

# INTERNSHIP REPORT

Real Estate Market Trends Dashboard

**Organisation : CodeAlpha**

**Intern : Sneh Sharma**

**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
 <b>Power BI</b>	Core platform for building the interactive dashboard and visual storytelling.
 <b>Power Query</b>	Data cleaning, transformation, and preparation for analysis.
 <b>DAX (Data Analysis Expressions)</b>	Creation of custom measures and KPIs (e.g., Rental Yield, Avg Rent, Variance).
 <b>Geospatial Visuals</b>	Heatmaps & map charts to highlight property hotspots across cities/regions.
 <b>Forecasting Models</b>	Predictive analytics to project property price and rental yield trends.
 <b>Interactive Features</b>	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**.
-

## 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.
-