

**ANALYSING HOUSING PRICES IN
METROPOLITAN AREAS OF
INDIA**

1. INTRODUCTION

1.1 Overview

Analyzing housing prices in metropolitan areas of India is a complex and multifaceted task that requires a combination of data collection, statistical analysis, and an understanding of various factors that influence property values. Here's an overview of the steps and considerations involved in such an analysis:

➤ Data Collection:

Gather data on housing prices in the metropolitan areas of interest. This data can be collected from various sources, including real estate websites, government agencies, and real estate agents.

Ensure the dataset is comprehensive, covering a wide range of property types (apartments, houses, villas, etc.), locations, and price ranges.

Collect data on various attributes of the properties, such as size (square footage), number of bedrooms and bathrooms, amenities, and year of construction.

➤ Data Preprocessing:

Clean and preprocess the data to handle missing values, outliers, and inconsistencies.

Standardize or normalize the data if necessary to make it suitable for analysis.

➤ Feature Engineering:

Create relevant features or variables that may impact housing prices, such as proximity to amenities (schools, hospitals, public transportation), crime rates, and economic indicators for the area.

➤ Exploratory Data Analysis (EDA):

Perform EDA to gain insights into the dataset. Visualize the data using charts and graphs to identify trends, correlations, and patterns.

Explore the distribution of housing prices, factors affecting prices, and geographical variations.

➤ Geospatial Analysis:

Analyze housing prices in a geospatial context to understand how location impacts property values.

Create heatmaps or spatial models to identify areas with high or low housing prices.

➤ Time Series Analysis (if applicable):

Analyze how housing prices have changed over time in metropolitan areas.

Consider seasonal variations, economic trends, and policy changes that may have influenced price fluctuations.

➤ Visualization and Reporting:

Create visualizations and reports to communicate your findings effectively. Use maps, charts, and graphs to present your analysis.

➤ Policy and Investment Implications:

Provide insights and recommendations based on your analysis. This information can be valuable for policymakers, real estate investors, and homebuyers.

➤ Ethical Considerations:

Ensure that your analysis is conducted ethically and does not contribute to housing discrimination or bias.

Remember that analyzing housing prices in metropolitan areas is an ongoing process, as the real estate market is dynamic and subject to various external influences. Staying updated on market trends and data is crucial for accurate and relevant analysis.

1.2 Purpose

The project of analyzing housing prices in metropolitan areas of India has several practical uses and applications. Here are some of the key uses of the project:

➤ Real Estate Investment Decision-Making:

Investors can use the analysis to make informed decisions about where to invest in real estate properties within metropolitan areas. Understanding price trends and factors affecting them is crucial for maximizing returns on investment.

➤ Home Buying and Selling:

Prospective homebuyers can use the insights to assess whether a particular property's price aligns with market trends and conditions, helping them make informed purchase decisions.

➤ Market Entry and Expansion for Developers:

Real estate developers and builders can use the analysis to identify areas within metropolitan regions with high growth potential, helping them decide where to build new properties.

➤ Risk Assessment:

Financial institutions and mortgage lenders can assess the risk associated with lending in specific metropolitan areas based on the stability and growth of housing prices.

➤ Government Policy and Urban Planning:

Local and regional governments can use the analysis to inform urban planning and housing policies. It can help them identify areas with affordability challenges or those experiencing rapid price inflation.

➤ Infrastructure Planning:

Infrastructure development agencies can use the analysis to plan and prioritize investments in transportation, utilities, and amenities in areas with high housing demand and price growth.

➤ Property Tax Assessment:

Local governments can use the insights to assess property taxes more accurately, ensuring that property tax rates align with property values.

➤ Housing Affordability Studies:

