

Visualizing Real Estate Data

Presented by:
Krishna, Anna, Mahalel & Muneeb

Introduction
Exploring Housing Market Insights: Income Levels vs. House Values, House Size Impact on Prices, and Weather Effects on Sales. Using 2022 home sales data and weather information to create visual insights for buyers, investors, and researchers.

Solutions

- Data stored in SQL schema for reference and access
- Dataset originally in CSV format
- Utilized Jupyter notebook for sorting and filtering
- Utilized Pandas/Postgres SQL for storage and querying
- Utilized APIs for map layers and weather data access
- Used Plotly for temporal visualization
- Used Leaflet for 3D map display and color coordination

Our Approach

- Clear representation of proposed questions on the dashboard
- Focus on real estate information in U.S. real estate datasets
- Utilized geographical coordinates of sold homes in datasets
- Vizuals aimed at enhancing home layer representation
- Focus on researching country locations for potential home buyers

Weather Impact on Real Estate Market

The Weather Impact on Real Estate Market section displays the relationship between weather conditions and real estate prices. It includes a scatter plot showing the correlation between average monthly temperature and average home price, and a chart showing the impact of different weather patterns on property values.

Real Estate Agencies Performance Chart

The Real Estate Agencies Performance Chart displays the financial performance of various real estate agencies over time. It includes a bar chart showing the total sales volume and a line chart showing the growth rate of sales.

Average Prices of sales in Schaumburg, Illinois

The Average Real Estate Price Chart illustrates the average property prices across various cities. It ranks cities based on average property prices, highlighting the highest and lowest priced cities. This chart helps in understanding the real estate market dynamics and pricing trends across different locations.

Key Insight : A positive but very weak correlation indicating that households that have make more in income, choose to purchase homes in the lower price ranges

Key Insight: No correlation between the household income and home prices indicating that the household income is not a concern in these states when purchasing a home

Limitations & Considerations

Data is for one specific year and markets can change over time.
Validity of authenticity of the dataset as it was obtained from Google.
Since the data did not contain household income, we had to resort to using ZIP codes as a proxy.
Ethical consideration of privacy of real estate data.
Ensuring fair representation of all states avoiding any biases.

Future Work Scope

- Consider including additional factors such as crime rates, economic factors, and more.
- Expand the dataset to incorporating more countries to achieve a comprehensive global perspective.
- Utilize machine learning models on the current dataset, such as house size and acreage, to enrich the analysis and insights.

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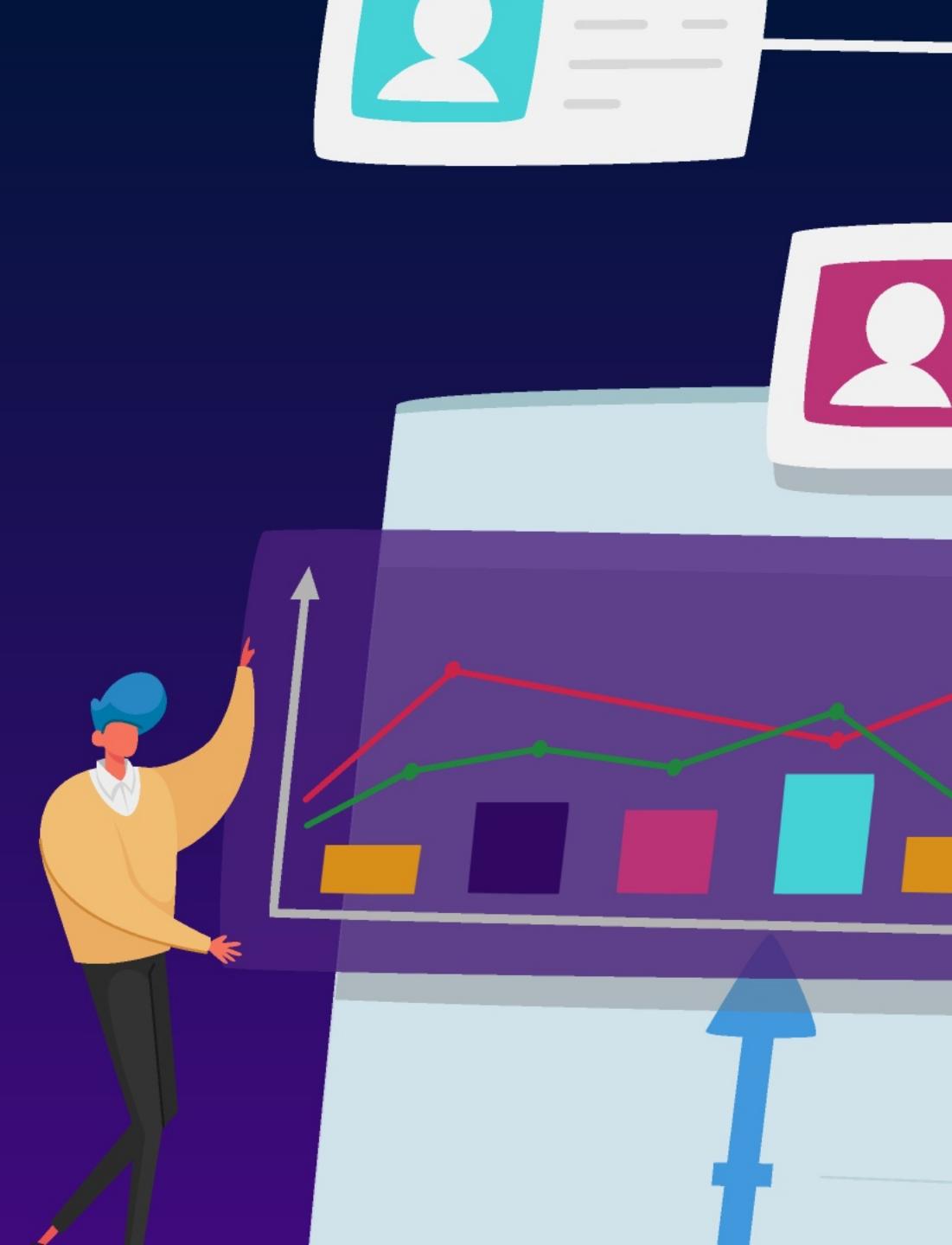
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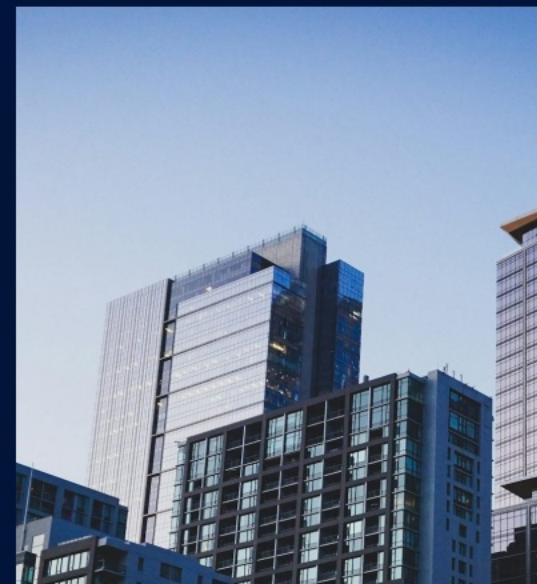
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Gauging the market

