Analyzing Housing Prices in Metropolitan Areas of India

Introduction

The objective of this project is to conduct a comprehensive analysis of housing prices in major metropolitan cities like Bangalore, Chennai, Delhi, Kolkata, Hyderabad and Mumbai. The housing market is a critical aspect of urban economies, influencing not only the financial well-being of individuals but also broader economic trends. By examining trends and patterns in housing prices, we aim to gain insights into the dynamics of the real estate market within these cities.

Objective

This project aims to delve into the nuanced dynamics of metropolitan housing markets in India. Our goal is to uncover key insights regarding the factors that influence housing prices. Through comprehensive analysis and visual representation in Tableau, we aim to provide valuable information for potential homebuyers, investors, and policymakers, ultimately contributing to a deeper understanding of urban real estate trends.

Data Source

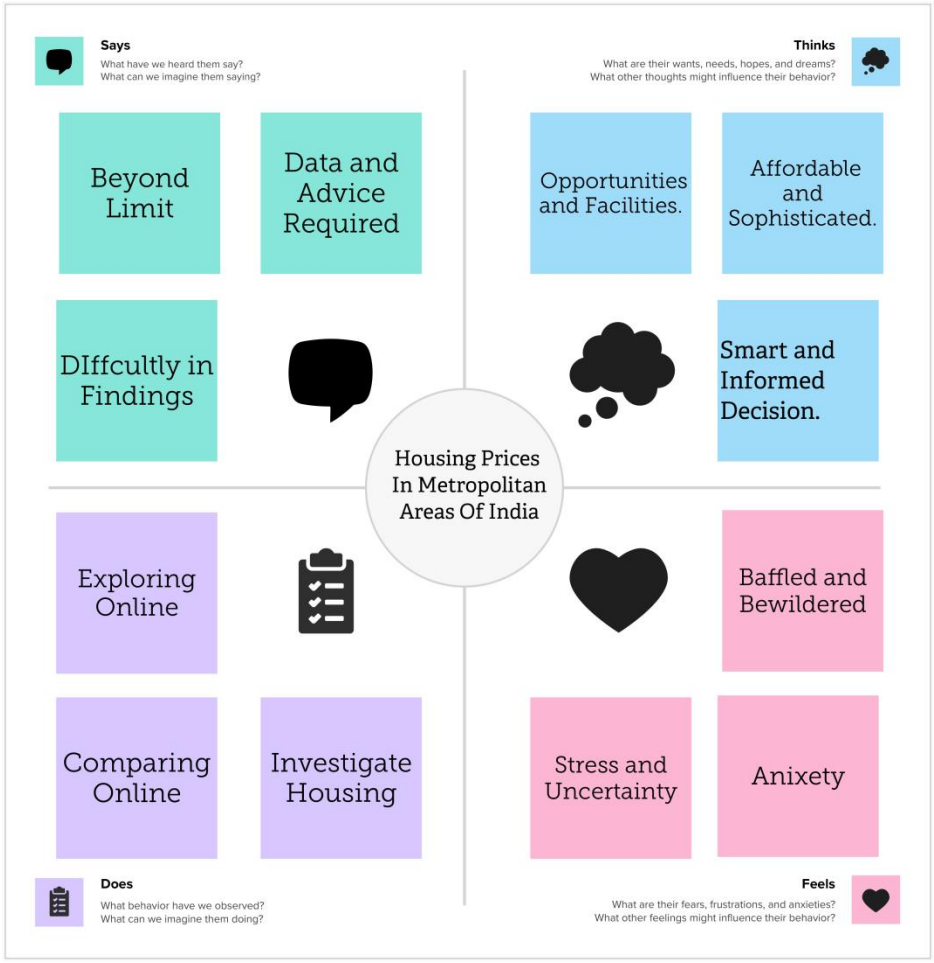
The dataset used for this analysis was sourced from Kaggle, a platform for data science enthusiasts and professionals. Kaggle provides a wide range of datasets for various domains, allowing for in-depth exploration and analysis.

