

USA

HOUSING MARKET ANALYSIS

YOGESH PATIL

2023



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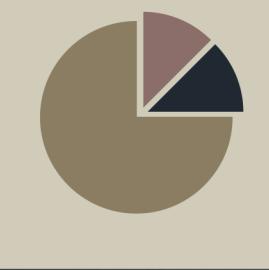
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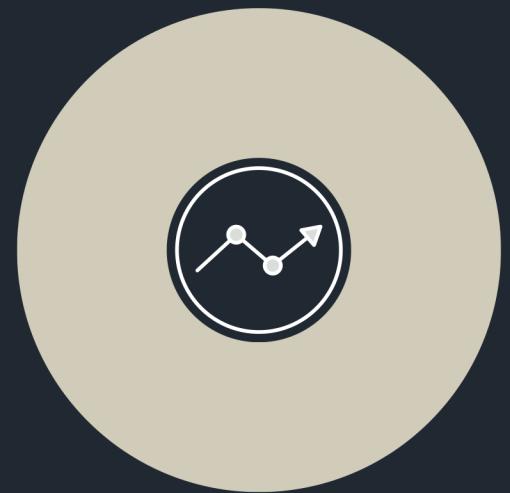
IMPORTANT LINKS

Please follow **links** for better
understanding



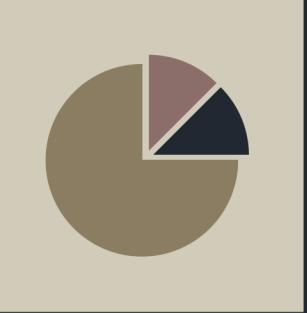
TECHNICAL ANALYSIS

*US Housing Analysis 2003-
2023*



DASHBOARD

*US Housing Market
Dashboard*



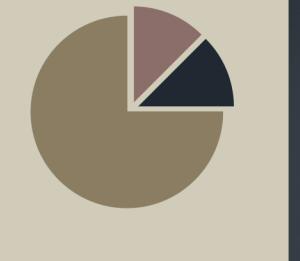
TOOLS USED

TECHNICAL ANALYSIS

PYTHON (MATPLOTLIB,
SEABORN, PANDA, NUMPY,
PLOTLY)

DASHBOARD

TABLEAU



APPROACH AND PROCESS



TECHNICAL ANALYSIS

Utilized Python for technical analysis and visualization.



KEY MODELS

Linear Regression, Random Forest, Gradient Boosting.



VISUALIZATION

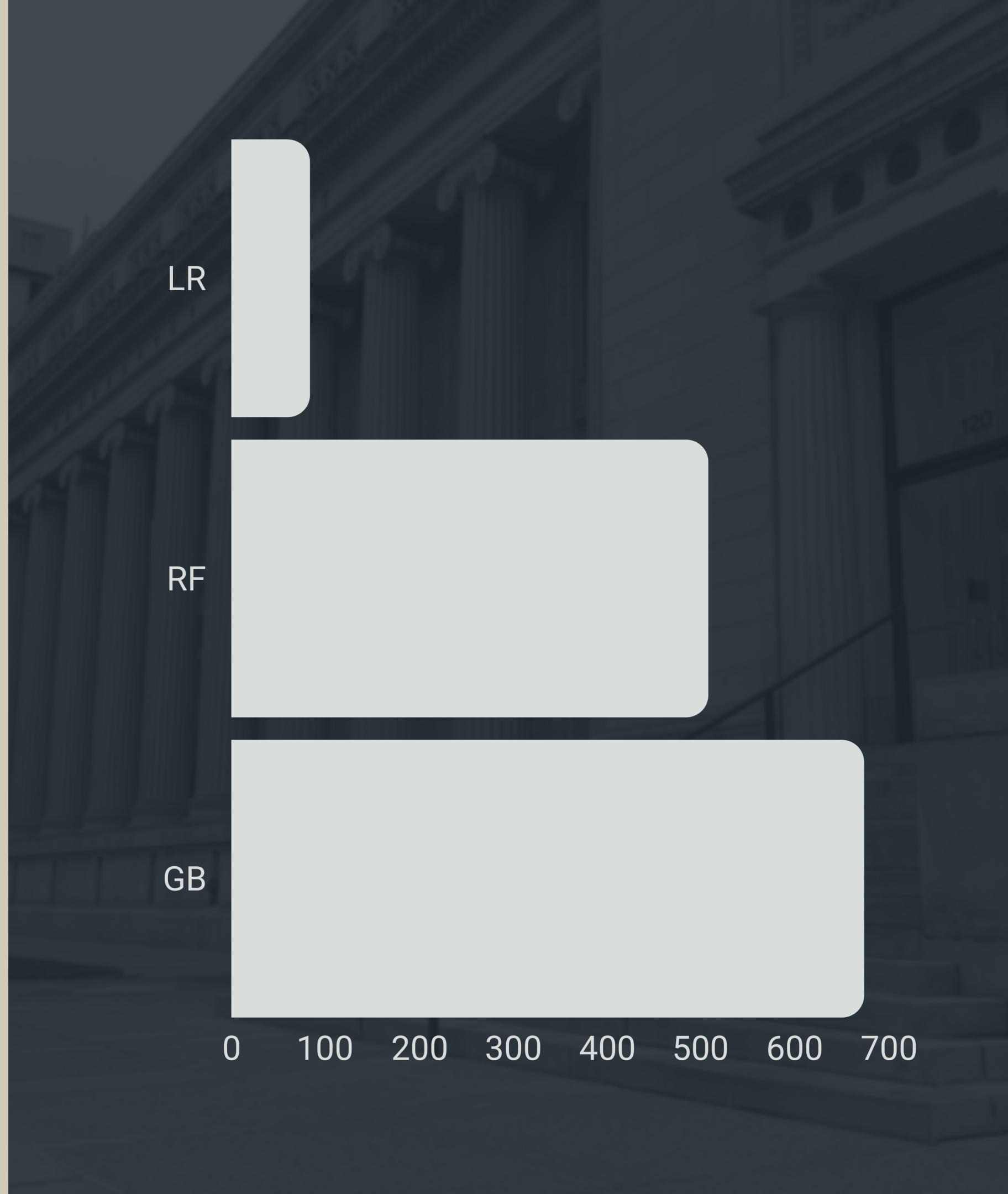
Tableau for dashboard visualization.