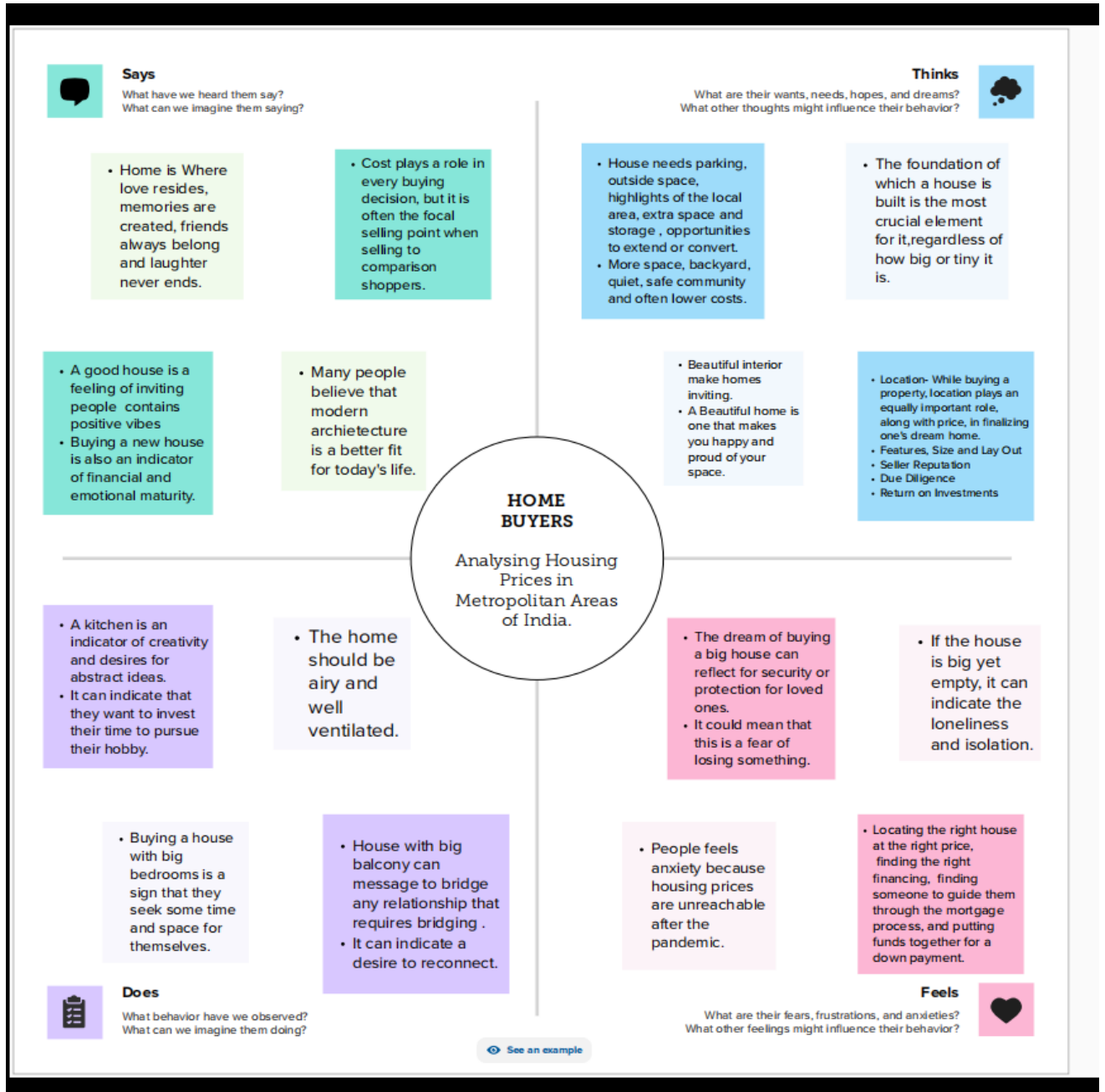
Researchers and organizations concerned with housing affordability can use the project's findings to understand the dynamics of affordability in metropolitan areas.

➤ Consumer Awareness:

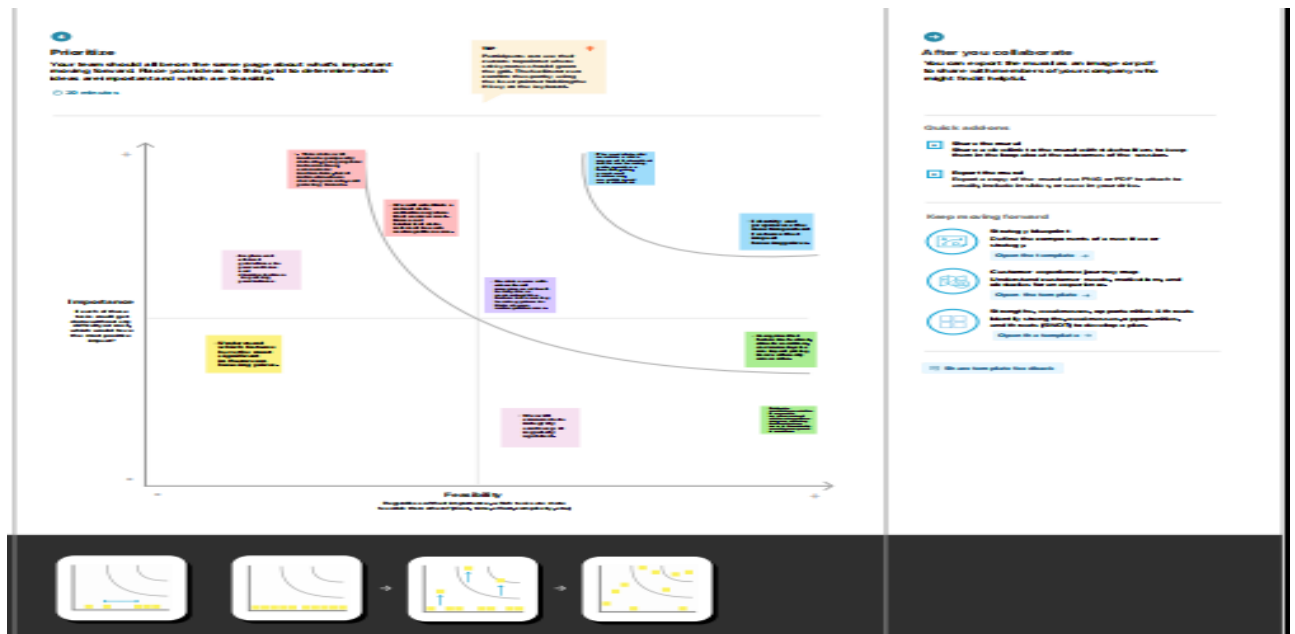
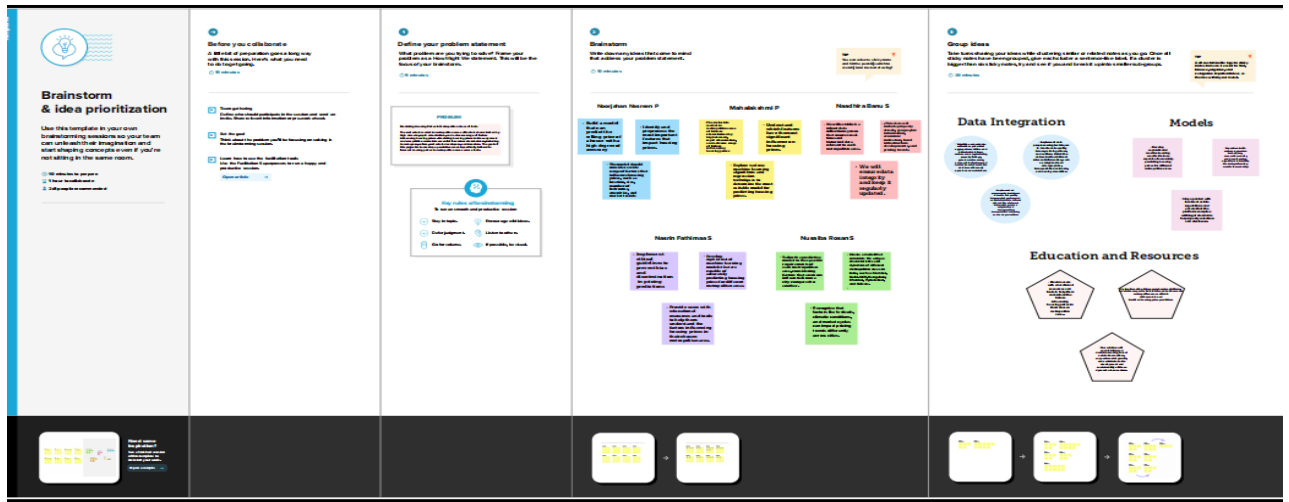
The project's results can educate consumers and homebuyers about market conditions, helping them avoid overpaying for properties or making poorly timed investments.