- Understand relationships within the housing market
- Analyze income brackets versus property values
- Explore the correlation between house sizes and price ranges
- Examine average sales prices and popular agencies
- Consider weather's impact on home sales and overall sales





Who would be interested?



Homebuyers: Help make an information decision

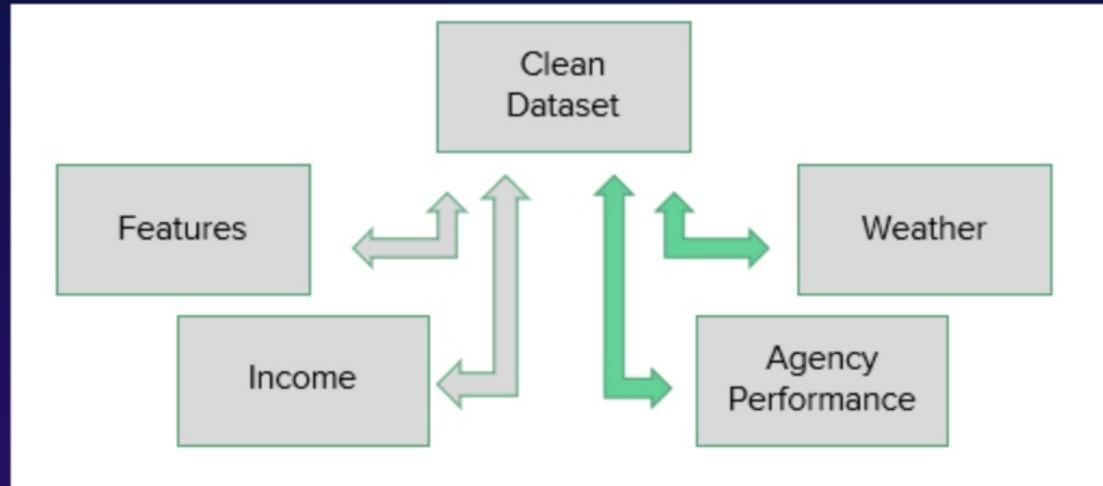


Real estate investors/developers: Narrow down high value areas based on presented trends



Climate researchers: Study the effects of climate change on the real estate markets