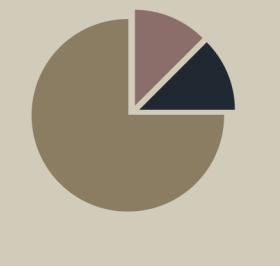


BEST DATA MODEL

Linear Regression

Linear Regression demonstrated superior performance with a **Mean Squared Error** of **83.58**.





TOP IDENTIFIED RATING FACTORS

Factors that affect the Housing Price Index based on co-relation

Median Household Income

MEHOINUSA646N

5/5

Urban Population

Urban Population

4/5

Total Construction Spending

TLRESCONS

5/5

Total Housing Units

ETOTALUSQ176N

4/5

Median Sales Price of Houses Sold

MEHOINUSA646N

5/5

GDP Per Capita

GDP Per Capita

4/5

INSIGHTS

POSITIVE CORRELATIONS

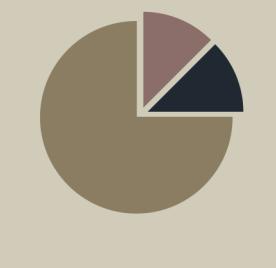
Strong positive correlations between economic indicators and the Home Price Index.

Median Household Income, Total Construction Spending, Median Sales Price of Houses Sold, Urban Population, GDP Per Capita, Total Housing Units.

NEGATIVE CORRELATIONS

Negative correlations between economic indicators and the Home Price Index.

30-Year Fixed Rate Mortgage Average (MORTGAGE30US), 15-Year Fixed Rate Mortgage Average (MORTGAGE15US)



RECOMMENDATIONS

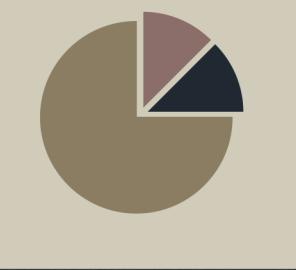
<p>Focus on Economic Growth: Prioritize initiatives fostering economic development for a healthy housing market.</p>	<p>Affordability Measures: Monitor and address factors influencing interest rates for increased homebuyer demand.</p>
<p>Income and Housing Affordability: Support income growth and affordable housing initiatives.</p>	<p>Market Monitoring: Balance housing supply and demand to avoid price bubbles.</p>
<p>Risk Management in Mortgage Rates: Acknowledge weak negative correlations and implement risk management strategies.</p>	<p>Construction and Housing Supply: Prioritize initiatives fostering economic development for a healthy housing market.</p>

CHALLENGES

ADDRESSING POTENTIAL SHIFTS IN
THE HOUSING MARKET DUE TO
ECONOMIC FLUCTUATIONS.

SOLUTIONS

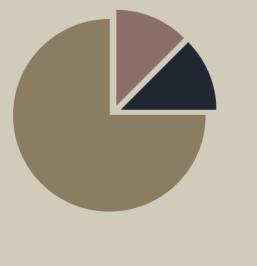
IMPLEMENT PROACTIVE
MONITORING AND ADJUSTMENT
STRATEGIES BASED ON ECONOMIC
INDICATORS AND KEY FACTORS.



CONSIDERATIONS

Observed correlations with mortgage rates (weak negative), requiring attention to potential interest rate changes.

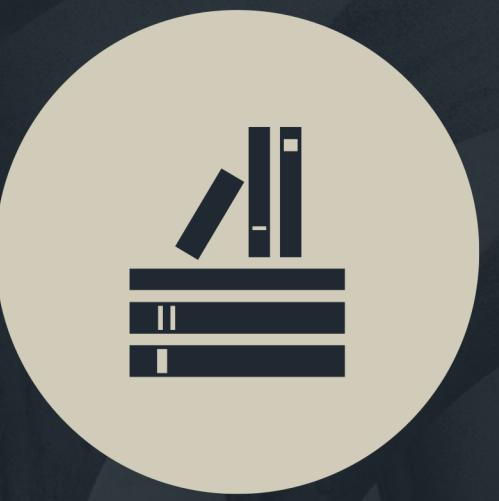
Emphasized the importance of monitoring median sales prices, construction spending, and employment levels for early-warning signals.



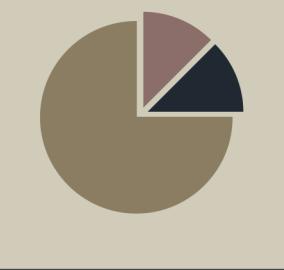
DATA SOURCES



Federal Reserve
Economic Data (FRED)



International Monetary
Fund (IMF) Data



REFERENCE AND HELPING LINKS

- [Home LLC Housing Market Insights](#)
- [J.P. Morgan Real Estate Insights](#)
- [Impact of Interest Rates on House Prices](#)
- [Congressional Research Service \(CRS\) Report](#)
- [Investopedia: How Does Law of Supply and Demand Affect Housing Market](#)

**THANK
YOU**