**Real Estate Power BI Dashboard - User Guide**

**Overview**

This Power BI dashboard provides an analysis of real estate data, focusing on affordability, property features, and market trends. Users can explore metrics such as ROI, price per area, and category-based insights through interactive visualizations and filters.

**Data Cleaning and Transformation Steps**

**1. Data Cleaning:**

* **Added conditional columns** to create categories like **Price Category** and **Size Category**.
* **Deleted unwanted columns** to reduce clutter and focus on relevant data.
* **Replaced null values** with appropriate defaults or averages to ensure data completeness.
* **Tackled blank rows** to remove incomplete records from the analysis.

**2. Data Splitting:**

* Split columns where needed to extract useful data (e.g., splitting location details from a combined column).

**3. Value Replacement:**

* Adjusted categorical and numeric values to match the project’s requirements (e.g., converting boolean columns like “has pool” into Yes/No categories).

**Data Structure**

**Columns:**

* **id**: Unique identifier for each property.
* **title**: Name or type of property (e.g., Casa, Piso).
* **sq mt built**: Total square meters of the built property.
* **rooms**: Number of rooms in the property.
* **bathrooms**: Number of bathrooms in the property.
* **floor**: The floor on which the property is located.
* **rent price**: Rental price of the property.
* **buy price**: Purchase price of the property.
* **buy price by area**: Purchase price per square meter of the property.
* **house id type**: Type of property (e.g., Casa or Chalet, Áticos).
* **built year**: The year the property was constructed.
* **city, state**: Location information.
* **has parking, balcony, pool, garden, exterior, terrace**: Boolean columns indicating whether the property has these features.
* **is new development**: Indicates if the property is part of a new development.
* **price category**: Categorical variable classifying properties into affordable, mid-range, and luxury.
* **size category**: Categorical variable classifying properties into small, medium, and large.

**Measures and Calculations**

**Key Measures:**

* **Affordability Index**: A ranking metric showing how affordable each property is based on its features and pricing relative to others.
* **Average Price**: The average buy price of properties across different categories.
* **Avg Price by Area**: The average price per square meter for properties in each city/state.
* **Avg Price by Type**: Average property price segmented by type (e.g., apartments, chalets).
* **Avg Rent Price**: The average rental price for properties across various segments.
* **Avg Sq Mt**: Average size of properties in square meters.
* **Expected Annual Rent**: A projection of the annual rental income based on current rent prices.
* **Median Sale Price**: The median sale price across all properties in the dataset.
* **Price per Bathroom**: The average property price per number of bathrooms.
* **Price per Room**: The average property price per number of rooms.
* **Price per Sq Mt**: The average property price per square meter.
* **ROI**: Return on Investment, calculated as the ratio of profit relative to the buy price.
* **Rank per ROI**: Rank of properties based on ROI, with higher values indicating more favorable returns.

**Visualizations**

**1. Price Category Breakdown (Pie Chart)**

* **Purpose**: Shows the proportion of properties in different price categories (Affordable, Mid-range, Luxury).
* **How to Use**: Hover over the chart segments to view the percentage of properties in each category.

**2. Size Category Breakdown (Pie Chart)**

* **Purpose**: Displays the distribution of properties by size category (Small, Medium, Large).
* **How to Use**: Hover over each segment for details about the proportion of properties in each size group.

**3. Yearly Listing Trends (Line Graph)**

* **Purpose**: Illustrates the number of property listings by year, showing historical trends and surges in property listings.
* **How to Use**: Use this graph to understand how real estate trends have evolved over time.

**4. ROI Metrics (Table)**

* **Purpose**: Presents detailed information on the return on investment (ROI), buy prices, price categories, and price per unit (e.g., per bathroom, per room).
* **How to Use**: This table helps in comparing property returns and selecting properties based on profitability.

**5. Affordability Index by City (Bar Chart)**

* **Purpose**: Displays the Affordability Index for each city, helping users quickly identify the most affordable regions.
* **How to Use**: Use this chart to filter the dashboard based on affordability by city.

**Filters**

* **Garden, Pool, New Development**: Use these filters at the top of the dashboard to display only properties that meet specific criteria, such as having a garden, pool, or being part of a new development.

**How to Use This Template**

1. **Download the .pbit file**: You can download the Power BI template file from the GitHub repository.
2. **Open in Power BI Desktop**: Open the template in Power BI Desktop.
3. **Load Your Data**: Replace the sample data with your own dataset by connecting to your source (e.g., CSV, SQL).
4. **Refresh Data**: Ensure all visuals update with your new data by refreshing the Power BI report.
5. **Modify as Needed**: Customize the filters, visuals, and measures to suit your analysis.

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**Screenshot of the Dashboard**

Here’s a preview of the dashboard with the key visualizations and data insights:

LINK: [Screenshot 2024-10-07 234852.png](https://1drv.ms/i/c/ef186088d4c19d26/ETtBR-gJXF5MsvTwxkw_MgMBQ2NsYa20wvMXWg-USpNCPw?e=yGn4Cy)