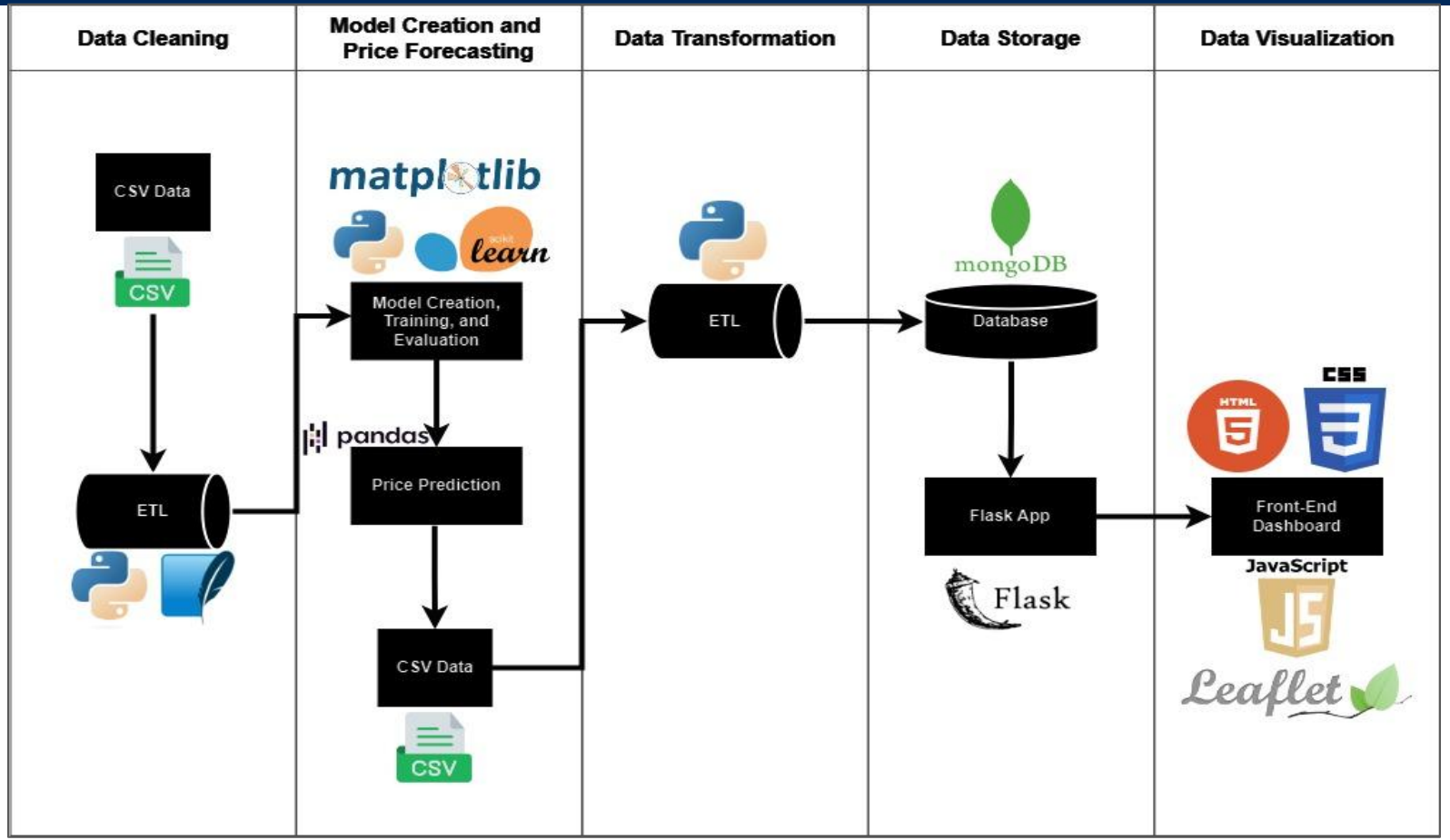
Dataset 1: Milwaukee Open Data - Individual Property Sales Data from 2013 to 2023

