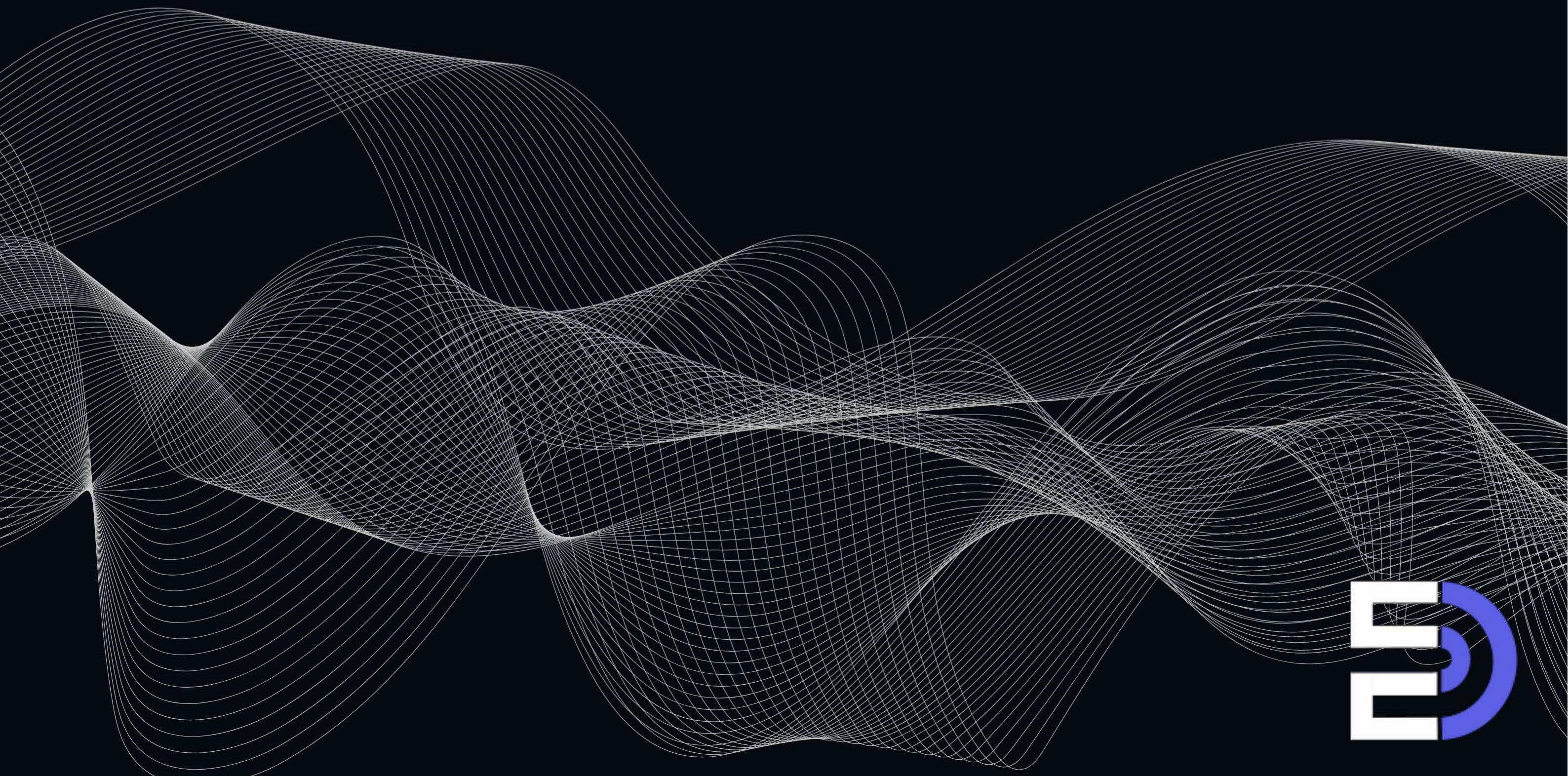


ocean



# Real Estate **DUBAI**

*Forecasting and Evaluating Property Value*



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# DATA ANALYSIS

Dubai's real estate market has long been a focal point for investors and property enthusiasts worldwide, characterized by its rapid development and architectural marvels.

Understanding the dynamics of this market is crucial for individuals and organizations seeking to make informed decisions.

In this report, we delve into the global real estate market in Dubai, utilizing data and supporting graphs to uncover noteworthy insights.

Specifically, we explore the correlation between surface area and sale/rental prices, compare the evolving trends of the rental and sales markets, and identify the key factors impacting property prices while examining their changes over time.