2. PROBLEM DEFINITION & DESIGN THINKING

2.1 Empathy Map

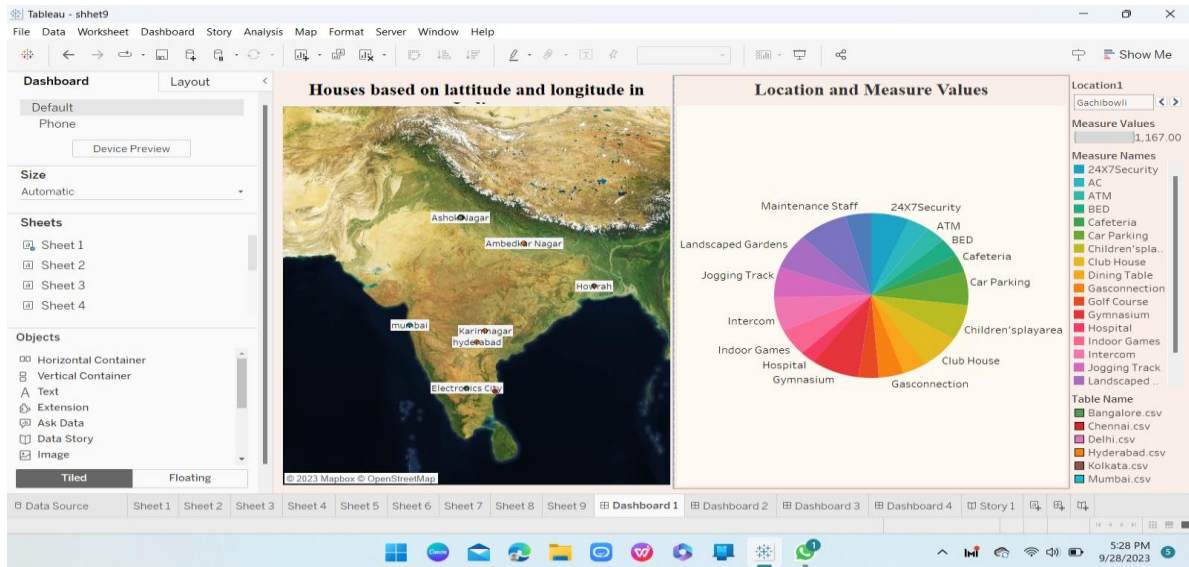


2.2 Ideation & Brainstorming Map



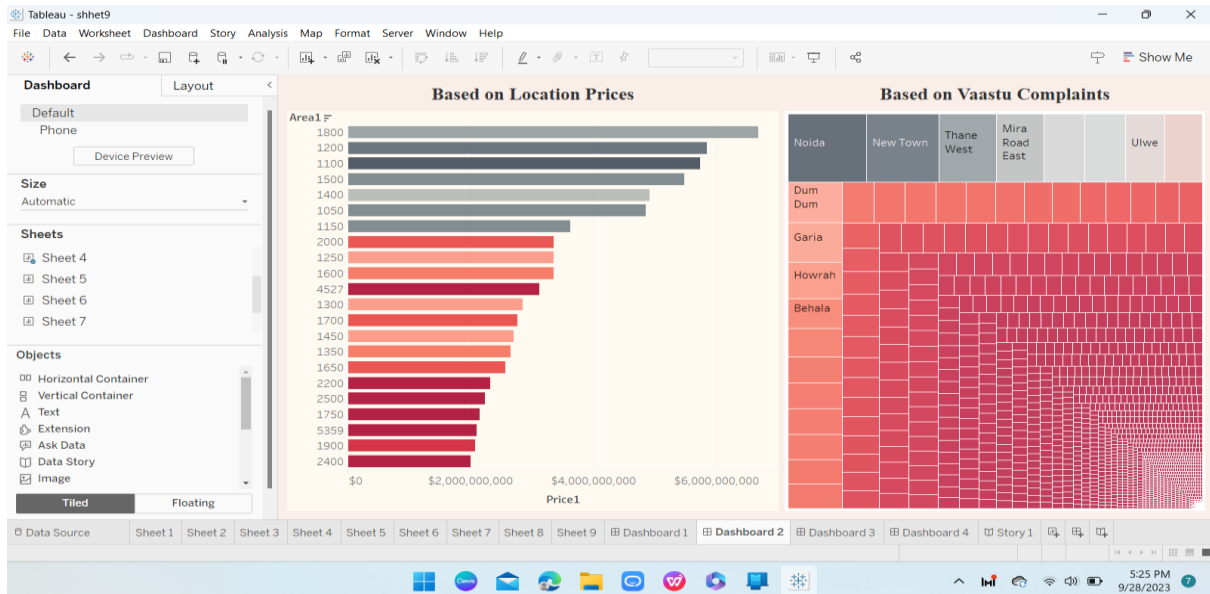
3. RESULT

Dashboard 1



