

GOVERNMENT ARTS COLLEGE (AUTONOMOUS)

COIMBATORE

DEPARTMENT OF MATHEMATICS

**NAANMUDHALVAN COURSE DATA ANALYTICS WITH
TABLEAU**

CLASS: III YEAR B.SC MATHEMATICS-SEMESTER:5

PROJECT REPORT

(PROJECT DOCUMENTATION)

NM TEAM NUMBER : 2

NM TEAM ID : NM2023TMID23796

**NM PROJECT TITLE : Analysing Housing Prices in
Metropolitan Areas of India**

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Submitted to

SmartBridge Educational Services Pvt. Ltd.

Project Report

Analysing Housing Prices in Metropolitan Areas of India

INTRODUCTION

India's metropolitan areas have witnessed significant growth in population, urbanization, and economic development over the years. This rapid urban expansion has a direct impact on the housing market, leading to dynamic fluctuations in housing prices. Analyzing and understanding these housing price trends is crucial for various stakeholders, including homebuyers, real estate developers, investors, and policymakers.

Tableau, a powerful data visualization and analytics tool, offers a robust platform for delving into the complexities of housing prices in Indian metropolitan areas. In this exploration, we will leverage Tableau's capabilities to unravel insights into the factors influencing housing prices, identify patterns, and facilitate data-driven decision-making in the real estate sector.

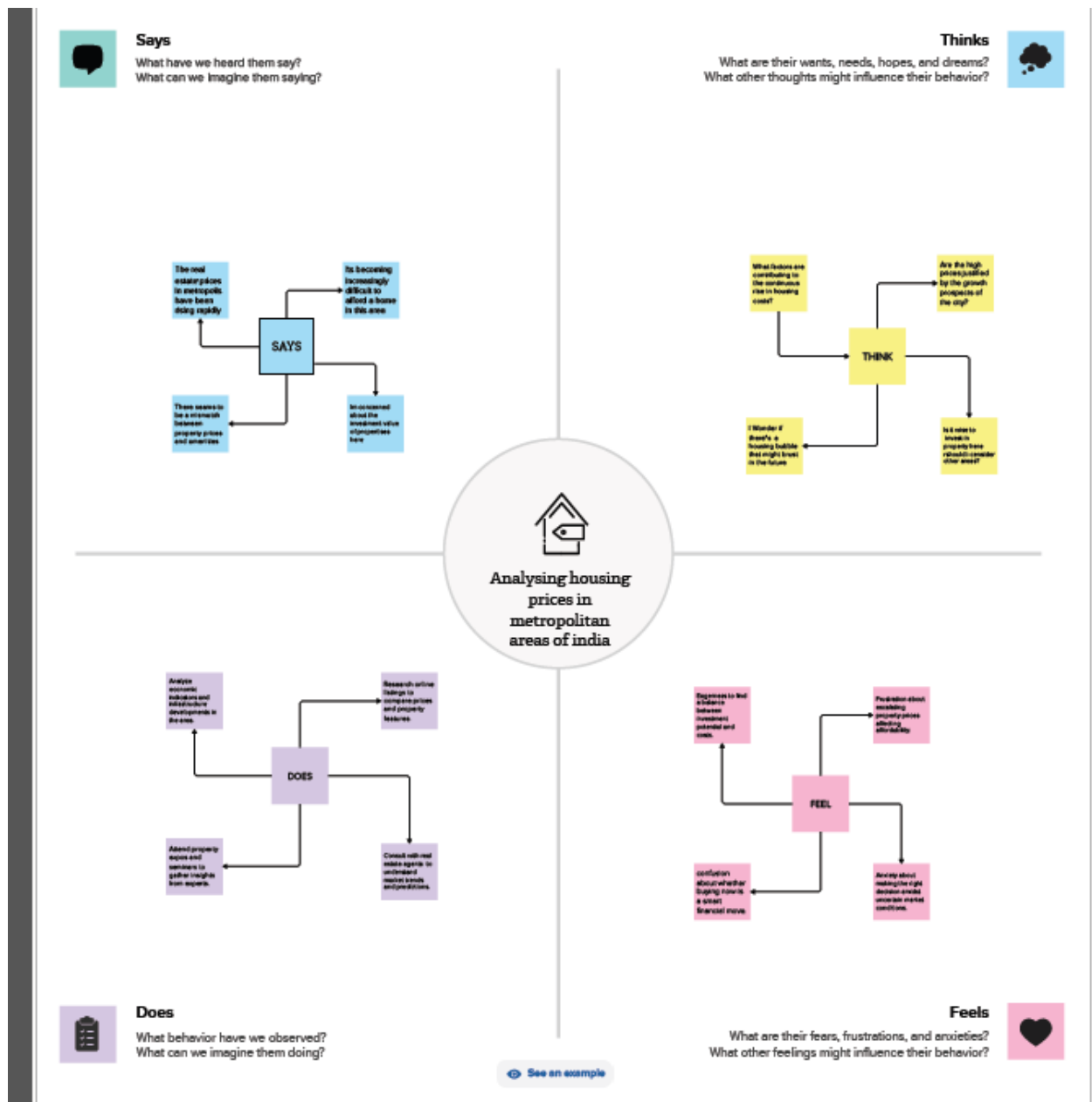
By harnessing the data visualization prowess of Tableau, this project aims to provide a comprehensive view of the housing market in India's metropolitan areas. This analysis will empower homebuyers to make informed decisions, assist developers in identifying growth opportunities, guide investors in optimizing their portfolios, and enable policymakers to formulate effective housing policies that support sustainable urban development.