Dataset Title: Housing Prices in Metropolitan Areas of India

Download Link:

https://www.kaggle.com/datasets/ruchi798/housing-prices-in-metropolitan-areas-of-india

Empathy Map



Brainstorming Map

Data Analysis

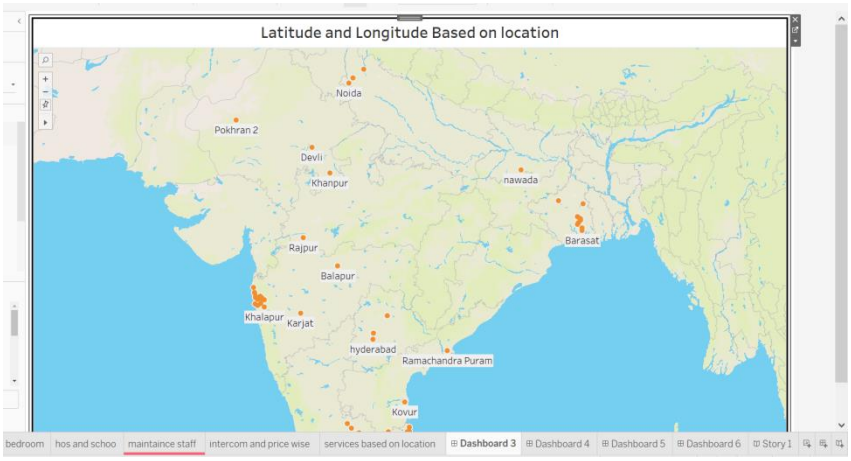
Our journey commenced with a detailed Exploratory Data Analysis (EDA), where we harnessed Tableau's intuitive interface to examine key statistics like mean, median, and standard deviation for numerical attributes. This facilitated a clear understanding of the dataset's central tendencies. Furthermore, through Tableau's dynamic visualizations, including histograms and box plots, we gained invaluable insights into the distribution of housing prices, effectively identifying outliers and discerning patterns.

Transitioning to feature important analysis, we harnessed Tableau's power to create interactive regression models. This allowed us to quantify the impact of critical variables such as location, size, and amenities on property prices, all while providing stakeholders with an interactive interface to explore these relationships.

Data Visualization

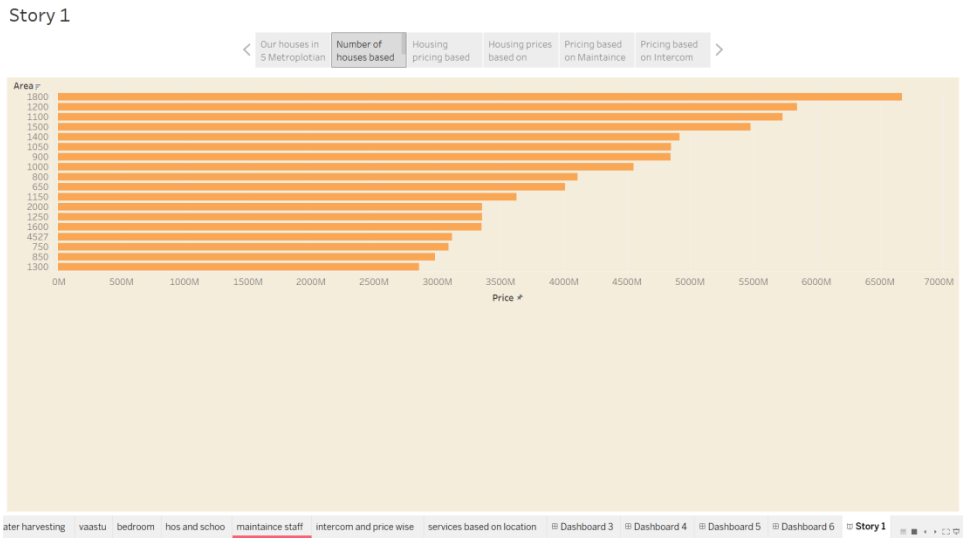
Latitude and Longitude Based on Location:

One key aspect of our analysis involved visualizing the geographical distribution of housing properties. Leveraging Tableau's mapping capabilities, we plotted latitude and longitude coordinates based on the respective locations of properties. This provided a spatial context, allowing us to gain insights into the dispersion of housing options within the metropolitan areas.