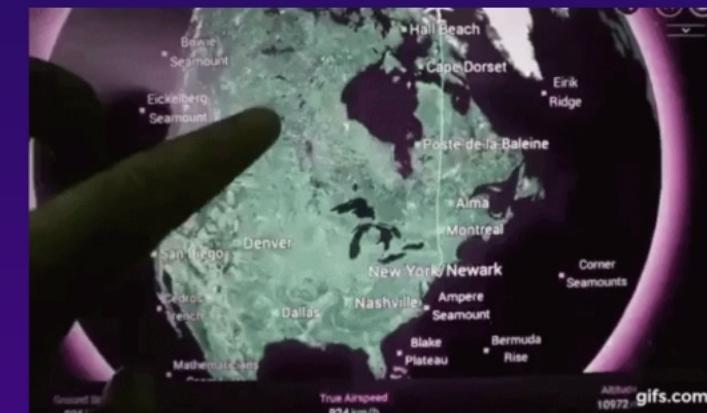
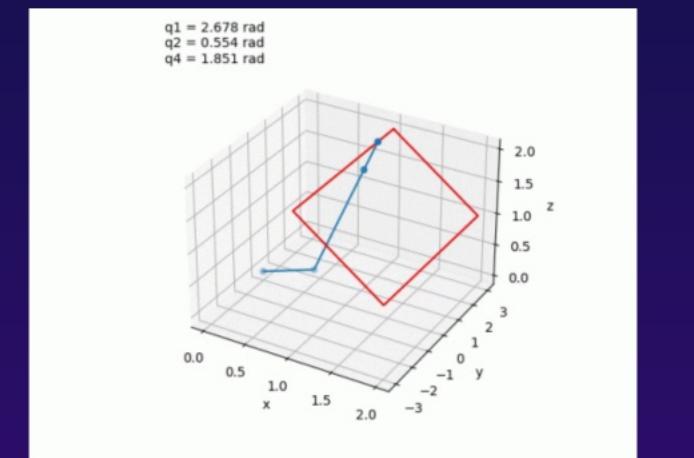
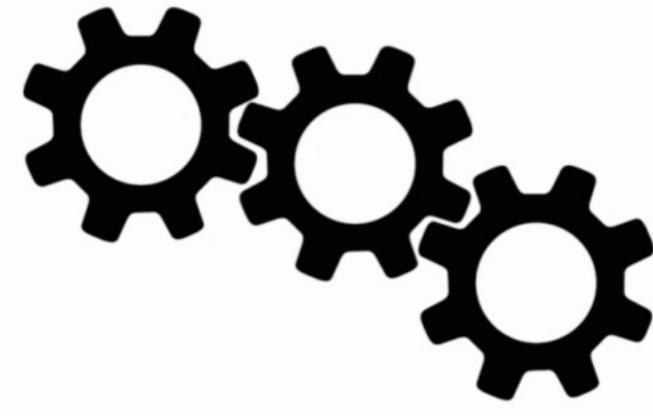
Our Approach



