

# Egypt Real Estate Market Analysis Report

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## 1. Executive Summary

This report analyzes the Egypt Real Estate Listings Dataset (2025), which includes property prices, sizes, room counts, property types, payment methods, and locations across multiple governorates, cities, and compounds. The data was cleaned, transformed, and optimized for analysis.

Key findings include:

- **Market Composition:** Apartments dominate the housing supply, while Villas and Chalets lead in the premium and coastal segments.
- **Property Size & Rooms:** Most properties range from 100–200 sqm with 2–3 bedrooms and bathrooms. Larger properties exist but are less common and skew the distribution.
- **Payment Methods:** Cash purchases predominate for high-value properties, while installment plans are more common for mid-range units.
- **Regional Pricing:** North Coast, Cairo, and Red Sea lead in both property prices and price per sqm. These regions represent Egypt's luxury and investment-driven markets.
- **Compounds & Branding:** Compounds like Marassi, Mountain View iCity, and Mangroovy command significantly higher prices per sqm due to exclusivity, location, and developer reputation.

Strategic recommendations focus on location-driven targeting, expanding installment financing for mid-market buyers, and leveraging compound branding to capture premiums in the luxury market.

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## 2. Data Preparation

### 2.1 Data Cleaning

- Converted the price column from text (with commas) into numeric values.
- Removed irrelevant fields (description, url, down\_payment, available\_from).
- Dropped rows with missing location values.
- Split the location field into Governorate, City, and Compound for detailed geographic analysis.
- Removed unrealistic property sizes greater than 1000 sqm as clear outliers.

### 2.2 Feature Engineering

- Price per sqm (price\_per\_sqm): calculated as price/size.

- **Size bins (size\_bin):** grouped property sizes into intervals of 50 sqm for grouped analysis.
- **Maid room (Maid\_room):** binary column created from text patterns in the bedrooms column.

## 2.3 Handling Missing Values

- Implemented a grouped imputation function to fill missing values in price, bedrooms, and bathrooms using group-level means (by size bin, type, and governorate/compound).
- If no group mean was available, the global mean was used as a fallback.
- Dropped rows with missing payment\_method.

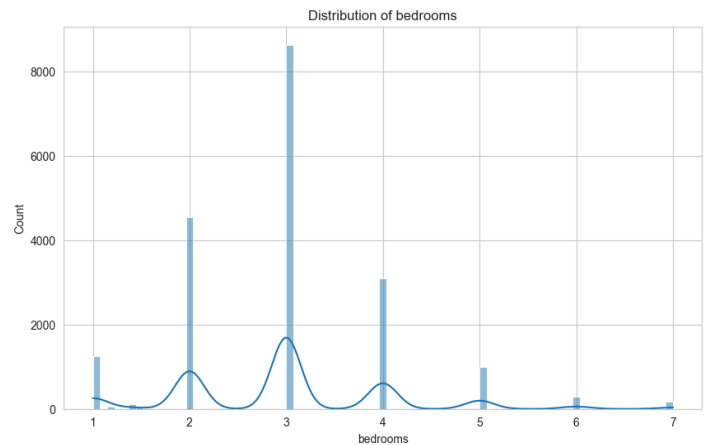
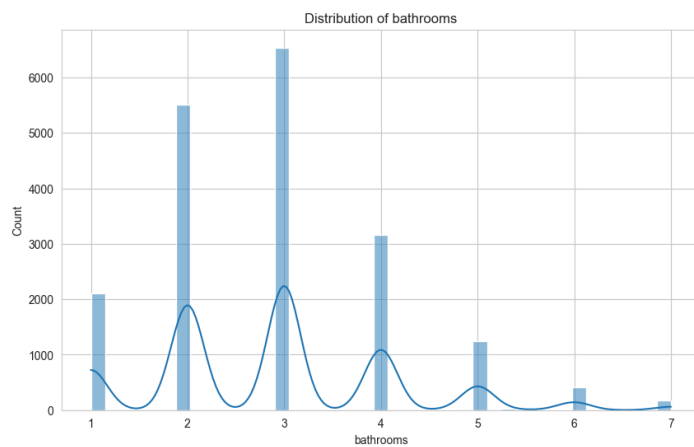
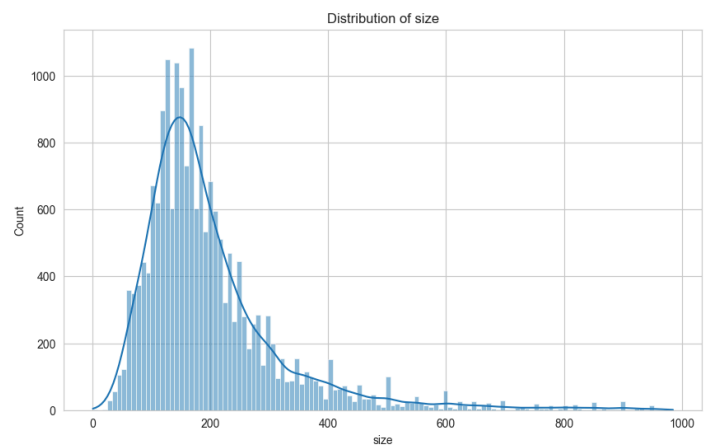
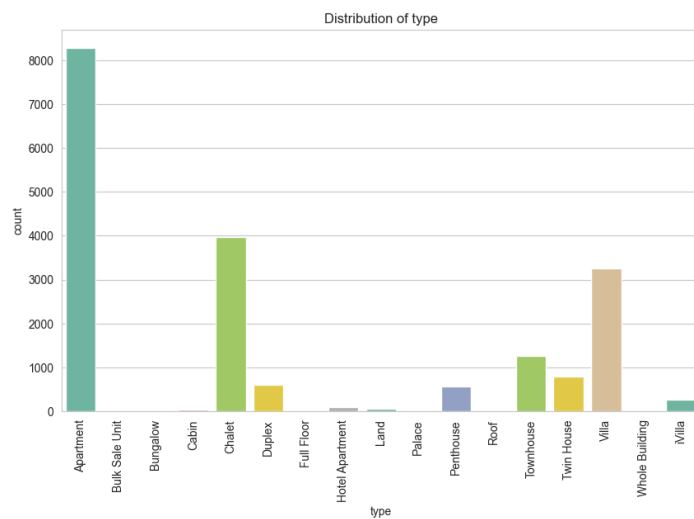
## 2.4 Memory Optimization