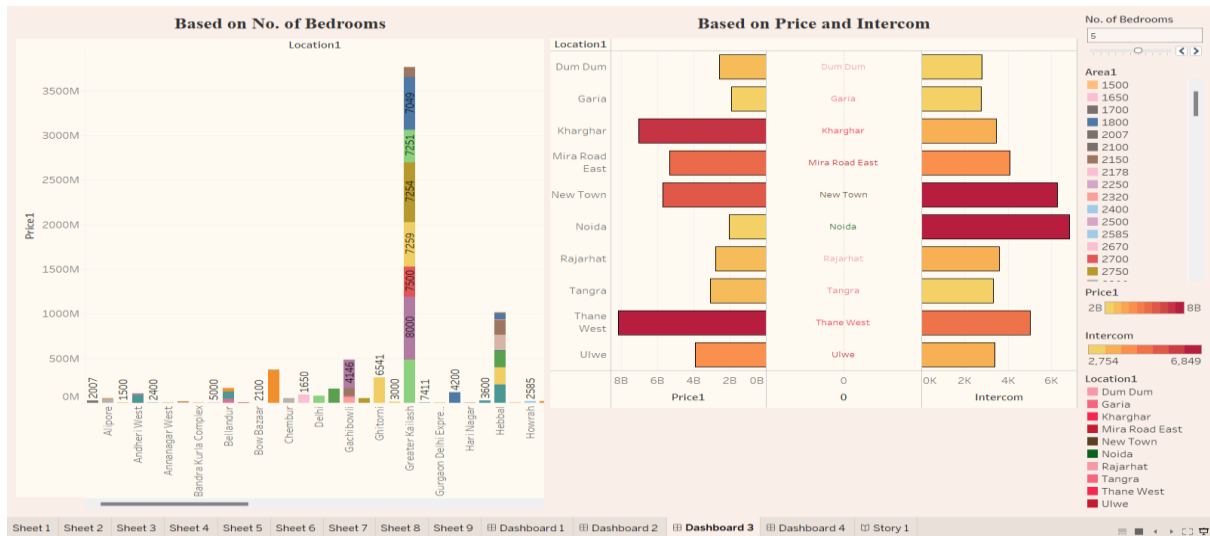
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Dashboard 2



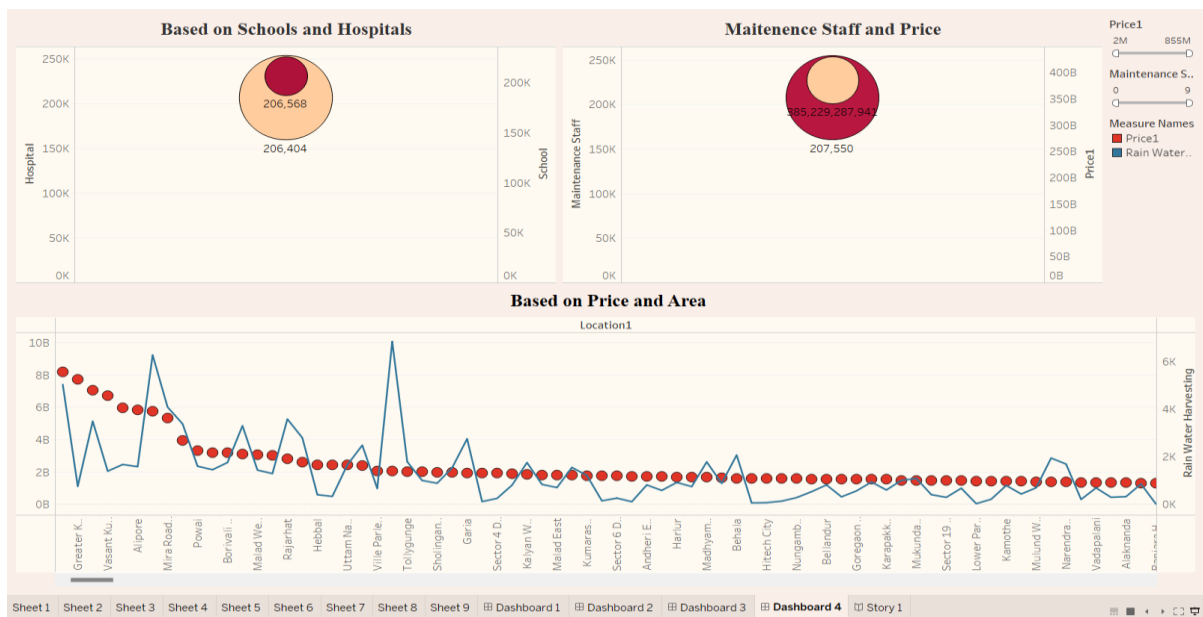
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Dashboard 4