We use Tableau to shed light on the ever-evolving landscape of housing prices in India's bustling metropolitan areas, paving the

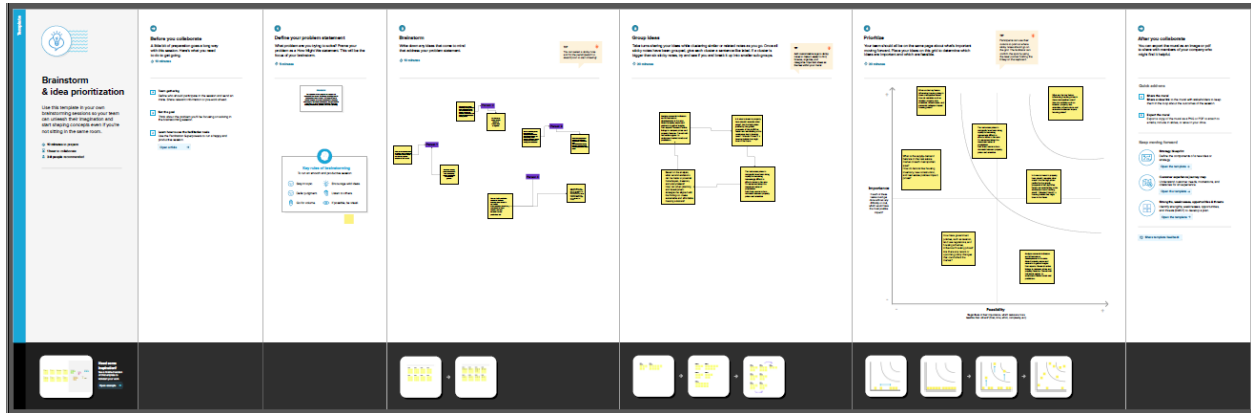
way for more informed and strategic decisions in the real estate sector.