By unraveling these patterns, we aim to provide a comprehensive understanding of Dubai's real estate landscape, empowering stakeholders with valuable insights for strategic decision-making.



# DATA CLEANING



## IMPLEMENTING THE ACTION

The data cleaning process then involved removing 200 rows of problematic entries from the dataset.

## DECIDING ON A COURSE OF ACTION

Given that these locations, among several others could not be reliably associated with real estate in Dubai, the decision was made to remove them.

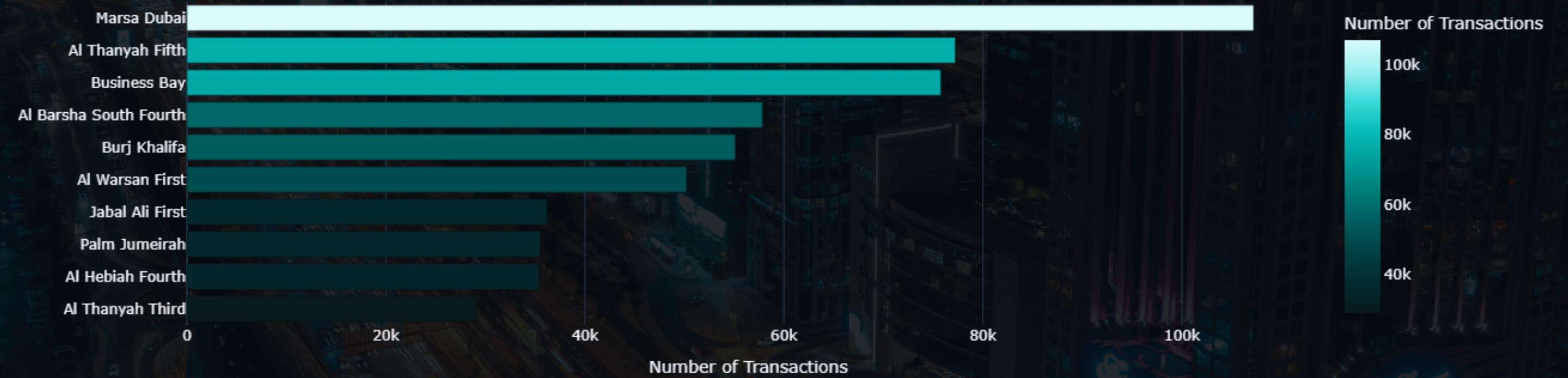
## IDENTIFYING PROBLEMATIC ENTRIES

In this instance, certain place names, such as 'Al Eyaz' and 'Al Asbaq', were suspected of being either nonexistent or misspelled.

## USING GOOGLE MAPS API

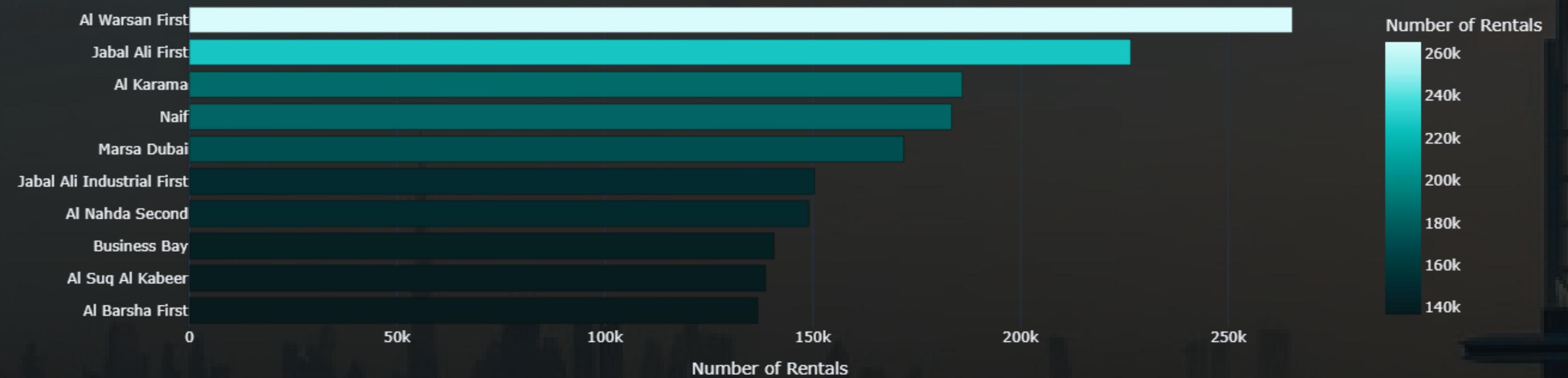
Google Maps API was used to verify geographic location names in the dataset. Some of the findings showed that 'Al Eyaz' only had a police station, indicating it's not a residential area. 'Al Asbaq' did not appear in the results, suggesting it may not exist or was misspelled.