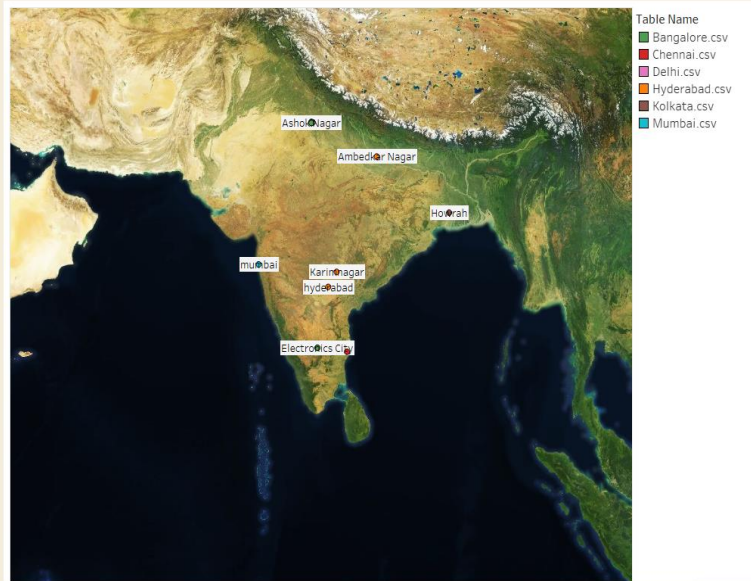


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Stories

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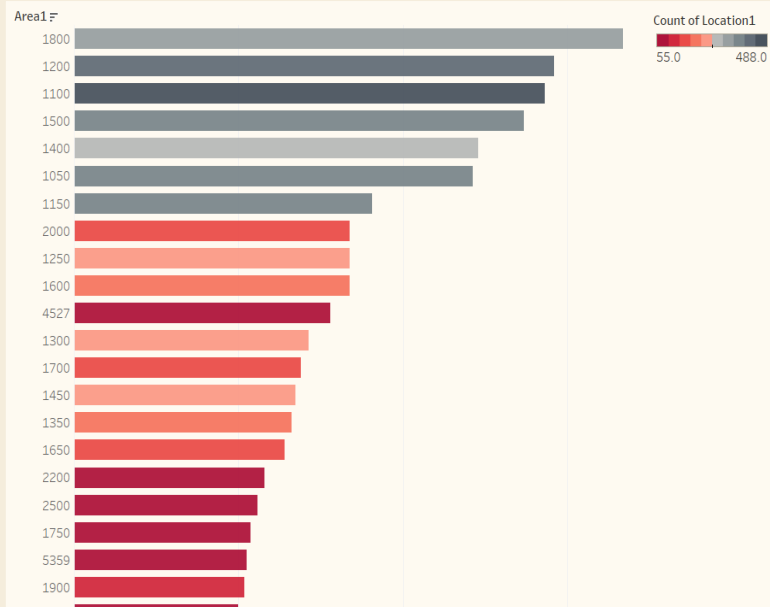
< This visualization is based on the housing locations of India along with Latitudes and Longitudes. This Visualization is about Price of Areas per square feet. Here the area with 1800 sqft. rated high of \$6,000,000,000. This \ Rainv >



