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DS and AI Bootcamp

EDA Portfolio Project

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Executive Report: Pakistan Real Estate Market Analysis

1. Executive Summary

This report analyzes **18,255 property listings** from Zameen.com to identify key drivers of real estate prices in Pakistan. The analysis focused on normalizing data across major cities (Karachi, Lahore, Islamabad, Rawalpindi, etc.) to allow for a direct "apples-to-apples" comparison.

Key Takeaway: The market is heavily dominated by residential houses (~73%), yet the highest value-per-square-foot density is concentrated in the vertical developments (Flats) and premium residential zones of **Karachi (DHA Defence, Clifton)**. Secondary markets like Rawalpindi offer the highest affordability for entry-level investors.

2. Methodology & Data Quality

To ensure accurate insights, the raw data underwent rigorous preprocessing:

- **Data Cleaning:** Inconsistent area units (Marla, Kanal, Sq. Yd.) were converted to a standard **Square Feet (sqft)** metric.
- **Currency Normalization:** Text strings (e.g., "1.5 Crore", "60 Lakh") were parsed into numeric **PKR** values.
- **Outlier Removal:** An Interquartile Range (IQR) filter was applied to remove pricing anomalies (top/bottom 5%), ensuring averages were not skewed by incorrect data entries.
- **Feature Engineering:** A Price_per_Sqft metric was calculated to compare value density across different property sizes.

3. Market Analysis & Findings

A. Regional Pricing Dynamics

Karachi currently commands the highest market premiums, driven by land scarcity and high-density living.

- **Most Expensive:** Karachi averages the highest price per sqft, specifically in **DHA Defence** and **Zamzama**.
- **Affordability:** Cities like **Rawalpindi** and outlying areas of **Faisalabad** present significantly lower entry costs, offering potential for long-term volume growth.

[Insert Figure 1 Here: Box Plot / Violin Plot of Price per Sqft by City] *Observation: Karachi shows the widest price variance, indicating a market with both ultra-luxury and mid-range options, whereas smaller cities show tighter, lower price bands.*

B. Asset Class Distribution

The Pakistani market remains traditional, with a strong preference for horizontal living, though urbanization is driving vertical growth.

- **Houses:** 73% of the dataset (13,382 listings).
- **Flats:** 16% of the dataset (2,890 listings).
- **Portions/Etc:** 11% of the dataset.

[Insert Figure 2 Here: Bar Chart of Listing Counts by Property Type] *Observation: While Houses dominate listing volume, Flats in urban centers (Karachi/Islamabad) show higher price-per-sqft stability.*

C. Price Correlations

Our correlation analysis confirms that structural factors are strong predictors of price:

- **Area vs. Price:** Strong positive correlation. Larger properties command higher total prices, but the returns diminish per extra square foot in extremely large farmhouses.
- **Bed/Bath Count:** Moderate correlation. Additional bathrooms often signal "luxury" finishing more than bedrooms do.

[Insert Figure 3 Here: Correlation Heatmap]

4. Strategic Recommendations

For High-Net-Worth Investors

- **Focus Area:** Karachi (DHA Defence, Clifton).
- **Strategy:** Focus on **Flats or Penthouses**. These areas have reached peak land saturation, meaning capital appreciation will likely be driven by vertical luxury developments rather than land expansion.

For Developers

- **Opportunity:** There is an oversupply of single-unit houses but an undersupply of mid-range apartments in secondary cities like **Lahore** and **Rawalpindi**.
- **Action:** Develop mid-tier apartment complexes in these growing metros where price-per-sqft is currently undervalued compared to Karachi.

For First-Time Buyers

- **Focus Area:** **Gulzar-e-Quaid (Rawalpindi)** and **Bahria Town (outlying sectors)**.
- **Strategy:** These areas currently offer the lowest price-per-sqft. Buying here allows for entry into the market with lower capital risk compared to Islamabad's city center.

5. Conclusion

The Zameen.com dataset reveals a segmented market. While the volume of transactions is likely highest in the "House" category, the *value density* is shifting toward urban apartments in Karachi. Investors

should align their strategy based on capital availability: Karachi for stability/premium yield, and Northern Punjab (Rawalpindi) for growth potential.