EMPATHY MAP & BRAINSTORMING MAP

Empathy Map



Brainstroming

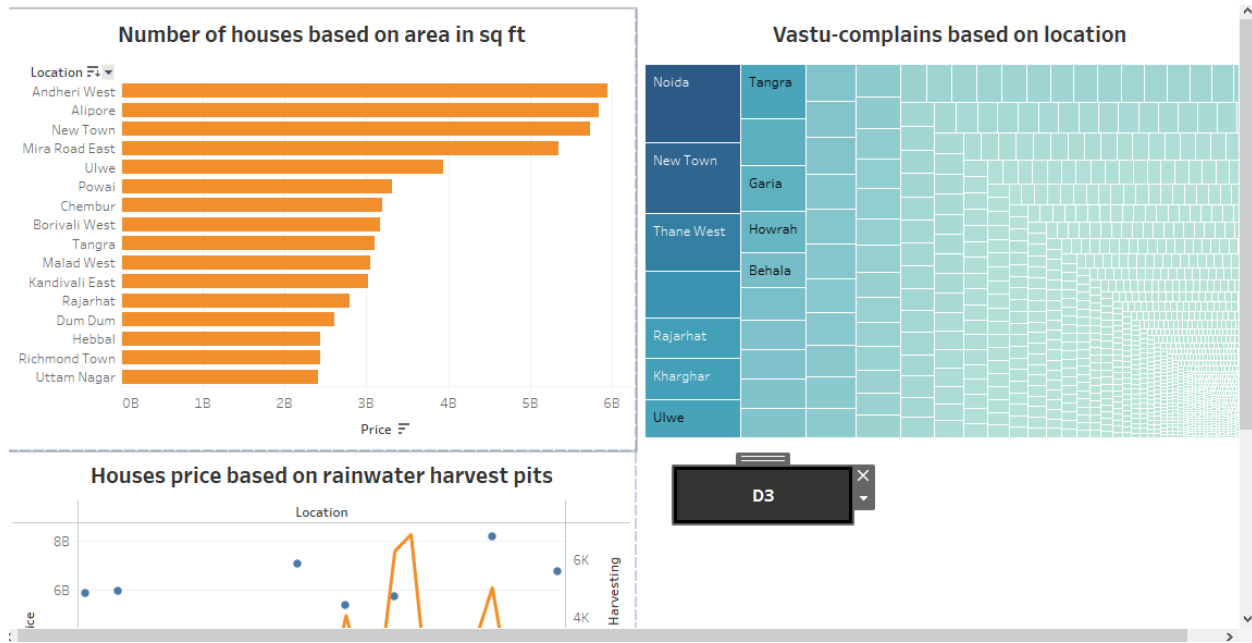


Result

Dashboard 1

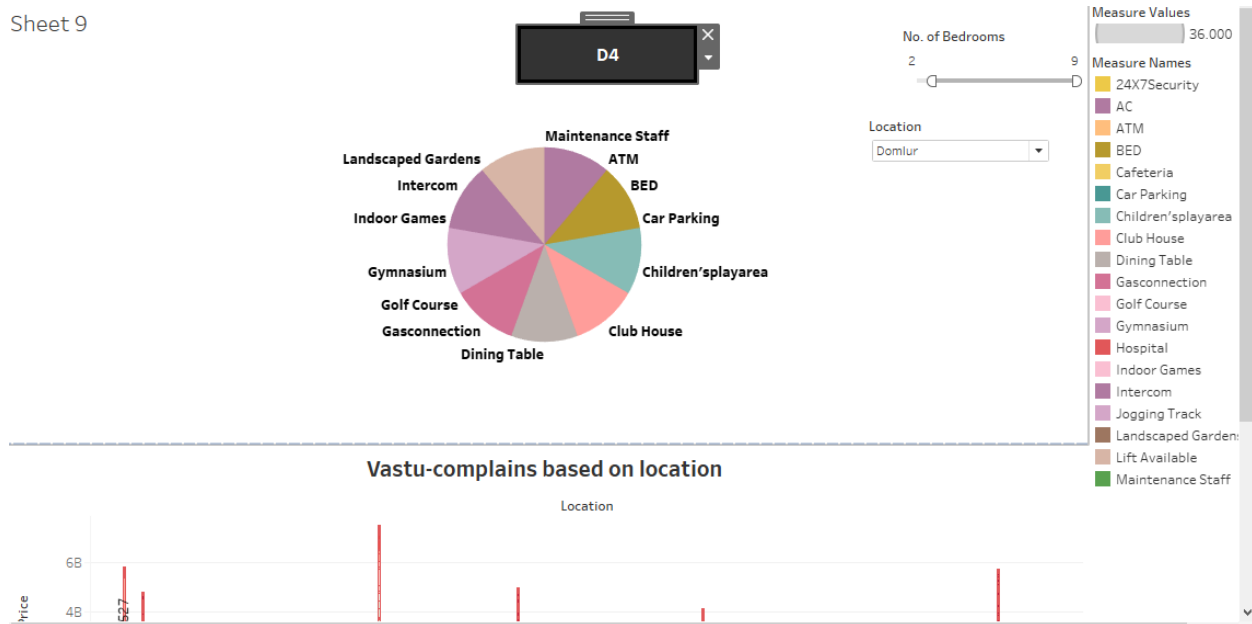


Dashboard 2

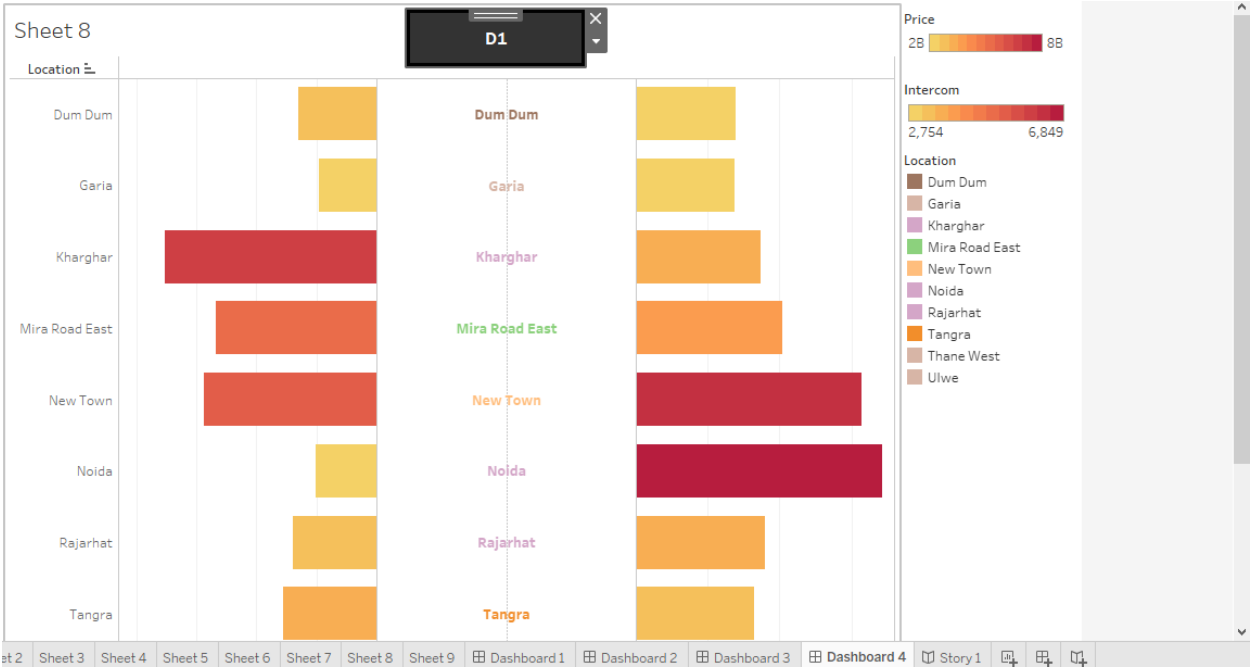


Dashboard 3

Sheet 9



Dashboard 4



Housing Prices in Metropolitan Areas of India

House Price Prediction

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Our houses in this 1 metropolitan.

Our Prices based on Area in Sq.

Our Prices based on the best places.