- Converted categorical text fields into the category datatype to reduce memory usage.
  - Downcasted numerical columns (int64, float64) into smaller types (int32, float32) where possible.
  - This reduced total memory usage significantly, enabling faster analysis.
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# 3. Exploratory Data Analysis

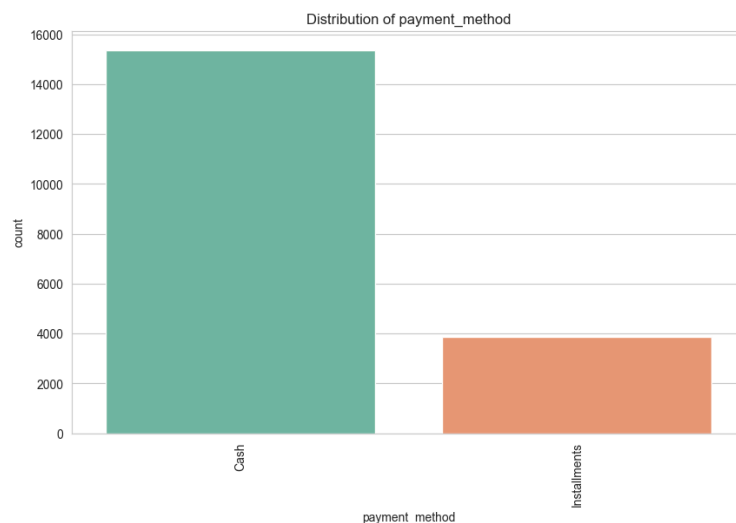
## 3.1 Property Types & Sizes

- Apartments make up the majority of listings, reflecting Egypt's urban housing supply.
- Chalets and Villas are concentrated in coastal and tourist governorates.
- Most properties are 100–200 sqm, with size categories 100–150 and 150–200 being the most frequent.
- Bedrooms and bathrooms are most often 2 or 3, aligning with middle-class family demand.
- Properties with more than 4 rooms are rare and typically represent the luxury segment.