Number of Houses Based on Area in sq. ft.:

Visualizing the number of houses based on their size was crucial in understanding the distribution of property sizes within the dataset. Using Tableau's visualization tools, we created interactive charts that illustrated the frequency of houses across various size ranges, providing a clear overview of the available options based on area.



Houses Price Based on Rainwater Harvest Pits:

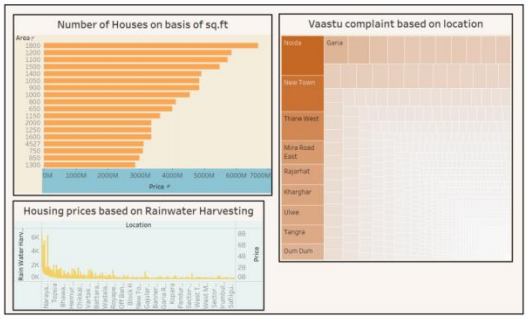
The presence of rainwater harvest pits is an important factor affecting property prices. Through Tableau, we visualized the relationship between the availability of rainwater harvest pits and the corresponding house prices. This analysis shed light on how this eco-friendly feature influences property values within the metropolitan areas.

Vastu-Complains Based on Location:

Understanding Vastu compliance is crucial for many potential homebuyers. Using Tableau's visualization capabilities, we mapped the occurrences of Vastu complaints based on property locations. This allowed us to identify areas where Vastu considerations are particularly relevant, providing valuable insights for individuals seeking homes aligned with Vastu principles.

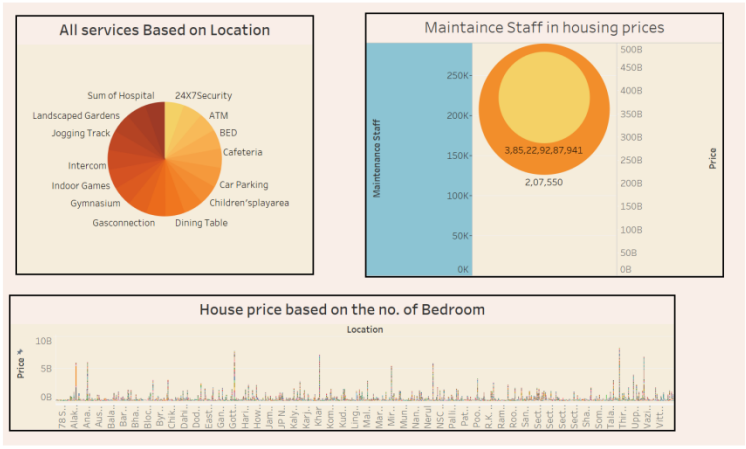
House Price Based on Number of Bedrooms:

The number of bedrooms is a fundamental factor influencing property prices. Employing Tableau's interactive visualizations, we explored the correlation between the number of bedrooms and the corresponding house prices. This analysis offered a clear understanding of how the number of bedrooms impacts property values in the metropolitan areas.



Proximity to Hospitals and Schools in Relation to Houses:

Mapping the proximity of houses to essential amenities such as hospitals and schools was a critical aspect of our analysis. Utilizing Tableau's geospatial capabilities, we created visualizations that showcased the accessibility of healthcare and educational facilities in relation to the housing options. This information is invaluable for potential homebuyers looking for properties near essential services.