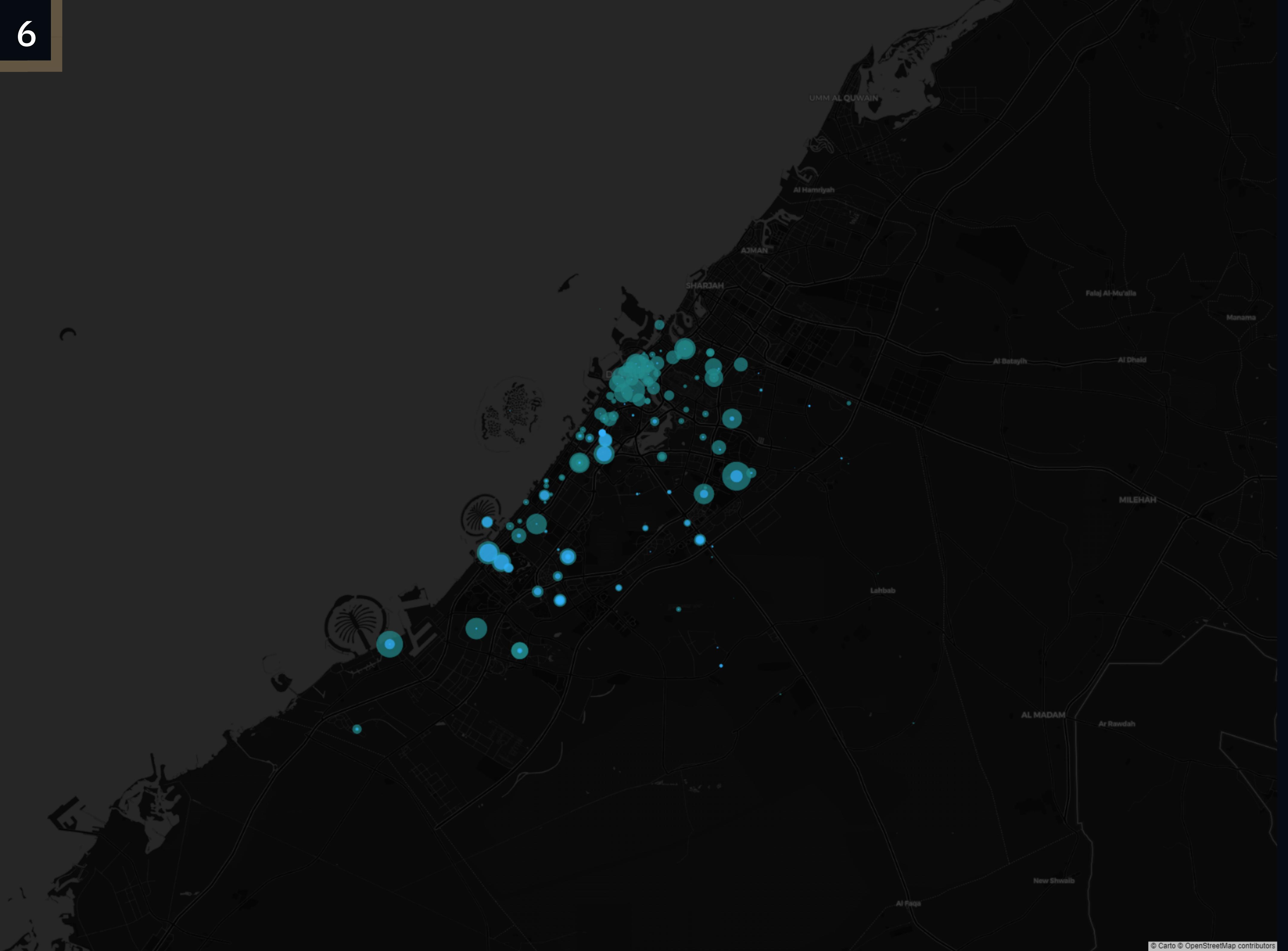
### Top Locations for Real Estate Transactions



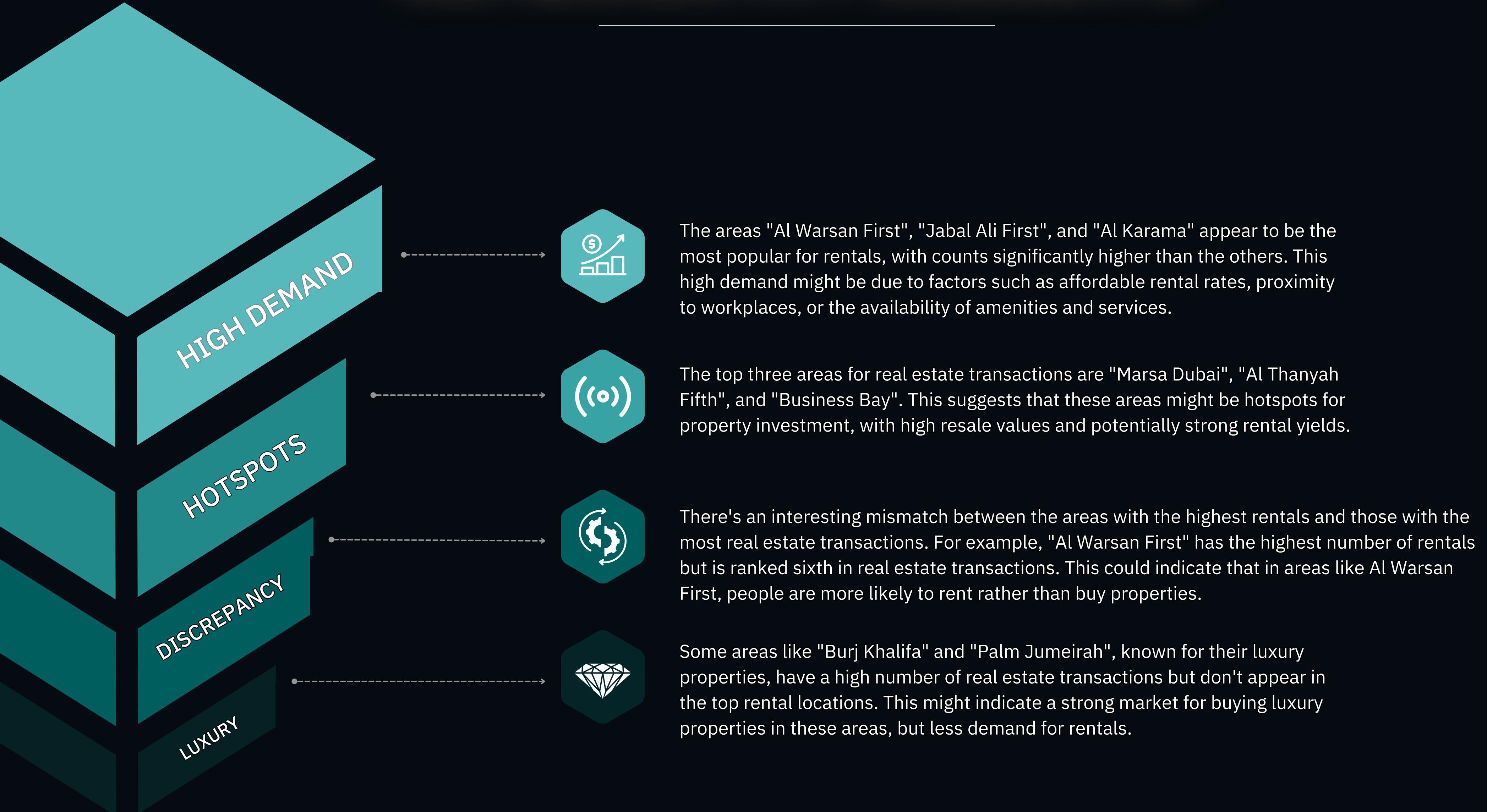
# CHARTS

### Top Locations for Rentals





# NOTEWORTHY INSIGHTS



## Top 10 Locations for Real Estate Rentals

Property Size vs Annual Rental Price

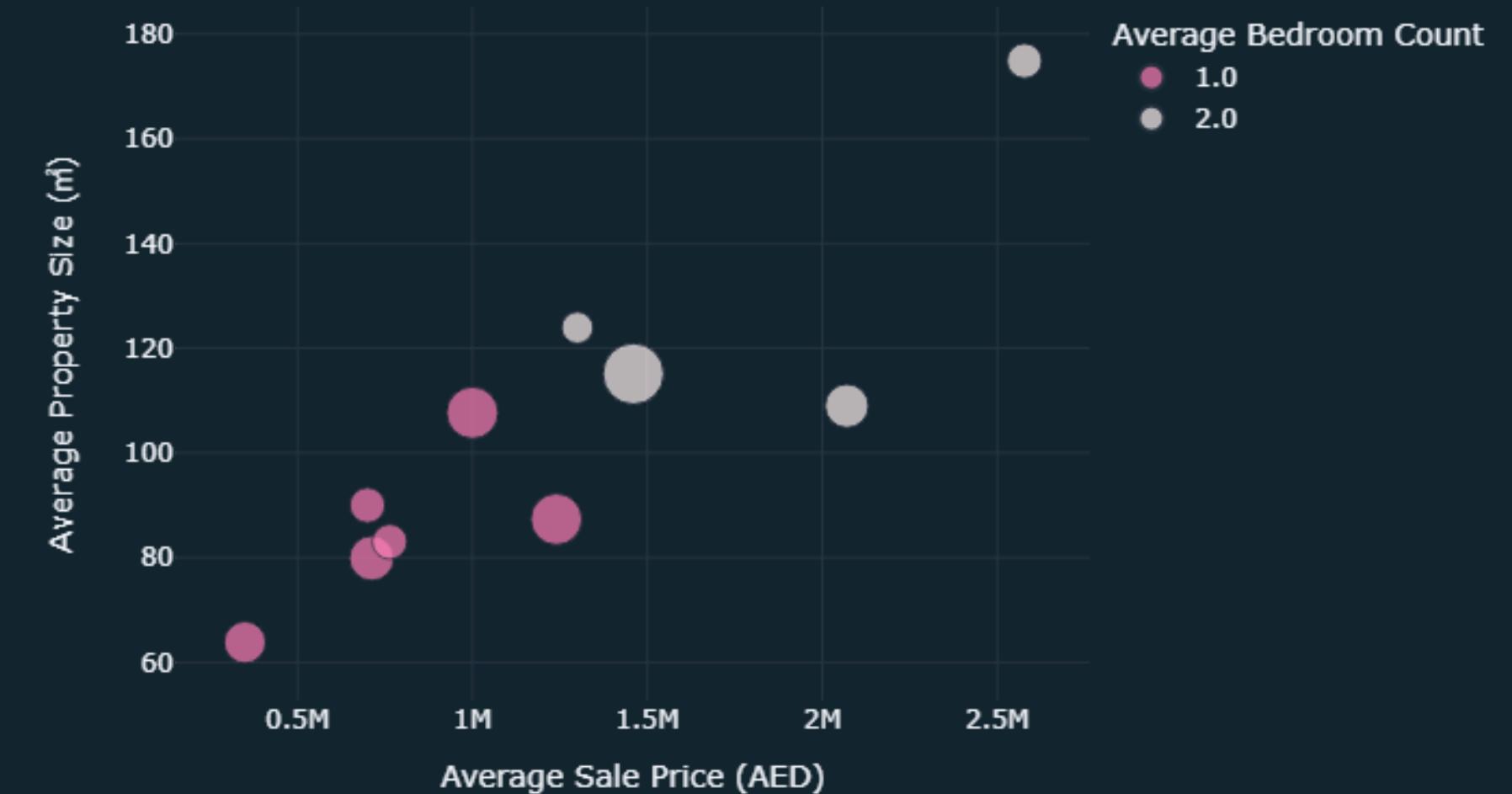


Smaller properties (like in Jabal Ali Industrial First, avg. size 19 m<sup>2</sup>) can have high rental prices (avg. 810000), while larger properties (like in Marsa Dubai, avg. size 116 m<sup>2</sup>) can also have high rental prices (avg. 100000). This suggests that there may not be a straightforward or linear correlation between property size and rental price, as other factors (like location) are heavily influencing rental prices.

Similarly, smaller properties (like in Al Warsan First, avg. size 63.82 m<sup>2</sup>) can have a lower sale price (avg. 350000), while larger properties (like in Palm Jumeirah, avg. size 174.9 m<sup>2</sup>) have a much higher sale price (avg. 2577425). This could suggest that larger properties tend to have higher sales prices, but again, factors like location are likely influencing these prices significantly.

## Top 10 Locations for Real Estate Sales

Property Size vs Sale Price

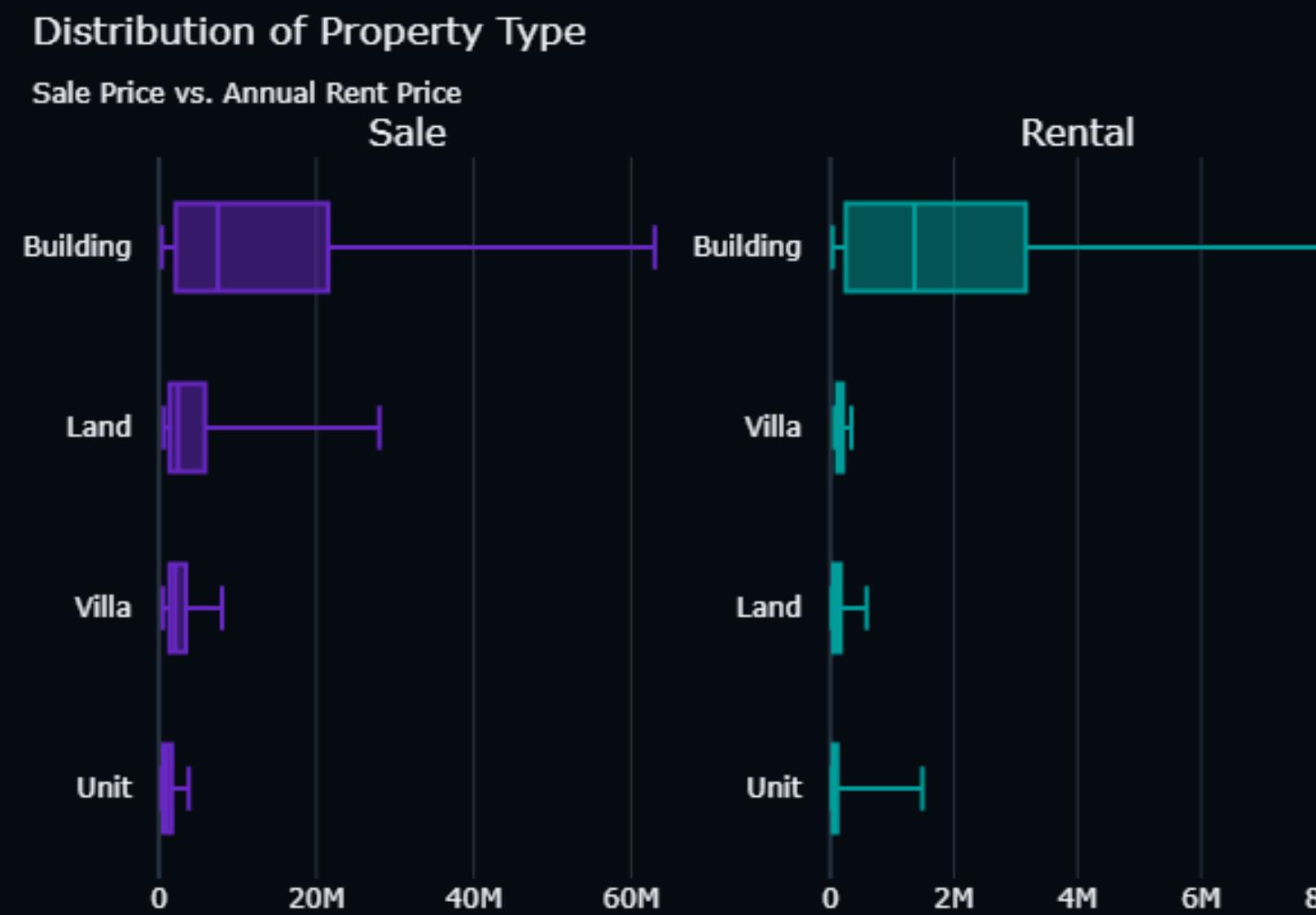




The line chart illustrates the annual trends in real estate sales and rental in Dubai, showcasing a comparison of average and median sale and rental amounts over time.

The data reveals a notable increase in both average and median sale amounts from 1995 to a peak in 2006, followed by a slight decline leading to 2023. Similarly, the median sale amount exhibited a similar pattern. On the other hand, the rental market, with available data from 2001, experienced a consistent rise in average and median rental amounts until 2016, reaching their respective peaks.

However, post-2016, there was a significant decrease in rental amounts, suggesting a potential shift in market dynamics. These trends suggest that the real estate market in Dubai is influenced by various factors, such as economic conditions, buyer preferences, and supply-demand dynamics, which impact sales and rental prices differently over time.



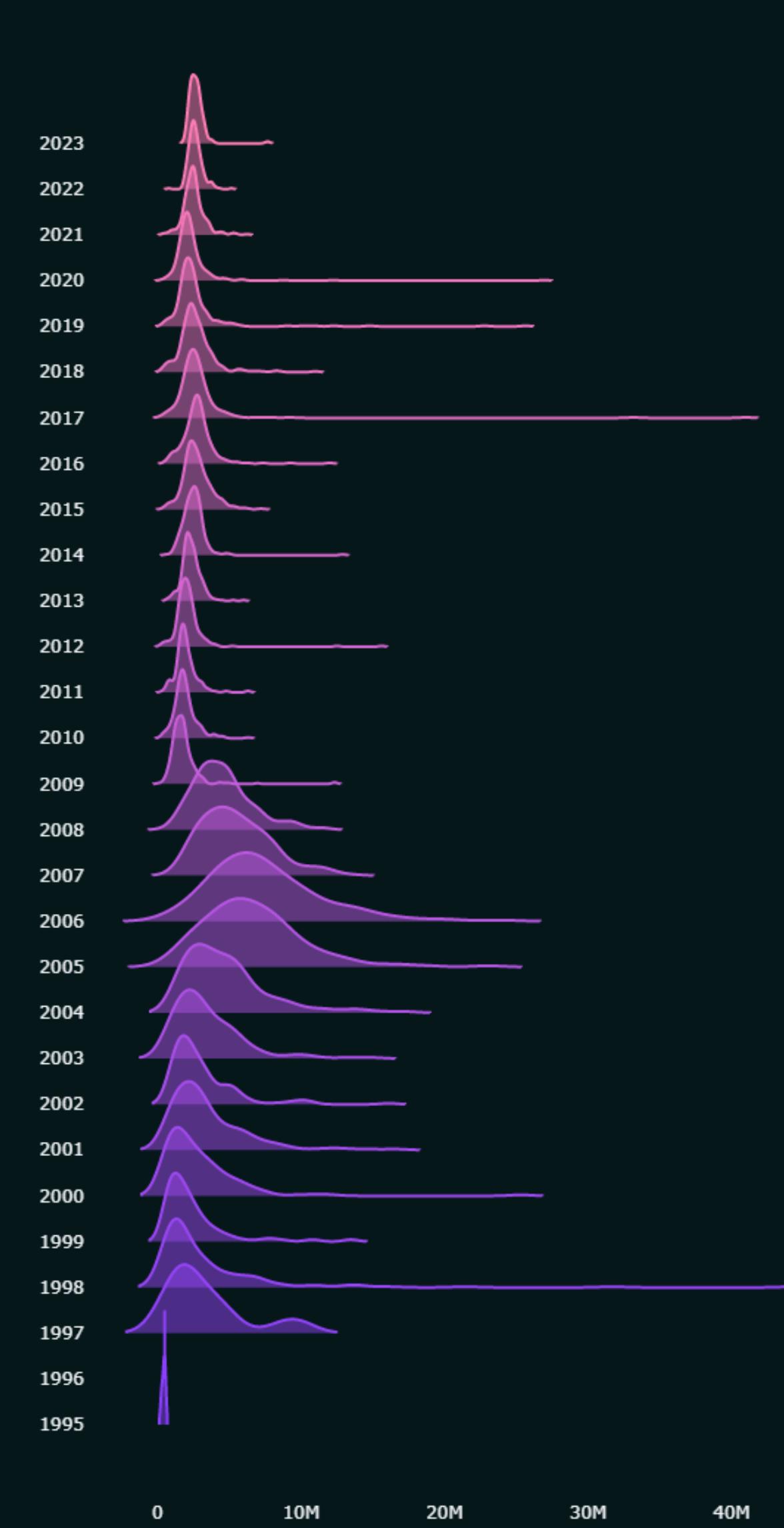
The box plot of property type sale price versus annual rent price reveals interesting insights into the real estate market in Dubai.

It showcases the wide range of prices within each property type, with 'Building' properties standing out with the highest maximum sale and rental prices. This suggests that the property type plays a significant role in determining property prices, and buildings may offer unique value or hold higher demand in the market. The box plot highlights the diversity in pricing across different property types, emphasizing the need for prospective buyers or renters to consider their preferences, requirements, and budget carefully.

Additionally, this visualization underscores the importance of conducting thorough research and analysis beyond property type, taking into account factors like location, size, amenities, and other market dynamics to make well-informed real estate decisions in Dubai.

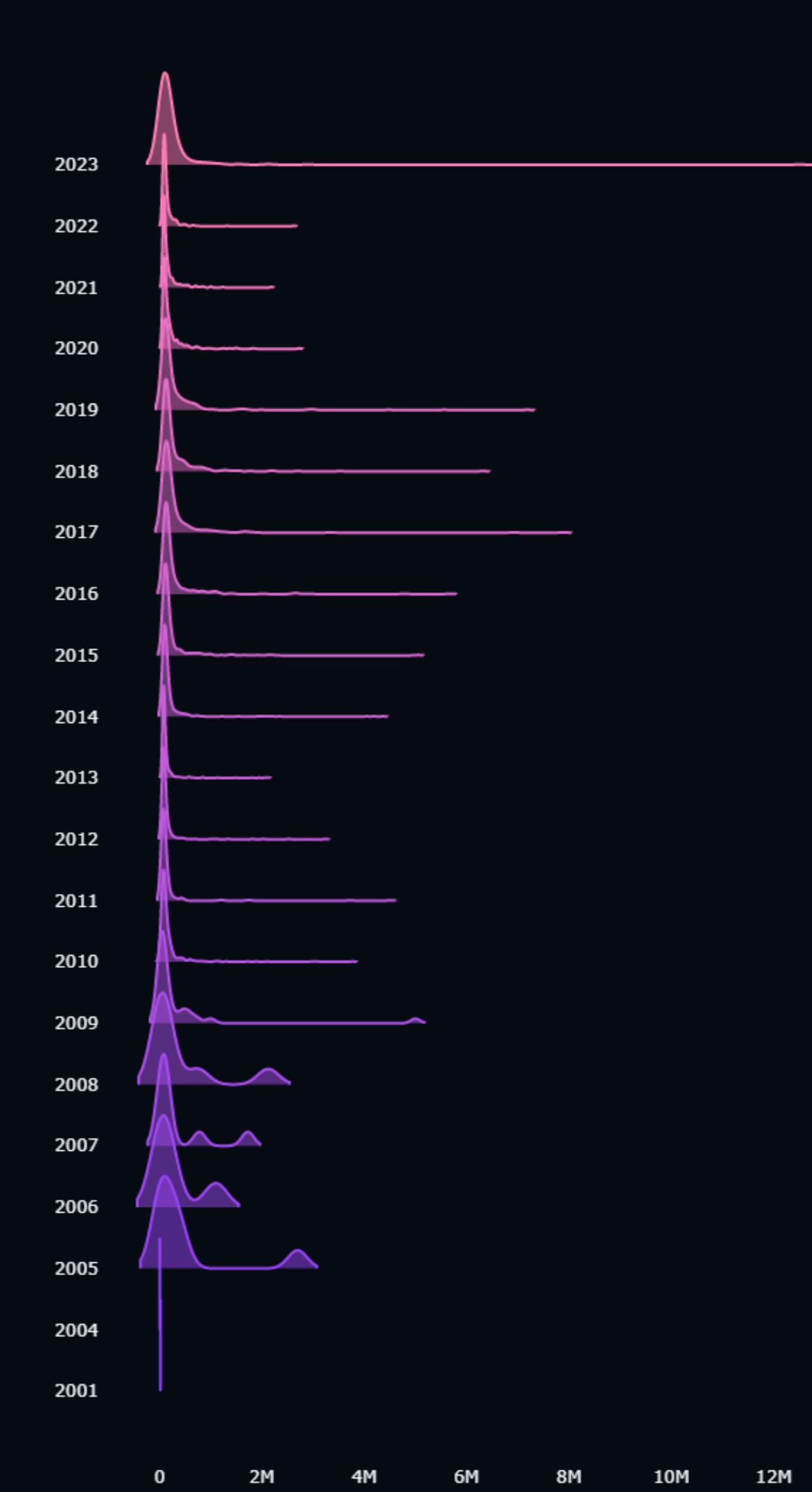
**Annual Distributions of Real Estate Sale Amounts**

Ridge Plot Showing the Variability and Density of Monthly Average Sales per Year



**Annual Distributions of Rental Sales Amounts**

Ridge Plot Displaying Monthly Variations and Density of Average Rental Sales per Year



- 2001
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
- 2020
- 2021
- 2022
- 2023

## EXPENSIVENESS

In the sales market, the Building category is the most expensive property type, indicating a high value placed on properties with potential for income generation through leasing to multiple tenants.



## AFFORDABILITY

The Unit category, which is likely to include apartments and smaller dwellings, has the lowest sale prices, suggesting that these are the most affordable options for potential buyers in Dubai.



## RENTABILITY

In terms of the rental market, the Building category also demands the highest rent, supporting the theory of income generation capacity driving higher prices.



## LOWER YIELD

Despite having the highest maximum sale price, Land does not command the highest rent, indicating that the rental yield for Land may be lower than for other types of property.



# PREDICTION MODELS

Machine learning algorithms have established themselves as powerful tools for predicting market trends and determining property values. Under this scope, we're initiating the development of two machine learning models. These models, which are grounded in our analytical findings, are designed to predict the annual rental or sale price of properties in Dubai.

These models are made available for public access via our GitHub repository.