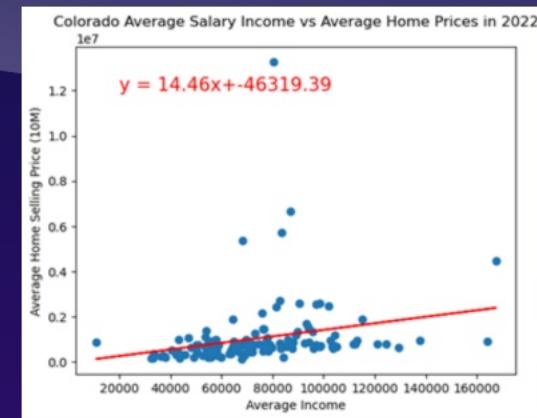
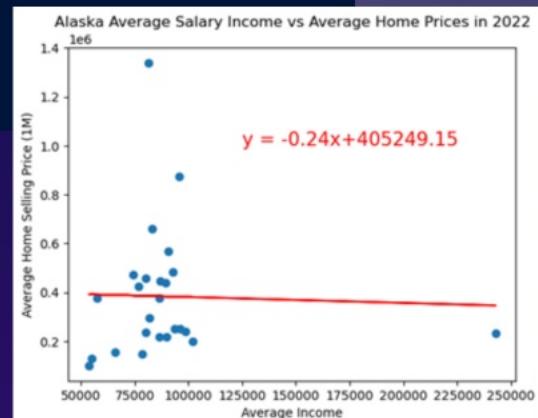
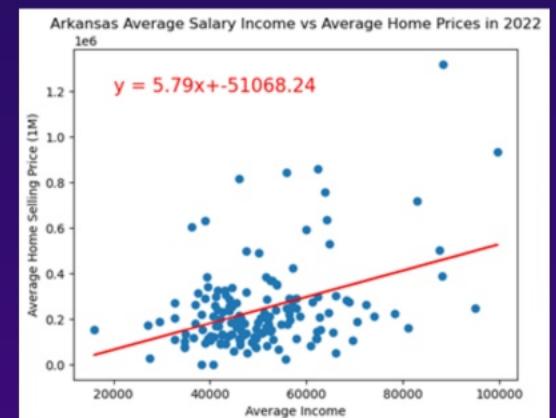
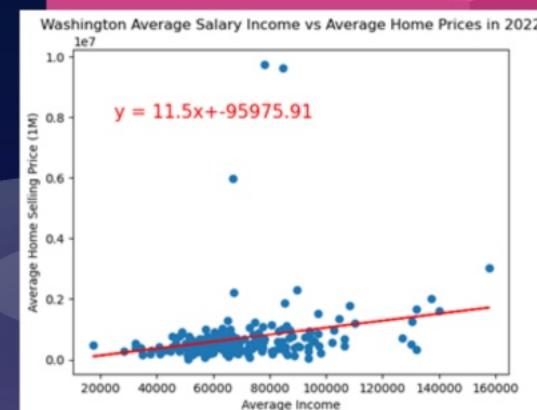
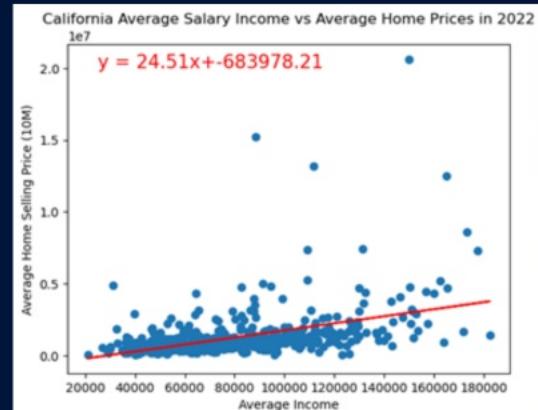
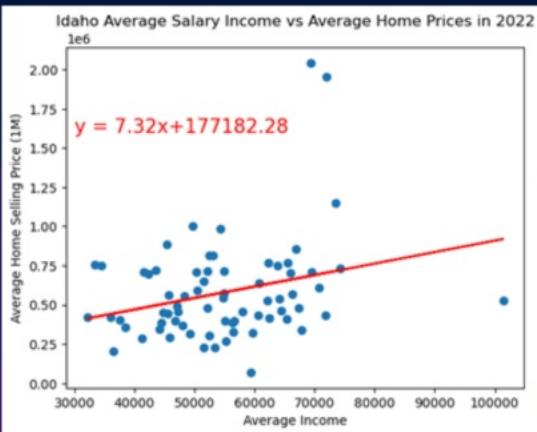
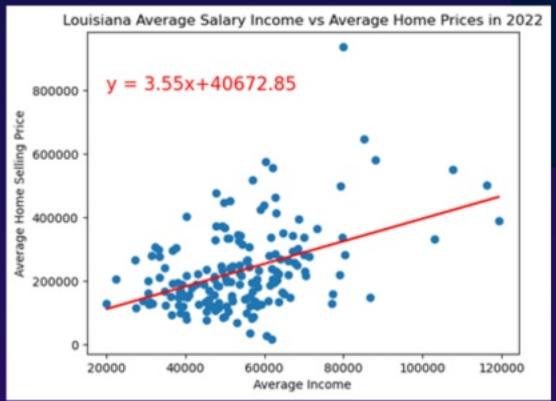
- Clean representation of proposed questions in data
- Limited interstate information in U.S. real estate datasets
- Missing geographic coordinates of sold homes in datasets
- Visuals aimed at enhancing home buyer experience
- Focus on researching country locations for potential home buyers