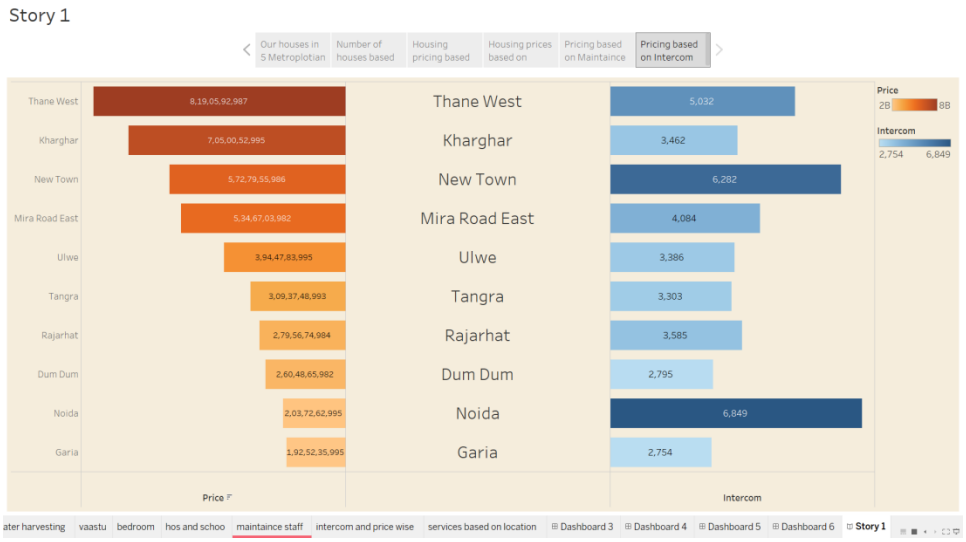


Maintenance Staff Availability and Its Influence on House Prices:

Visualizing the availability of maintenance staff in relation to house prices provided insights into how this service affects property values. Using Tableau's visualization tools, we created interactive charts that highlighted the correlation between maintenance staff availability and house prices. This analysis offered valuable information for individuals prioritizing maintenance services in their property search.

House Price in Relation to Intercom and Other Services Based on Location:

Understanding the availability of amenities like intercom systems is crucial for many homebuyers. Through Tableau's visualization capabilities, we mapped the accessibility of services like intercoms in relation to property locations. This analysis provided insights into how such amenities influence house prices in different areas of metropolitan cities.



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Insights

Our analysis of metropolitan housing prices revealed key trends. Location significantly influences demand and pricing. Specific size ranges are highly sought after. Eco-friendly features, like rainwater harvesting, enhance property values. Vastu compliance impacts desirability in select areas. The number of bedrooms drives prices, favoring larger homes. Proximity to amenities is a major demand factor. Maintenance services and amenities like intercoms affect property values. Market segments based on preferences emerged. These insights inform urban planning and policymaking.

Advantages and Disadvantages

ADVANTAGES	DISADVANTAGES
1. Informed Decision-Making	1. Market Volatility
2. Market Understanding	2. Data Limitations
3.Targeted Marketing Strategies	3. External Influences
4. Urban Planning Guidance	4. Regional Variations
5. Investment Potential	5. Regulatory Changes

Limitation

While our analysis provides valuable insights, it's important to acknowledge certain limitations. The dataset may lack detailed granularity, potentially missing specific neighborhood characteristics or property conditions that influence housing prices. Additionally, the static nature of the dataset might not capture real-time market trends, and it may not account for external factors like economic policy changes or unforeseen events. Data quality concerns, such as incomplete or inaccurate entries, could also affect the accuracy of our analysis. Lastly, the dataset's focus on specific metropolitan areas might exclude other cities with unique market dynamics.

Future Scope:

Looking ahead, there are several avenues to enhance our analysis. Integrating machine learning models can improve price predictions and offer deeper insights into market trends. Incorporating real-time data sources and APIs will provide a more current view of the market, enabling more accurate analyses. Sentiment analysis of real estate reports, news, and social media can offer additional insights into market sentiment. Spatial modeling and GIS techniques can provide a deeper understanding of the spatial distribution of housing prices.

Conclusion

Our analysis of metropolitan housing prices reveals critical insights for buyers and investors. Location, size, amenities, and compliance with Vastu principles significantly impact property values. While our analysis has its limitations, the integration of real-time data and advanced modeling holds potential for future enhancements. These findings empower informed decisions and offer valuable input for urban planning and policymaking in metropolitan housing markets.