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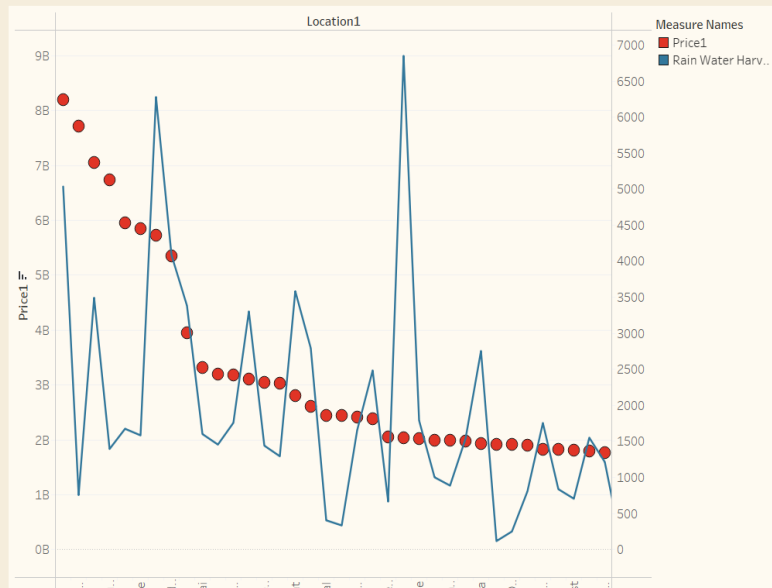
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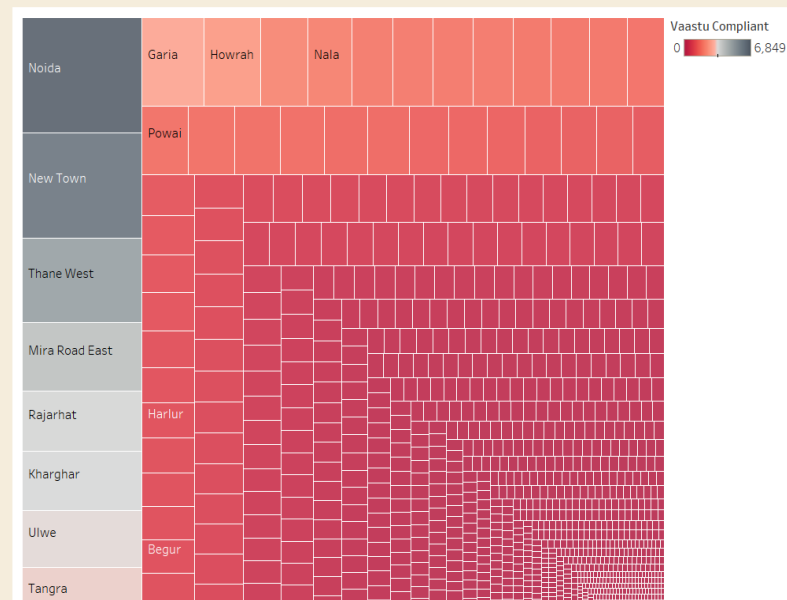
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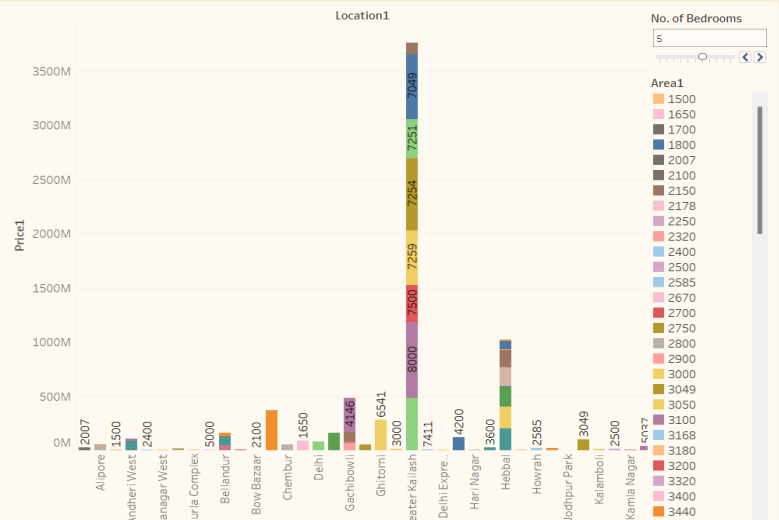
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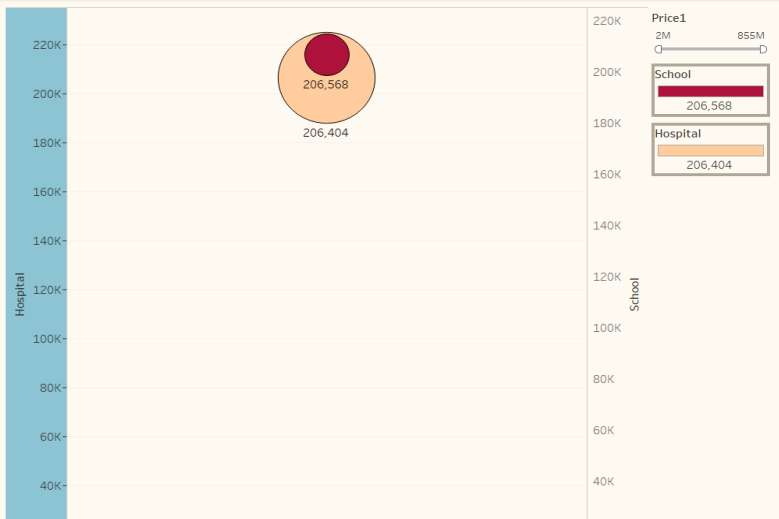


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This Visualization is about Price and Locations includes with No. of Bedrooms.