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- Dataset originally in CSV format
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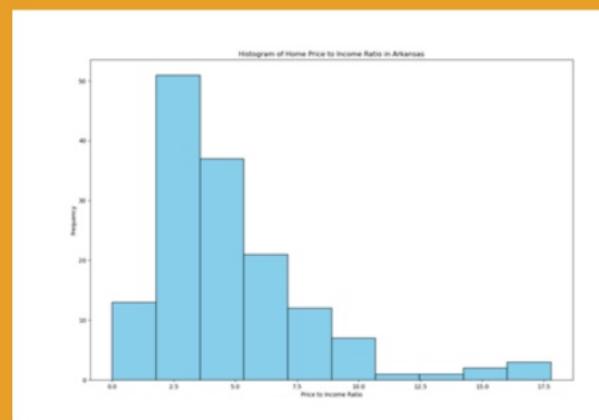
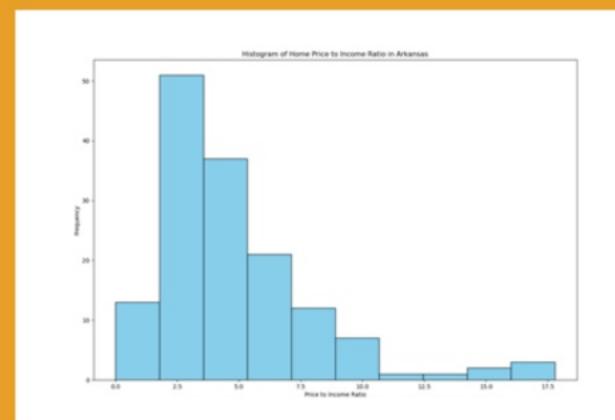
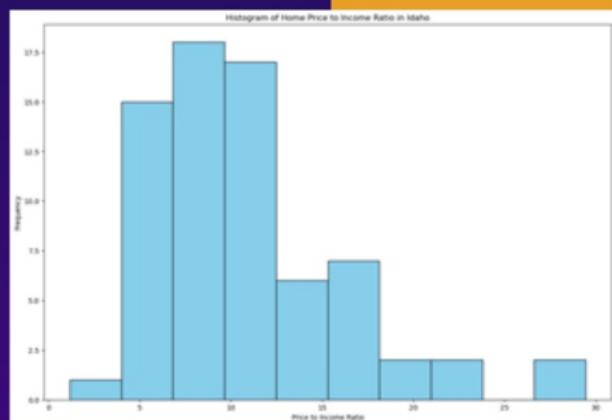
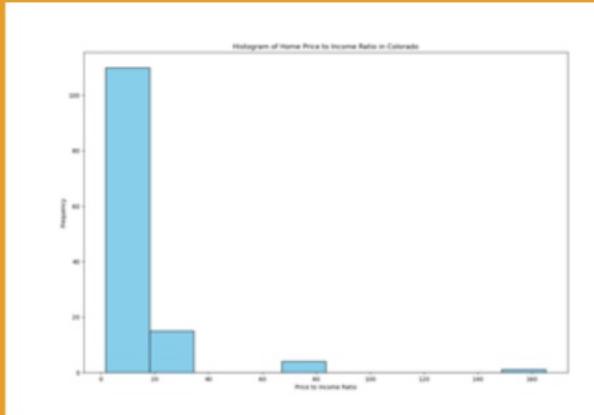
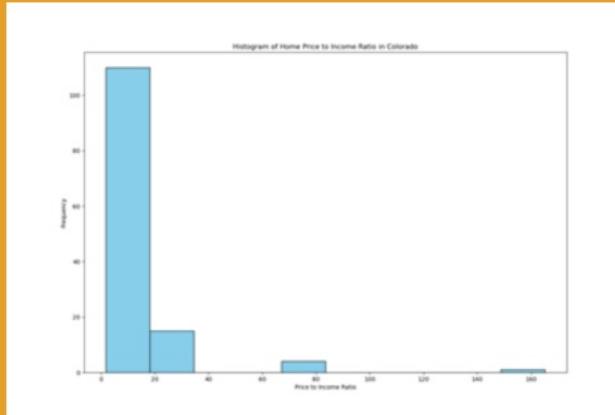
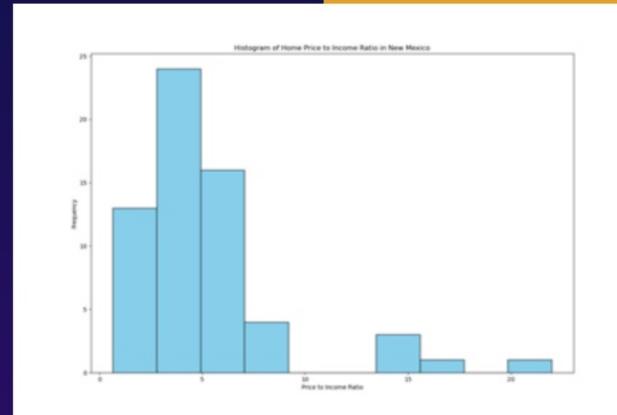
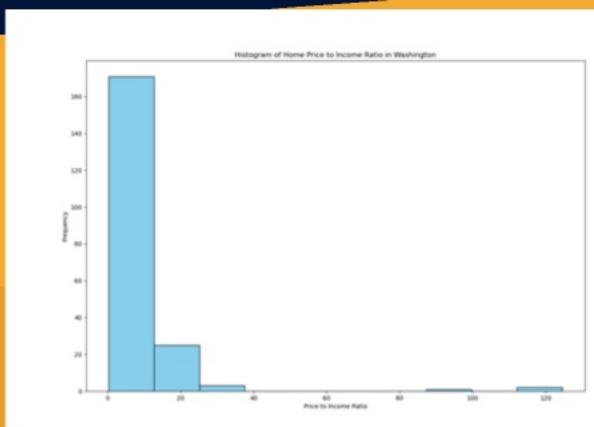
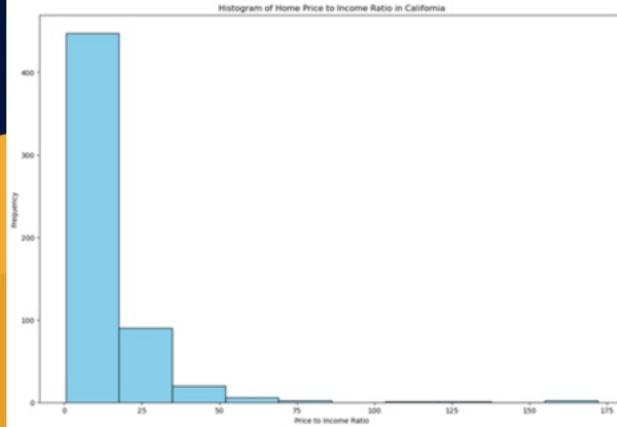


