Report

The initial dataset presented a challenge in extracting actionable insights for decision-making purposes. To address this challenge, I structured an approach which included: data exploration, cleaning, analysis, and visualizations. Therefore, the primary objective was to uncover trends, patterns, and outliers within the dataset to aid decision-makers in assessing performance and identifying areas for improvement.

But before that, I did some data operations to help me to analyse it accurately:

1. Exploration and Understanding: I explored the dataset in order to gain insights into its structure, variables, and potential relationships. This involved examining data distributions, identifying missing values, and understanding the range of values for each variable.
2. Data Cleaning: SQL queries were employed to clean the dataset, ensuring consistency, accuracy, and completeness of the data. This step involved handling missing values, removing duplicates, and standardizing formats to facilitate further analysis.
3. General SQL Queries: Additional SQL queries were executed to perform random calculations.
4. Data Export to Excel: The cleaned dataset was exported to Excel, for preparation visualization in Tableau.
5. Integration with Tableau: The Excel dataset was connected to Tableau for visualization purposes, enabling the creation of interactive and insightful visual representations of the data.

Based on the initial exploration and understanding of the dataset, the following key questions were formulated to guide the analysis:

1. Yearly Total Sales Price Trends: Investigate the evolution of total sales price over the years and identify any significant patterns or trends. Explore potential outliers and their underlying causes.
2. Average Sale Price Comparison Across Different Cities: Compare average sale prices across various cities to assess spatial variations. Analyse changes in average sale prices over time within each city.
3. Average Building Value Across Different Cities: Identify cities where building values significantly deviate from the average. Examine trends in average building values across different cities over time.
4. Frequent Land Value Analysis: Analyse the distribution of land values across different cities and identify common land value ranges within the dataset.
5. Total Property Value in Different Cities per Year: Assess changes in total property values across different cities over time. Examine variations in total property values (sum of land and building values) on a yearly basis.

Visualization

In my Tableau dashboard, I've meticulously crafted a suite of visualizations to distil and communicate key insights from our analysis:

1. Total Sales per Year: This bar graph offers a quick overview of annual sales volume, facilitating trend analysis and forecasting.

2. Property Value Heatmap: This visualization provides a bird's eye view of property value dynamics over time, aiding in spotting market trends.
3. Land Value Distribution: This bar graph categorizes land values, offering insights into the diversity of land prices for strategic decision-making.
4. Average Building Value by City: Packed bubbles visualize average building values across cities, helping identify market trends and investment opportunities.
5. Average Sales Price by City: This bar graph compares average sales prices across cities, guiding towards potential investment areas.

Interactive Filters: To enhance usability, the dashboard features interactive filters for half bath, bedrooms, full bath, and acreage. These filters empower users to customize their analysis based on specific criteria of interest, ensuring they extract actionable insights tailored to their needs.

Conclusion

In conclusion, through a comprehensive approach encompassing data exploration, cleaning, analysis, and visualization, we've uncovered actionable insights to guide decision-making effectively. Our meticulous process has revealed trends, patterns, and outliers within the dataset, enabling us to address key questions and provide strategic recommendations. The Tableau dashboard serves as a powerful tool for distilling complex information into clear, interactive visualizations, empowering stakeholders to make informed decisions tailored to their specific criteria of interest. Moving forward, these insights will pave the way for optimizing performance, identifying areas for improvement, and seizing new opportunities in the dynamic real estate landscape.