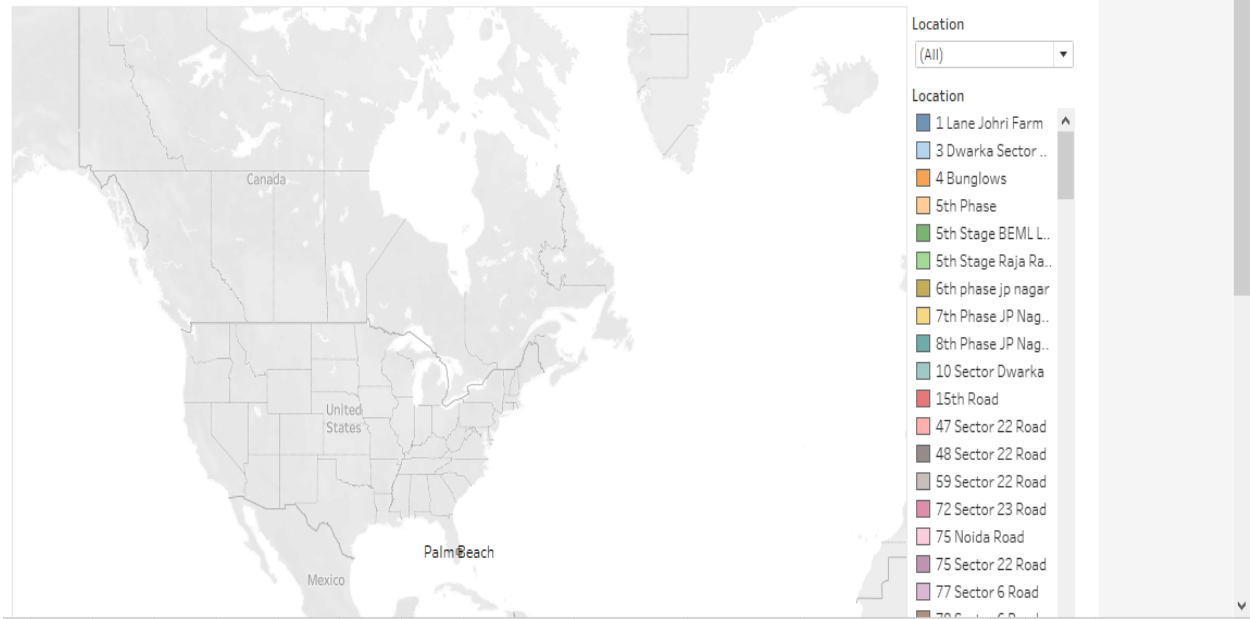
Our Houses in the Location.

Average Prices based on number.

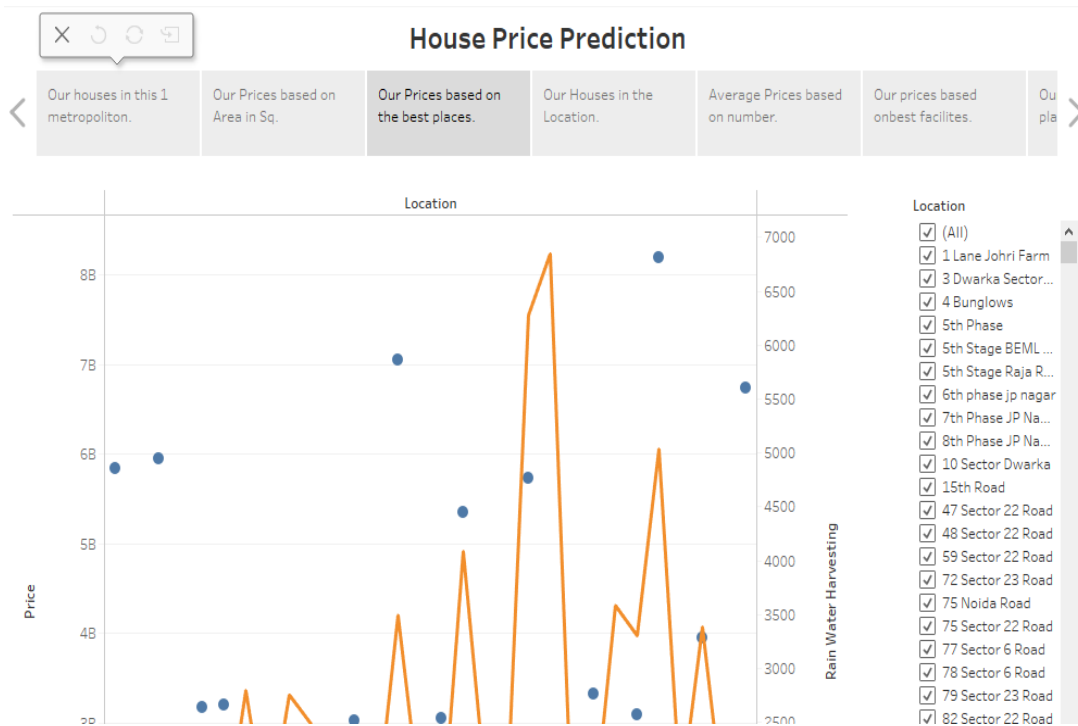
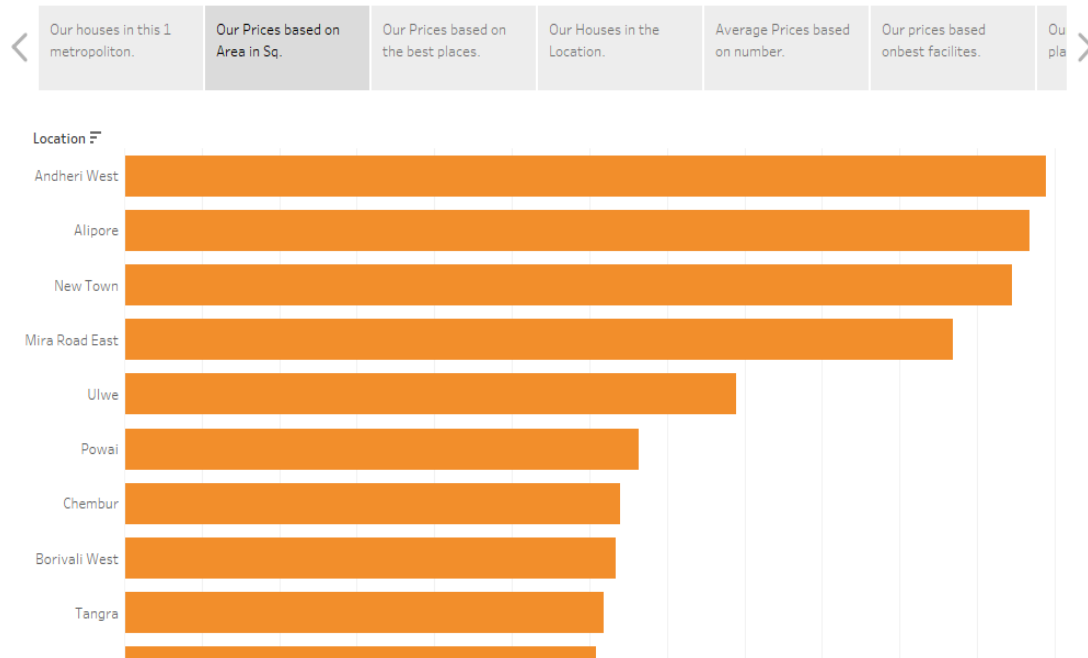
Our prices based on best facilities.

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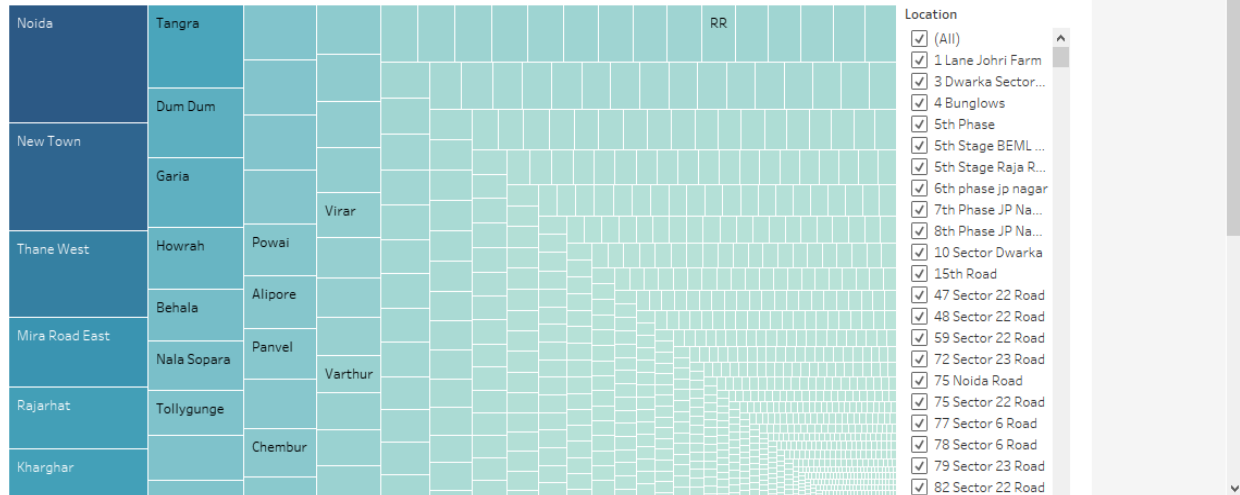
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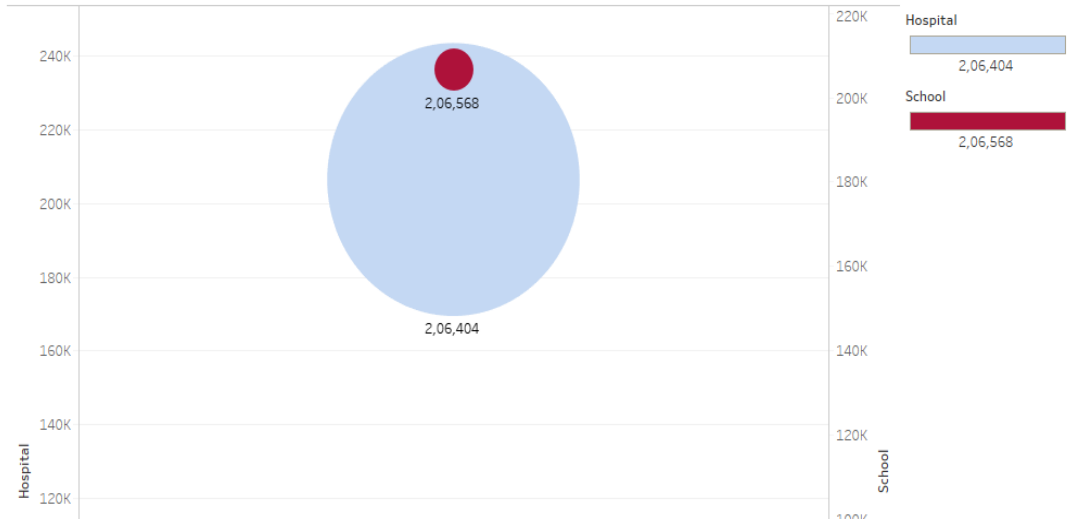
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