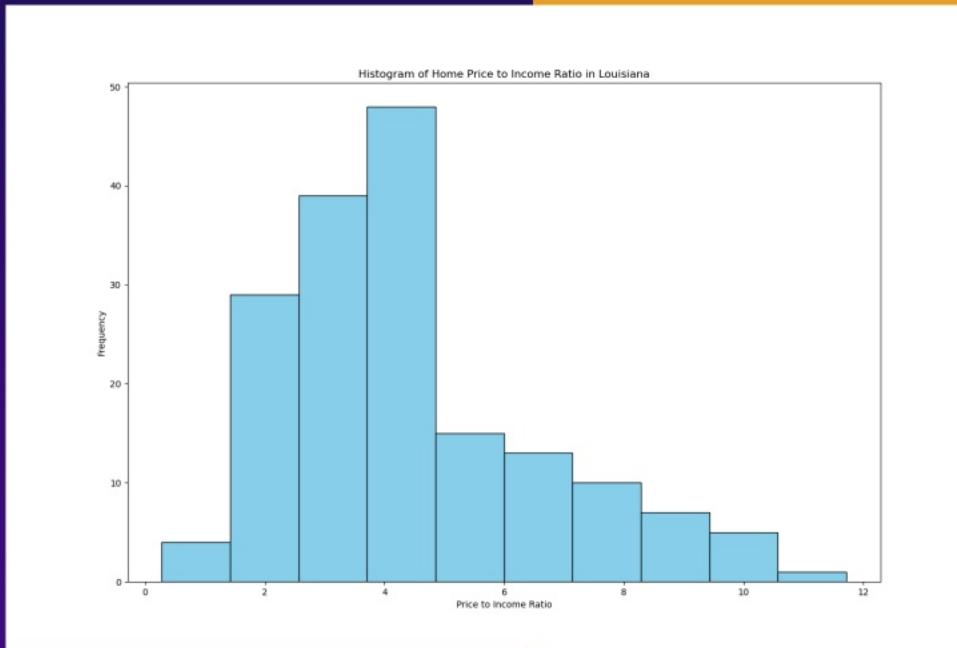
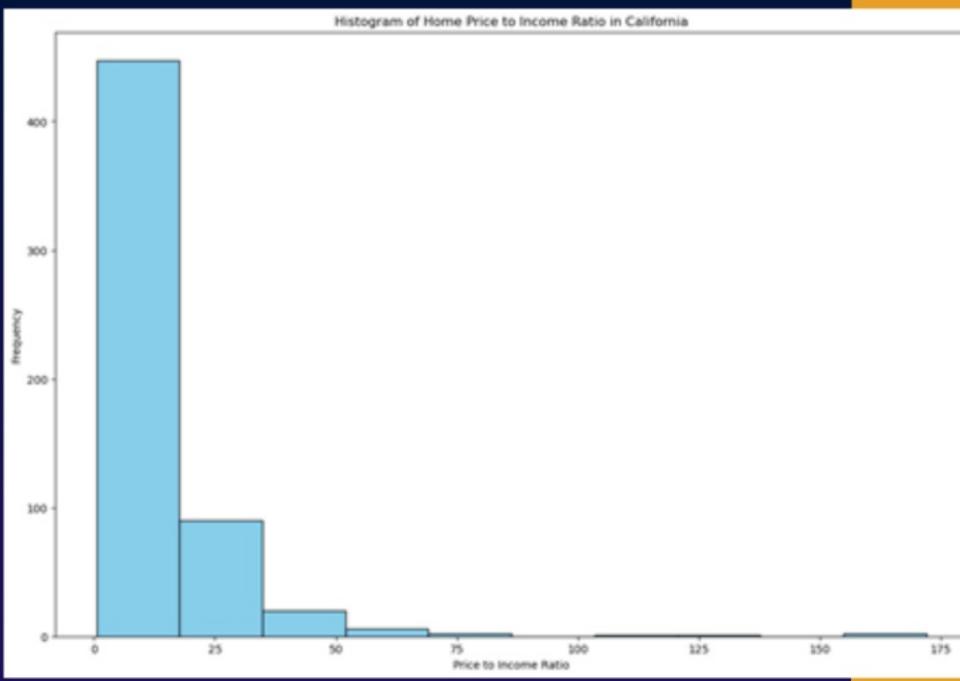
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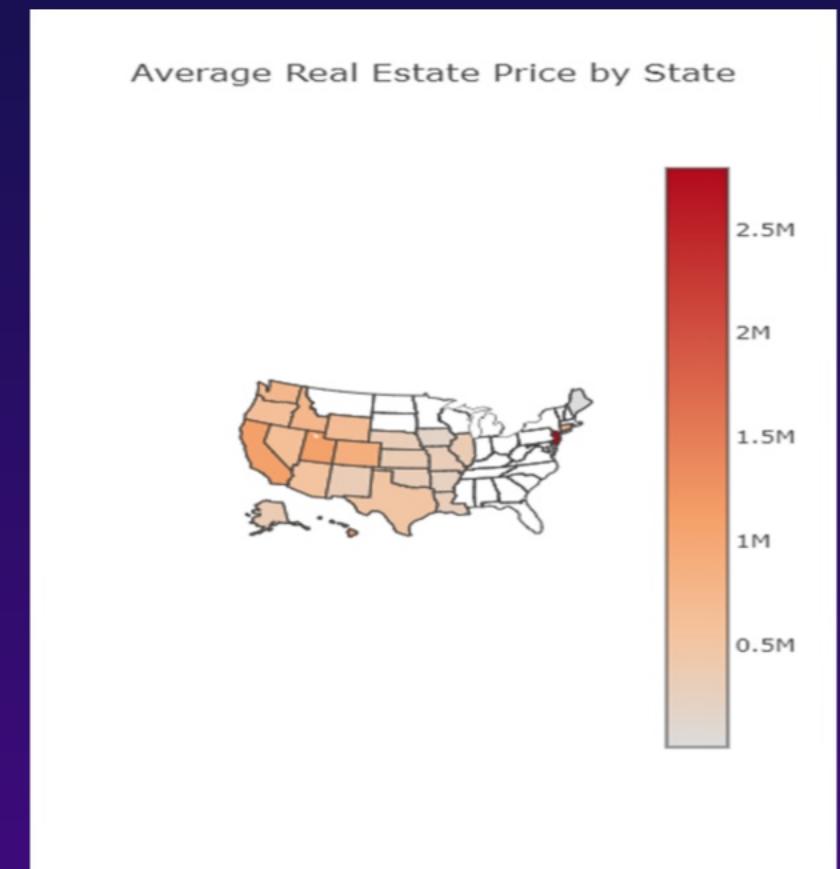
Affordability of Homes