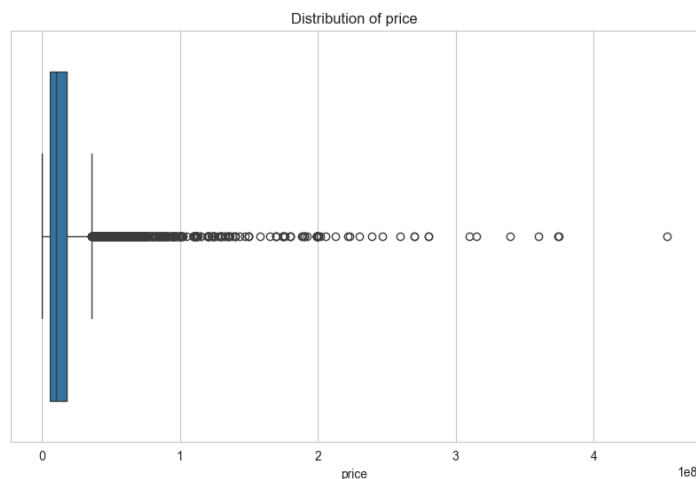
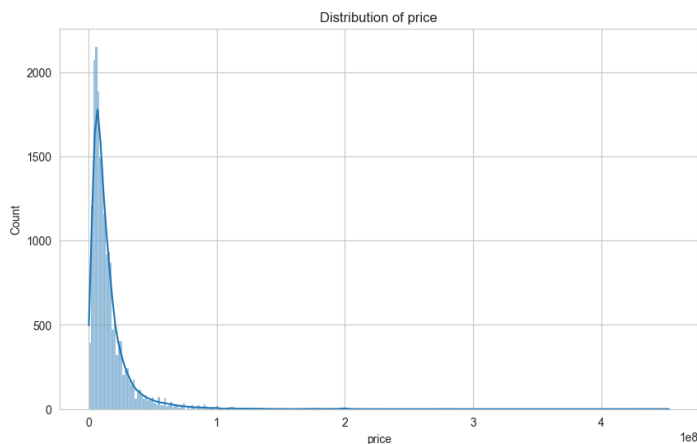
## 3.2 Payment Methods

- Cash purchases dominate, particularly in luxury markets.
- Installment plans are mainly used for mid-market apartments in urban areas.
- The most expensive properties are almost always purchased with cash, suggesting that installment financing is not yet widespread in the luxury segment.



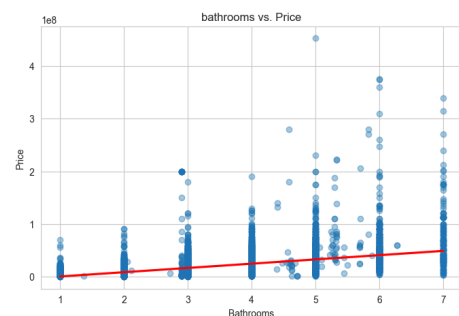
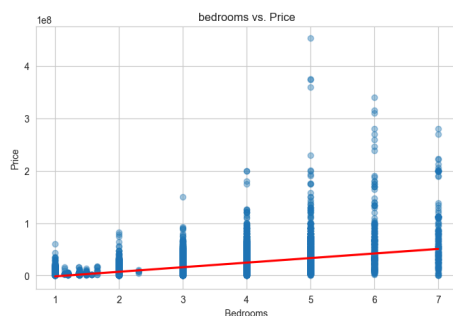
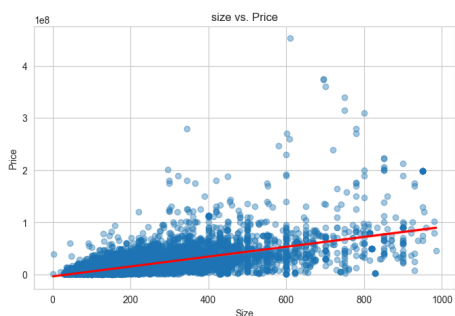
## 3.3 Price Distribution & Outliers

- Property prices are heavily right-skewed. Most are clustered at the lower end, with a few extremely high-priced luxury properties.
- Outliers are not data errors they reflect luxury villas, palaces, or exclusive compounds.
- Instead of removal, outliers are handled carefully through transformations (e.g., log of price) for modeling purposes.