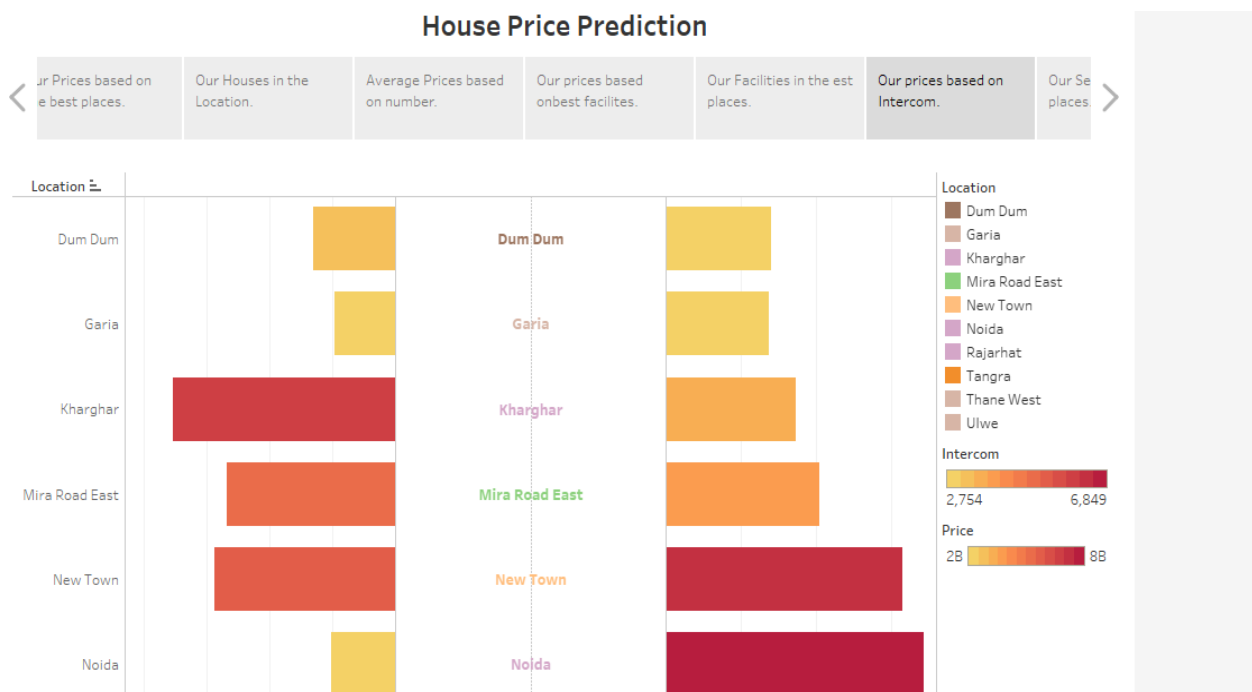
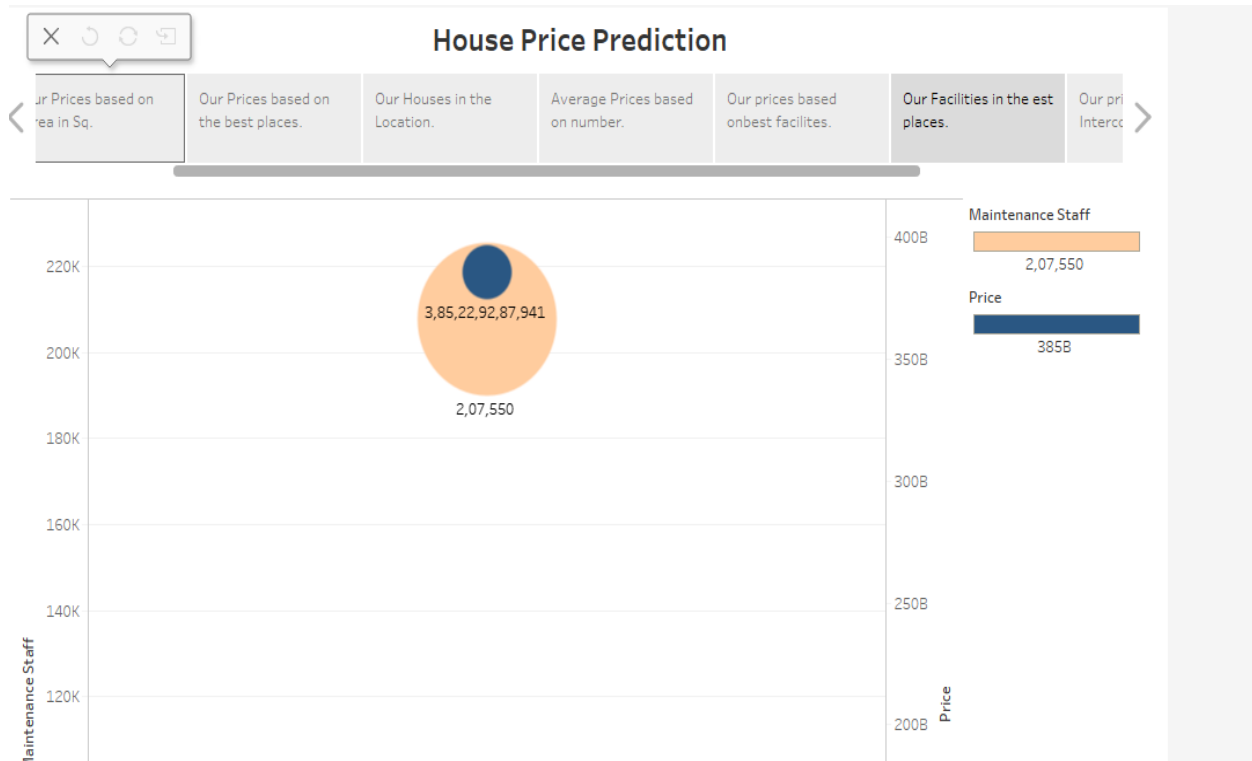
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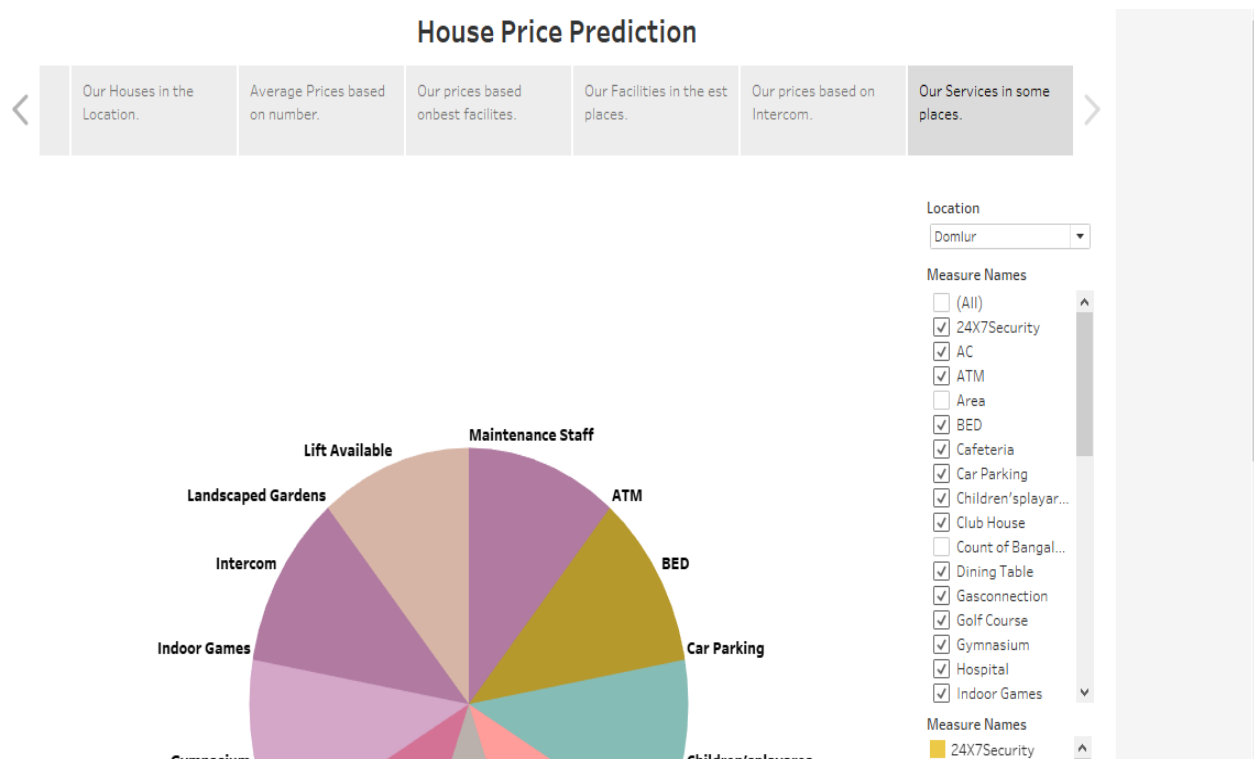
Our prices based onbest facilities.

