REPORT

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Real Estate Listings and Analytics

Abstract

This project focuses on creating a PostgreSQL database for the real estate industry. The database is designed to handle different kinds of data, such as property details, agent statistics, buyer information, and past sales. The system uses SQL analytics to turn data into useful insights for the market. It can figure out typical property prices in specific areas, locate places with rising demand, and study long-term trends to predict changes in the market. The goal is to show how a well-organized database can guide investment choices and make operations more efficient in the fast-moving real estate world. To elaborate, the database will include detailed information about each property, such as its size, location, number of rooms, and features. It will also track the performance of real estate agents, including their sales numbers, customer ratings, and areas of expertise. Buyer demographics, like age, income, and preferences, will be included to understand who is buying what and where. The system will also keep a record of all past transactions, including prices, dates, and property conditions at the time of sale.

Introduction

The field of real estate is known for producing large amounts of intricate information, including changing listing prices and past sales numbers. To actually use this information, it needs to be organized and understood in a smart way. This project is all about creating a relational database with PostgreSQL, which will bring together details on properties, agents, and transactions into one place for analysis. Instead of just storing data, this project aims to use SQL-based analytics to gain important business insights. The main purpose is to assist in decision-making by figuring out standard pricing, how quickly properties are selling (days on the market), and changes in demand across regions. This shows how a well-organized data system can turn simple listings into useful information for investors and other involved parties.

Tools:

• PostgreSQL – for making the database and checking the data

• DBeaver – for keeping up with the database, running searches, and saving stuff to CSV

Steps Involved in Building this project

1. I put together a relational schema with tables for Properties, Agents, Buyers, and Transactions. This structure was designed to help organize and

manage real estate data efficiently. The goal was to have a clear, logical layout for easy querying and reporting.

2. I made some fake property listings and added them to the database. These listings included details like prices and when the properties were listed.

3. I wrote some SQL queries to figure out the average property prices in different regions. This involved grouping the properties by region and calculating the average price for each. These insights can give a sense of market values across locations.

4. I set up database views to spot high-demand areas based on how many transactions were happening. A view simplifies the query process by pre-defining a query that identifies these areas. It makes it easier to keep an eye on where the market is most active.

5. I used window functions to make reports on how prices have changed over time. These functions allowed me to calculate moving averages and other trends without needing complex subqueries.

6. I exported the analysis results to CSV files using DBeaver. The goal was to make the data accessible and useful for different purposes.

Conclusion:

This project highlights the efficiency of PostgreSQL in transforming fragmented real estate data into a structured strategic asset. By implementing a normalized relational schema and utilizing advanced SQL features—including Views and Window Functions—the system successfully automates the extraction of critical market metrics like regional valuation shifts and transaction density.

ER DIAGRAM: