Project Title:

EstateTrack – Real Estate Listings and Analytics System

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1. Objective

The main objective of this project is to design and implement a PostgreSQL-based real estate listing system that:

- Manages properties, agents, buyers, and sales transactions.
- Enables analytical insights such as average property prices by region.
- Identifies high-demand areas.
- Tracks price trends using SQL window functions.
- Exports result data for external use.

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2. Introduction

EstateTrack is a database-driven project aimed at managing and analyzing real estate listings. The system helps track property data, agents, buyers, and sales transactions while providing insights through data analysis.
It is built using PostgreSQL and provides analytics like average price by region, high-demand areas, and price trends over time.

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3. Abstract

This project demonstrates how relational databases can be used to effectively manage and analyze real estate data.
The application allows for:

- Property listings
- Recording agent and buyer information
- Capturing transactions

With powerful SQL queries, the system delivers reports such as:

- Average prices by city
- High-demand locations
- Time-based price trends using SQL window functions

This supports decision-making in real estate marketing and pricing.

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4. Tools and Technologies Used

- **PostgreSQL** – Database engine for storing structured data
- **DBeaver** – GUI for database management and CSV export
- **SQL** – For writing queries, views, and analytics

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5. Entity Relationship Diagram (ERD)

The system is composed of 4 main entities:

1. **Agents**
   - `agent_id` (PK)
   - `name`, `phone`, `email`
2. **Buyers**
   - `buyer_id` (PK)
   - `name`, `phone`, `email`
3. **Properties**
   - `property_id` (PK)
   - `address`, `city`, `state`, `price`, `listed_date`
   - `agent_id` (FK from Agents)
4. **Transactions**
   - `transaction_id` (PK)
   - `property_id` (FK from Properties)
   - `buyer_id` (FK from Buyers)
   - `sale_price`, `sale_date`

Relationships:

- Agents **list** Properties
- Buyers **make** Transactions
- Properties are **sold in** Transactions

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6. Conclusion

The EstateTrack system successfully demonstrates how SQL databases can be used to manage real estate data and perform insightful analytics.
It helps in:

- Identifying trends
- Understanding market behavior
- Improving decisions for both sellers and buyers

The system is modular and can be extended with:

- Property types (e.g., residential, commercial)
- Geolocation-based filters