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Story for Housing Prices in Metropolitan Areas of India

Advantages & Disadvantages

Advantages

- **Real-Time Updates:** With Tableau's connectivity to live data sources, users can access real-time housing market information, ensuring that decisions are based on the most current data.
- **Geographic Mapping:** Tableau's mapping capabilities enable you to visualize housing prices spatially, providing insights into how prices vary by location, proximity to amenities, and transportation hubs.
- **Time-Series Analysis:** Tableau facilitates the analysis of historical housing price trends over time, helping

stakeholders understand market fluctuations and long-term patterns.

- **Data Integration:** You can integrate multiple data sources, such as housing transaction records, demographic data, economic indicators, and geographic data, to gain a holistic view of the housing market.
- **Comparative Analysis:** Tableau enables you to compare housing prices across different types of properties (e.g., apartments, houses, condos) within the same metropolitan area, aiding buyers and investors in making informed choices.
- **Correlation Analysis:** You can use Tableau to explore correlations between housing prices and various factors like population density, income levels, employment rates, and GDP growth.

Disadvantages

Analyzing housing prices in Metropolitan Areas of India with Tableau offers several advantages, as previously mentioned. However, there are also some potential disadvantages to consider:

- **Data Complexity:** Housing price data can be extensive and complex, requiring thorough data cleaning, transformation, and preparation before analysis. Handling large datasets in Tableau may be resource-intensive.
- **Data Quality:** The accuracy and reliability of housing price data can vary, which can affect the trustworthiness of

insights derived from Tableau. Inaccurate or incomplete data may lead to flawed conclusions.

- **Data Integration Challenges:** Integrating data from multiple sources, including transaction records, demographic information, and economic indicators, can be technically challenging and time-consuming.
- **Learning Curve:** Tableau, while user-friendly, has a learning curve, especially for users new to data visualization and analytics tools. It may take time to fully harness Tableau's capabilities effectively.
- **Licensing Costs:** Tableau licensing costs can be a significant investment, particularly for organizations with limited budgets. Smaller businesses and startups may find these costs prohibitive.
- **Performance on Large Datasets:** When working with extremely large datasets, Tableau's performance may degrade, requiring hardware upgrades or optimizations. This can impact the speed of data analysis.
- **Data Security:** Housing price data often contains sensitive information. Ensuring data security and compliance with data protection regulations is essential, which may require additional measures and resources.

Applications

- Analyzing housing prices in Metropolitan Areas of India using Tableau involves a step-by-step application of the tool's features and functionalities to gain insights into the

real estate market. Here's a structured approach to perform this analysis:

➤ **Data Collection and Integration:**

- Gather housing price data from various sources, including real estate listings, government records, property databases, and market research reports.
- Integrate and consolidate the data into a structured format suitable for analysis in Tableau.

➤ **Data Cleaning and Preparation:**

- Cleanse and preprocess the data to handle missing values, outliers, and inconsistencies. Ensure data quality and accuracy.
- Create calculated fields or derive relevant metrics that may be useful for analysis (e.g., price per square foot, price-to-income ratio).

➤ **Data Exploration and Visualization:**

- Load the prepared dataset into Tableau.
- Create initial visualizations to explore the data. Common visualizations include:
 - Scatter plots to show the relationship between housing prices and key factors like location, property size, and amenities.
 - Bar charts and histograms to visualize price distributions.
 - Geographic maps to display housing prices by location.

➤ **Location Analysis:**

- Utilize Tableau's mapping capabilities to analyze how housing prices vary across different neighborhoods, districts, or metropolitan areas.
- Overlay additional geographic data, such as transportation infrastructure, schools, and commercial centers, to assess their impact on housing prices.
- **Time-Series Analysis:**
 - Create time-series visualizations to track housing price trends over several years. This can reveal patterns related to market fluctuations, seasonality, and long-term growth.

CONCLUSION

Analyzing housing prices in Metropolitan Areas of India using Tableau provides valuable insights into the dynamic and ever-evolving real estate market. This analysis empowers various stakeholders, including homebuyers, real estate developers, investors, and policymakers, to make informed decisions and respond effectively to market trends. The analysis has shown that housing prices vary significantly based on location within metropolitan areas. Proximity to amenities, transportation hubs, schools, and commercial centers strongly influences property values. Different property types, such as apartments, houses, and condos, exhibit distinct price trends. Understanding these variations is essential for buyers and developers. In conclusion, the application of Tableau to analyze housing prices in Metropolitan Areas of India provides a

comprehensive view of the real estate market. The insights gained from this analysis empower individuals and organizations to navigate the complexities of the housing market, make strategic investments, and contribute to informed policy decisions that support sustainable urban development. As the housing market continues to evolve, ongoing data analysis and visualization with tools like Tableau remain essential for staying ahead in this dynamic sector.

Future scope:

The analysis of housing prices in Metropolitan Areas of India using Tableau offers a promising future scope with opportunities for further exploration and development. Here are some areas of future scope:

- **Advanced Predictive Modeling:** Enhance predictive modeling capabilities in Tableau to provide more accurate forecasts of housing price trends. Incorporate machine learning algorithms and time series analysis to improve predictions.
- **Machine Learning Integration:** Integrate machine learning libraries and models directly into Tableau for more advanced data analysis and predictive analytics. This enables users to leverage machine learning algorithms without leaving the Tableau environment.
- **Real-Time Data Streaming:** Explore real-time data streaming capabilities to provide users with up-to-the-minute insights into housing market fluctuations. This is particularly valuable for investors and homebuyers.
- **Spatial Analysis:** Enhance spatial analysis in Tableau to provide detailed insights into location-based factors that affect housing prices, such as neighborhood safety, proximity to green spaces, and public transportation access.

- **Market Segmentation:** Implement market segmentation analysis to categorize housing markets based on factors like affordability, luxury, and mid-range segments. This can help investors target specific market niches.

Thank you!!