- ~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 - Trained with all 53 input features	Accuracy: 0.55 Mean Squared Error: 3657767974.09

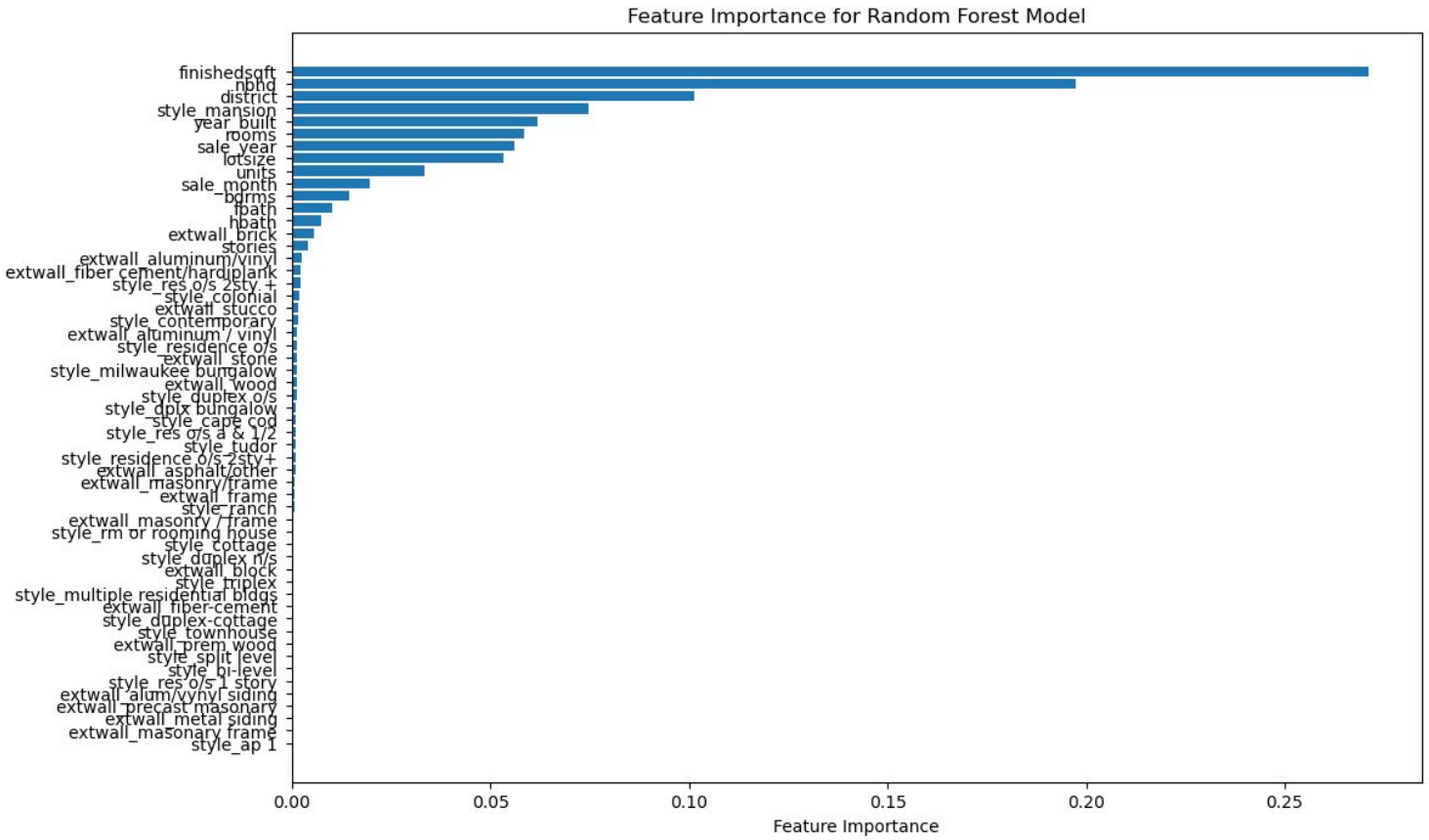
Data Model Optimization - Coefficients and P-Values

