

INTERNSHIP REPORT

Real Estate Market Trends Dashboard

Organisation : CodeAlpha

Intern : Nisha

Course : Power BI

Duration:
10July-10August2025

1. Project Objective

The objective of this project is to create an **interactive Power BI dashboard** that helps analyze **real estate market trends**. It focuses on evaluating **property prices, rental yields, and demand-supply conditions**, while also using **geographical visuals** to highlight market hotspots.

Additionally, forecasting techniques are applied to predict future price movements, supporting **investors and developers** in making smarter, data-driven decisions.

2. Key Challenges in Real Estate Analysis

The real estate sector faces several challenges that make market analysis complex and essential:

- **Price Volatility:** Property prices vary widely across cities and time periods, making it difficult to identify stable investment options.
- **Demand–Supply Gap:** Some areas face high demand but limited supply, while others remain underutilized.
- **Measuring Returns:** Balancing property value with rental yield to determine true profitability is often complex.
- **Economic Impact:** Factors like income levels and affordability strongly influence market trends and investor decisions.

3. Dataset Description

The dataset used for this project includes key financial and market-related attributes that form the foundation of the analysis:

- **City & Area** – Geographic location of property.
- **Property Price (₹/sq.ft)** – Price per square foot.
- **Rental Yield (%)** – Income potential of properties.
- **Monthly Rent (₹)** – Average rent per property.
- **Demand Index** – Market demand strength.
- **Supply Index** – Availability of properties.
- **Listings** – Number of available properties.
- **Avg Income (₹)** – Income level of the area.
- **Latitude & Longitude** – Used for map visualization.

4. Dashboard Features

The dashboard integrates a variety of dynamic and interactive visuals, each serving a specific analytical purpose. Together, they provide a 360° view of the real estate market:

-  **KPI Cards** – Display high-level indicators such as **Average Monthly Rent**, **Average Rental Yield (%)**, and **Total Listings**, offering a quick snapshot of market performance.
-  **Clustered Bar Chart** – Compares **property prices (₹/sq.ft)** across cities, helping to identify the most and least expensive markets.
-  **Clustered Column Chart** – Visualizes **Demand vs Supply Index by City**, revealing areas where demand outpaces availability and vice versa.
-  **Stacked Column Chart** – Highlights **rental yield distribution** across multiple regions, useful for comparing income-generating potential.
-  **Gauge Chart** – Acts as a performance meter for **Rental Yield (%)**, showing whether the market is below, meeting, or exceeding targets.
-  **Map Visualization** – Uses **geospatial heatmaps** (latitude & longitude) to highlight **property hotspots**, making it easier to spot attractive regions for investment.
-  **Forecast Line Chart** – Projects **future price trends**, enabling predictive insights into upcoming market movements.
-  **Slicers** – Provide interactive filtering by **City** and **Property Type**, giving users the flexibility to customize their analysis.

5. Tools & Methods Used

 Tool / Method	 Purpose & Usage
 Power BI	Core platform for building the interactive dashboard and visual storytelling.
 Power Query	Data cleaning, transformation, and preparation for analysis.
 DAX (Data Analysis Expressions)	Creation of custom measures and KPIs (e.g., Rental Yield, Avg Rent, Variance).
 Geospatial Visuals	Heatmaps & map charts to highlight property hotspots across cities/regions.
 Forecasting Models	Predictive analytics to project property price and rental yield trends.
 Interactive Features	Slicers and drill-down options for flexible, user-driven exploration.

6. Insights & Findings

 **Property Prices** – Premium cities show much higher prices per sq.ft, while emerging cities provide more affordable entry points.

 **Rental Yield (%)** – Mid-tier cities deliver stronger rental yields compared to expensive metro areas, making them attractive for investors.

 **Demand vs Supply** – Certain regions reveal high demand but limited supply, highlighting opportunities for new developments.

 **Geographical Hotspots** – Heatmaps indicate growth clusters where affordability meets rising demand.

 **Forecast Trends** – Price projections suggest a steady upward trajectory, signaling strong future growth potential.

7. Conclusion & Value Addition

◆ This project successfully demonstrates how **Power BI** can transform raw real estate data into **actionable insights**.

By analyzing **property prices, rental yields, demand-supply conditions, and future trends**, the dashboard empowers **investors, developers, and decision-makers** to identify profitable opportunities and market risks.

- ☒ The use of **geospatial visuals, KPIs, and forecasting** ensures that insights are not only data-driven but also easy to interpret.
 - ☒ For **SMEs and real estate professionals**, this dashboard serves as a valuable tool for **strategic planning, investment decisions, and market exploration**.
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8. Files Delivered

Delivered Project Files include:

-  **Power BI File (.pbix)**: *Nisha the E-stater.pbix* – Interactive dashboard with all visuals and analysis.
 -  **Source Data (Excel)**: Dataset containing property prices, rental yields, demand, supply, and location details.
 -  **Project Report (PDF)**: Well-structured summary with objectives, dataset, features, insights, and conclusions.
 -  **README.md (GitHub)**: Repository documentation with project description, instructions, and key highlights.
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