Weather Impact on Real Estate Market

- Objective: Analyze the impact of weather on Real Estate Prices across different states in the USA
- Visualization: Choropleth Map
- Regional Sales Patterns: States with moderate climates, such as California and Florida, show higher average real estate prices.
- Regional Sales Patterns: States with extreme weather conditions, like North Dakota and Arizona, exhibit lower average prices.
- Weather Influence: A positive correlation between mild weather conditions and higher real estate prices; extreme weather conditions tend to lower property values.



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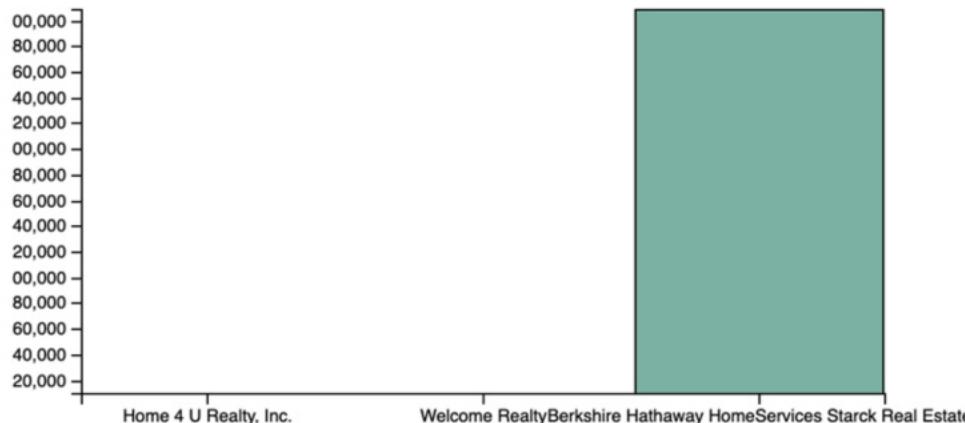
- Objective: Examine correlation between average temperature and real estate prices across states.
- Higher average temperatures correlate with higher real estate prices.
- States with warmer climates have higher property values.
- Significant correlations found among states with similar climate conditions.
- States with extreme temperatures have negative correlations with property prices.