	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

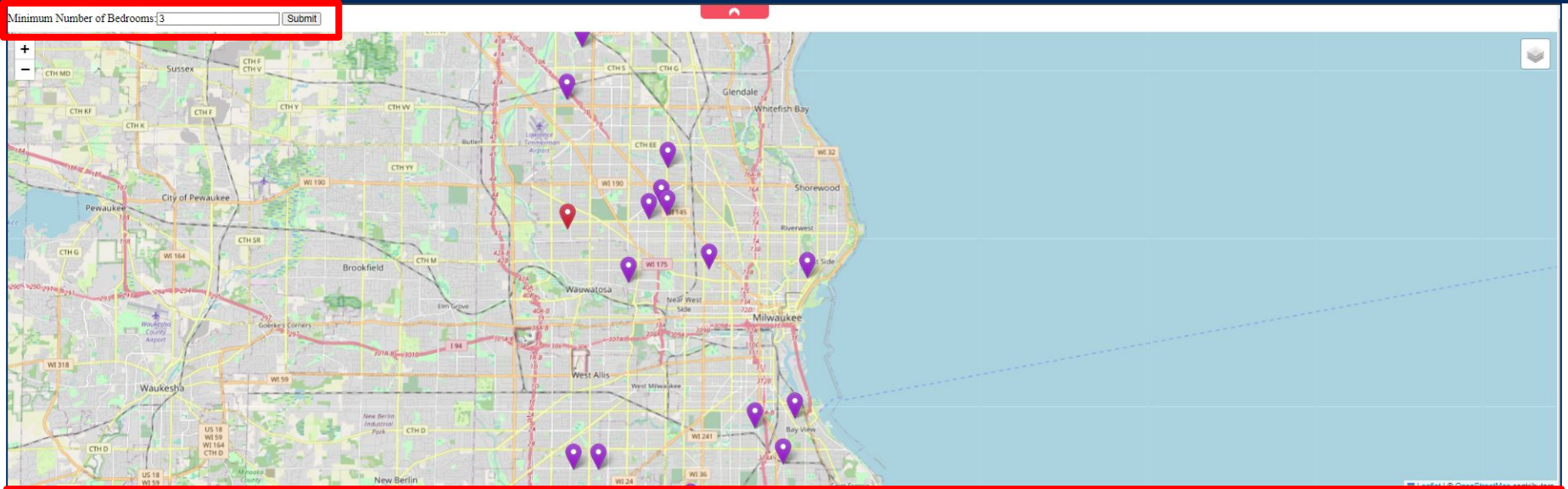
Model Information	Performance
Random Forest Regressor - Trained with all 53 input features	**Accuracy: 0.8365** **Mean Squared Error: 1497358586.32**

Data Model Optimization - Feature Importance



Live Demonstration

Minimum Number of Bedrooms: 3 Submit



Address	City	State	Zip Code	SQFT	Bedrooms	Price
North Sherman BOULEVARD	Milwaukee	WI	53216	1972	4	163500
West Green Tree ROAD	Milwaukee	WI	53223	2007	4	205000
North 85th STREET	Milwaukee	WI	53222	2118	5	334900
SE Mabel Ave	Milwaukie	OR	97267	2287	3	399900
North 50th STREET	Milwaukee	WI	53216	2739	5	260000

Address	City	State	Zip Code	Style	External Walls	Year Built	SQFT	Lot Size	Bedrooms	Bathrooms	Price	2025 Price Prediction
North 85th STREET	Milwaukee	WI	53222	cape cod	brick	1961	2118	5227.2	5	3	334900	381415.01

Future Improvements

- Toronto data
  - More relevance and applicability
- Paid datasource
  - Data reliability and completeness
- Dashboard Improvements
  - Additional filter logic
  - Other points of interests
  - Styling and layout

Thank you! Questions?