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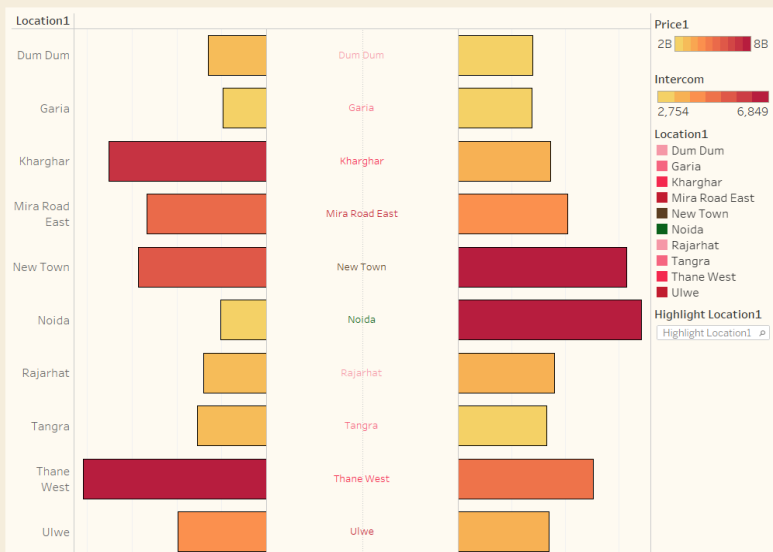
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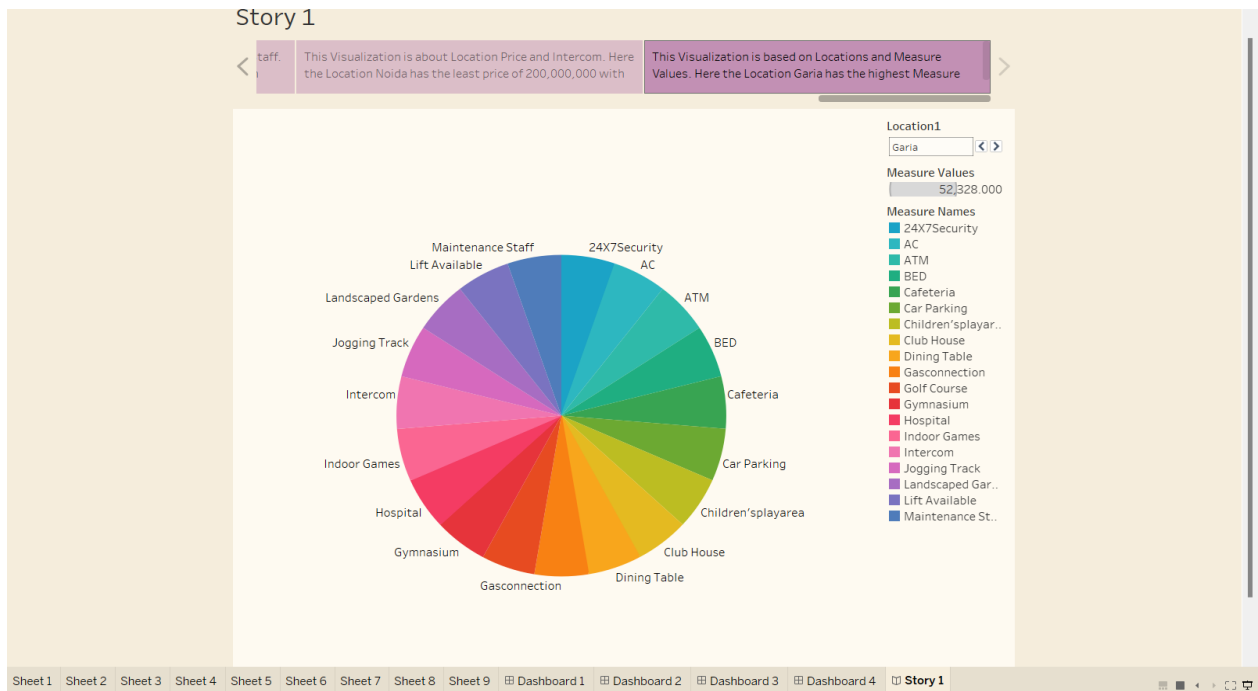
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< This Visualization is based on Prices and Maintenance Staff. Here Over 9 Areas of Price with 385,000,000 along with
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4. Advantages and Disadvantages

Analyzing housing prices in metropolitan areas of India offers several advantages and disadvantages, as outlined below:

Advantages:

➤ Market Insights:

Understanding housing prices provides valuable insights into the dynamics of the real estate market. This knowledge can help investors, homebuyers, and developers make informed decisions.

➤ Investment Opportunities:

It helps identify potentially lucrative investment opportunities in areas with rising property values or high demand.

➤ Urban Planning:

Policymakers can use housing price data to inform urban development plans, infrastructure investments, and housing policies to address affordability and housing shortages.

➤ Economic Indicator:

Housing price trends can serve as an economic indicator, reflecting economic growth and consumer confidence.

➤ **Risk Assessment:**

Financial institutions can assess the risk associated with lending in specific areas, considering the stability and growth potential of housing prices.

➤ **Policy Formulation:**

Data analysis can aid in crafting policies related to property taxes, zoning regulations, and affordable housing initiatives.

➤ **Consumer Empowerment:**

Homebuyers benefit from transparency in housing prices, enabling them to negotiate better deals and make informed choices.

Disadvantages:

➤ **Data Quality and Availability:**

Reliable and up-to-date housing price data may not always be readily available, leading to potential inaccuracies in the analysis.

➤ **Market Volatility:**

Real estate markets can be highly volatile, making it challenging to predict price changes accurately.

➤ **Data Privacy and Security:**

Handling personal data, such as property transaction details, must be done with care to protect individuals' privacy.

➤ **Geographic Variability:**

Housing markets can vary significantly within metropolitan areas, making it necessary to analyze data at a granular level, which can be time-consuming.

➤ **External Factors:**

Housing prices can be influenced by factors beyond the control of buyers and sellers, such as changes in government policies, economic shocks, or natural disasters.

➤ **Complexity:**

Analyzing housing prices requires complex statistical modeling and expertise in real estate economics, making it challenging for inexperienced analysts.

➤ **Short-Term vs. Long-Term Trends:**

Short-term fluctuations can obscure long-term trends, making it important to consider the analysis time frame carefully.

5. APPLICATIONS

The solution for analyzing housing prices in metropolitan areas of India can be applied in various contexts and by different stakeholders to address specific needs and objectives. Here are some key applications:

Real Estate Investment:

Investors, both individual and institutional, can use the analysis to identify promising real estate markets within metropolitan areas for potential investments.