### 3.4 Bivariate Relationships: Size, Bedrooms & Bathrooms vs Price

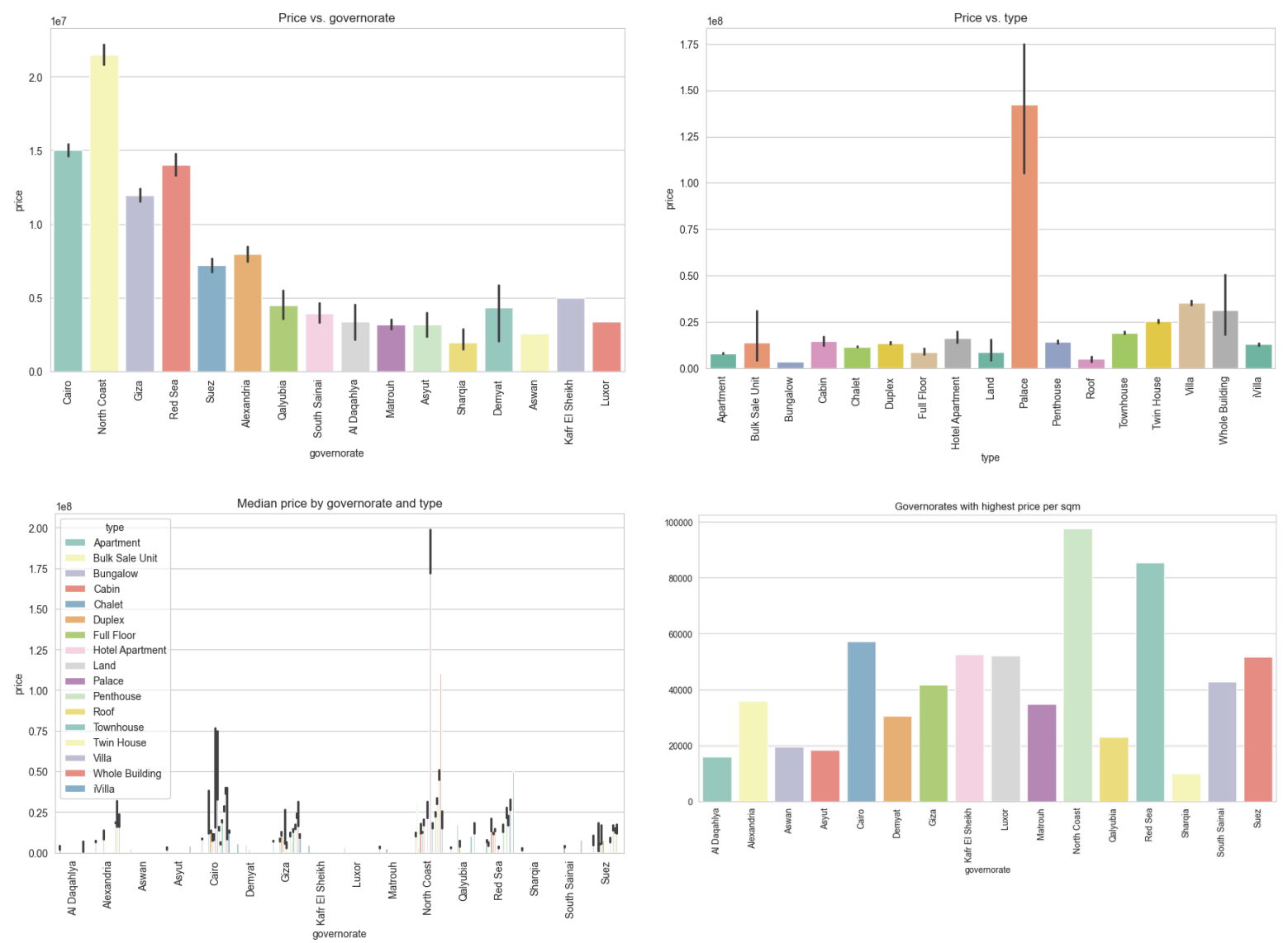
- **Size vs Price:** Larger properties cost more, but prices vary widely for the same size, influenced by location, type, and amenities.
- **Bedrooms vs Price:** More bedrooms generally lead to higher prices, but wide price ranges exist at each level. Outliers are especially common with 5+ bedrooms.
- **Bathrooms vs Price:** Similar to bedrooms, more bathrooms are associated with higher prices, but large variations remain.