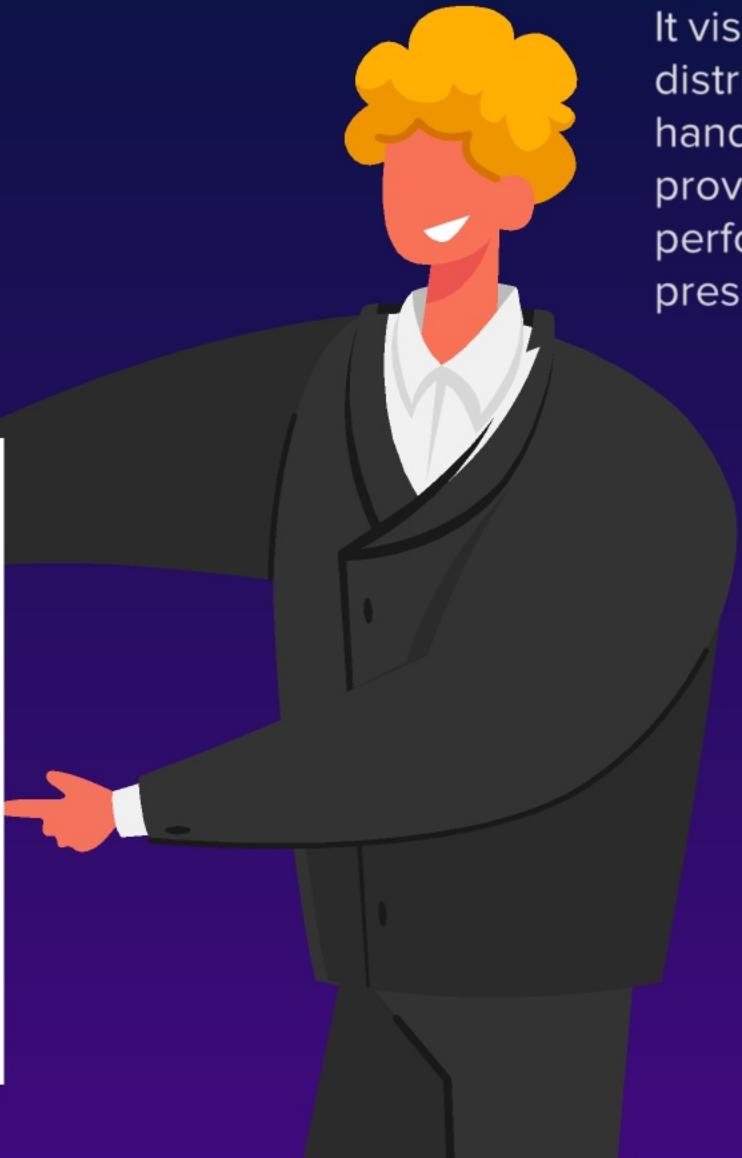
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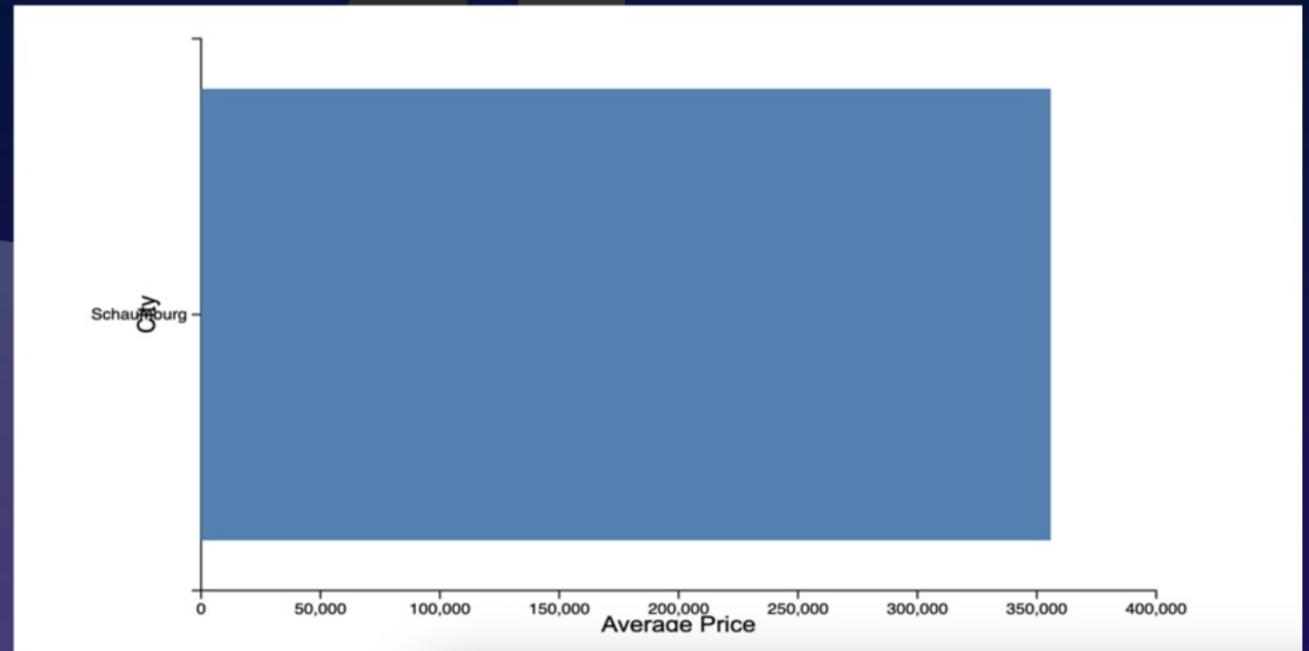
Real Estate Data Visualization



The Agency Performance Chart displays the transaction price distribution across the top three agencies by transaction volume. It visualizes the range and distribution of transaction prices handled by these agencies, providing insights into their performance and market presence.



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Ethical consideration of privacy of real estate transaction data

Ensuring fair representation of all states avoiding any biases





Future Work Scope

- Consider including additional factors such as crime rates, economic indicators, and population density.
- Expand the dataset by incorporating more countries to achieve a comprehensive global perspective.
- Utilize additional columns in the current dataset, such as house size and acreage, to enrich the analysis and insights.