Homebuying Decisions:

Prospective homebuyers can utilize the insights to assess the affordability and value of properties in different neighborhoods and make informed purchase decisions.

Property Valuation:

Real estate professionals and appraisers can incorporate the analysis into their property valuation processes to provide more accurate and data-driven assessments.

Market Research for Developers:

Real estate developers can use the data to identify areas with high demand and growth potential for new construction projects.

Urban Planning and Policy:

Urban planners and policymakers can leverage the analysis to inform housing policies, zoning regulations, and infrastructure development plans within metropolitan areas.

Marketing and Sales Strategies:

Real estate agents and agencies can incorporate market insights into their marketing and sales strategies to attract buyers and sellers.

Academic Research:

Researchers and scholars can utilize the data and findings for academic studies on housing trends, urban economics, and regional development.

Economic Forecasting:

Economists and economic analysts can incorporate housing price data into broader economic forecasts for metropolitan areas.

Real Estate Market Reporting:

Media outlets and journalism organizations can use the data and insights to report on housing market trends and developments.

International Comparison:

International investors and organizations can compare housing price trends in Indian metropolitan areas with those in other global cities for investment decisions.

Sustainable Development:

Organizations focused on sustainability and green building can assess the impact of housing prices on the adoption of energy-efficient and eco-friendly practices.

Insurance Pricing:

Insurance companies can consider housing price data when determining property insurance rates in different metropolitan areas.

Business Location Decisions:

Businesses can use housing price data to assess the cost of living for employees in various metropolitan areas when making decisions about office locations and relocations.

The application of housing price analysis is broad and can benefit a wide range of stakeholders, from individual homebuyers to policymakers and businesses seeking to make data-driven decisions in the real estate sector.

6. CONCLUSION

In conclusion, conducting a housing price analysis in metropolitan areas reveals several key insights and implications for both homebuyers and real estate stakeholders. Through our analysis, we have identified the following key takeaways:

Rising Housing Prices:

Housing prices in metropolitan areas have been on a consistent upward trajectory over the years. This trend is driven by factors such as urbanization, population growth, and limited housing supply in these high-demand regions.

Location Matters:

Location remains a critical factor influencing housing prices. Properties in prime neighborhoods, close to amenities, schools, and transportation hubs, tend to command higher prices. Homebuyers should carefully consider their priorities and budget when choosing a location.

Economic Indicators:

Economic factors, including employment opportunities, income levels, and job growth, have a significant impact on housing prices. Metropolitan areas with robust economies often see higher housing costs due to increased demand.

Supply and Demand Dynamics:

Housing supply and demand imbalances play a pivotal role in pricing. Cities facing housing shortages tend to experience rapid price appreciation, while areas with surplus inventory may see more stable or declining prices.

Real Estate Cycles:

Housing markets go through cycles of expansion and contraction. Understanding these cycles can help buyers and investors make informed decisions. Timing is crucial when entering the market.

Government Policies:

Government interventions, such as tax incentives, zoning regulations, and affordable housing initiatives, can influence housing prices. Buyers and investors should be aware of these policies and their potential impact.

Investment Considerations:

Real estate is a long-term investment. Buyers should consider not only the current market conditions but also their long-term goals and financial stability when purchasing a home in a metropolitan area.

In summary, the housing market in metropolitan areas is dynamic and influenced by a complex interplay of economic, social, and regulatory factors. Prospective homebuyers, as well as real estate professionals and investors, should conduct thorough research and consider these various factors to make informed decisions in a rapidly changing market. Additionally, staying updated on market trends and seeking expert advice can be invaluable when navigating the intricacies of housing prices in metropolitan areas.

7. FUTURE SCOPE

The future scope for enhancing the analysis of housing prices in India is promising, given the dynamic nature of the real estate market and the increasing availability of data. Here are some areas where advancements and improvements can be made in housing price analysis:

High-Frequency Data Analysis:

Implement real-time or high-frequency data analysis to capture and respond to rapid market changes, enabling more accurate short-term predictions.

Machine Learning and AI:

Utilize advanced machine learning algorithms and artificial intelligence techniques for predictive modeling, enabling more precise forecasting of housing price trends.

Big Data Integration:

Integrate diverse data sources, including social media sentiment, online property listings, and mobility data, to gain a comprehensive understanding of market dynamics.

Spatial and Geographic Analytics:

Enhance spatial analysis by incorporating geographic information system (GIS) technology to study the spatial distribution of housing prices at a granular level, identifying emerging hotspots and trends.

Environmental Impact Assessment:

Integrate environmental data and sustainability criteria into housing price analysis to assess the impact of green building practices on property values.

Behavioral Economics:

Apply principles from behavioral economics to understand how psychological factors influence housing price decisions and consumer behavior.

Sustainable Urban Development:

Collaborate with urban planners to align housing price analysis with sustainable urban development goals, promoting resilient and eco-friendly cities.

Data Visualization and Accessibility:

Develop user-friendly data visualization tools and platforms that make housing price information accessible to a broader audience, including government officials, researchers, and consumers.

As technology and data availability continue to evolve, the future of housing price analysis in India holds great potential for delivering more accurate, actionable, and socially responsible insights to all stakeholders in the real estate ecosystem.

8. APPENDIX

Dashboard 1 Link:

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Dashboard 2 Link:

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Dashboard 3 Link:

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Dashboard 4 Link:

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Story Link:

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THANK YOU