### 3.5 Regional & Property Type Analysis

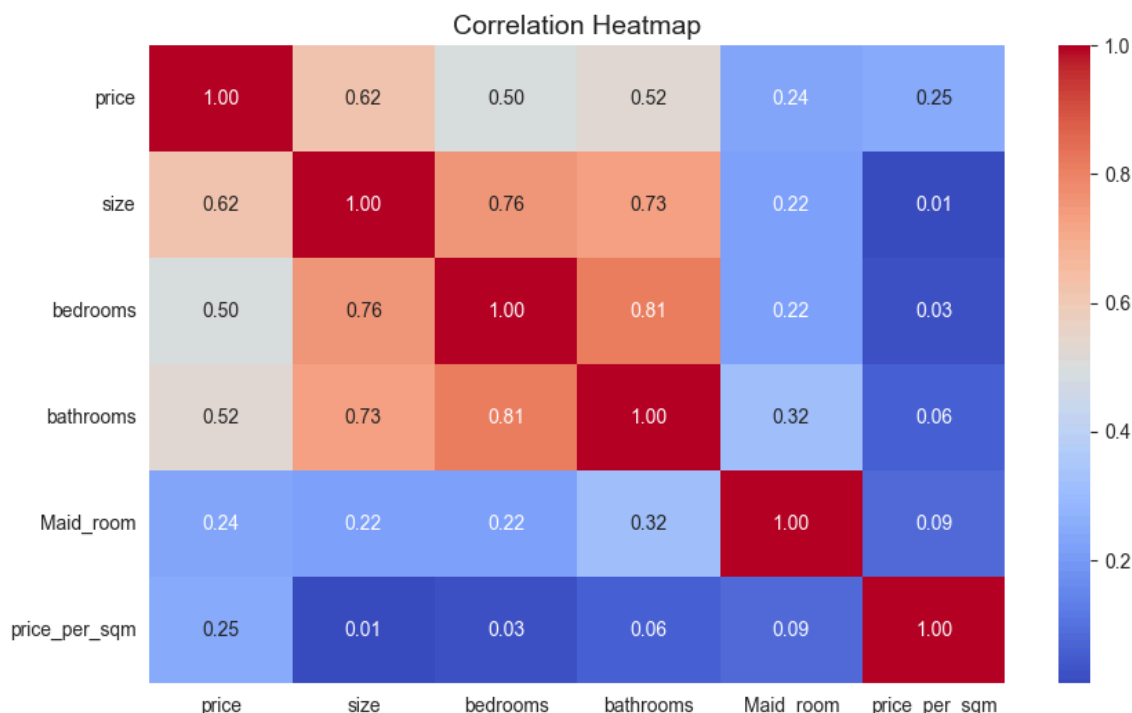
- **By Property Type:** Palaces and Villas have the highest average prices, while Apartments and Townhouses are more affordable.

- **By Governorate:** North Coast has the highest average property prices, followed by Cairo and the Red Sea. Giza comes next, while governorates like Asyut, Al Daqahliyah, and Luxor show much lower averages.
- **By Governorate & Type (Multivariate):**
  - Cairo and North Coast show high median prices across multiple types.
  - Villas in Cairo and Chalets in the North Coast dominate the luxury segment.
  - Chalets and Villas are clustered in coastal governorates; Apartments and Whole Buildings dominate cities.
- **Governorates:** North Coast and Red Sea dominate in median price per sqm, showing strong luxury demand.



3.7 Correlation Analysis

- **Price & Size:** Strong positive correlation (0.62).
- **Bedrooms & Bathrooms:** Highest correlation (0.81) — properties with more bedrooms almost always have more bathrooms.
- **Size & Rooms:** Strong correlation (0.73–0.76).
- **Maid Room:** Weak correlation with price or size, showing limited influence.



## 4. Key Findings

- **Location is the strongest driver of property value:** Cairo, North Coast, and Red Sea dominate in both total price and price per sqm.
- **Compounds define the luxury market:** Premium compounds command prices far above average city-level values.
- **Cash dominates luxury:** Installments are not common for high-value properties.
- **Apartments are the volume segment, but Villas and Chalets represent the premium market.**
- **Outliers are valuable signals:** Luxury properties are a distinct and important market segment.

## 5. Recommendations

1. **Premium Targeting:** Focus on Cairo, North Coast, and Red Sea for high-value developments.
2. **Compound Branding:** Invest in strong branding and exclusivity, as this directly translates into higher price per sqm.
3. **Installment Expansion:** Widen financing options in Cairo and Giza to capture the middle-class demand for apartments.
4. **Market Segmentation:**
  - Apartments → affordable, urban middle class.

- Villas & Chalets → luxury, coastal investors.
  - Compounds → exclusivity, status symbol properties.
5. **Data-Driven Pricing:** Use `price_per_sqm` benchmarks for competitive pricing strategies.
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## 6. Data Limitations

- The dataset does not include a time dimension, preventing analysis of seasonal or long-term price trends.
  - Some location parsing (Governorate, City, Compound) is text-based, which may introduce classification errors.
  - Missing values were imputed, which may introduce bias into estimates.
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## 7. Next Steps

- **Predictive Modeling:** Build regression or machine learning models to predict property prices.
  - **Geospatial Analysis:** Use mapping techniques to visualize property distribution by governorate and city.
  - **Buyer Segmentation:** If buyer-level data becomes available, analyze demand patterns by demographics and financing type.
  - **Market Forecasting:** Incorporate time-series data (if available) to predict market growth and seasonal patterns.
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