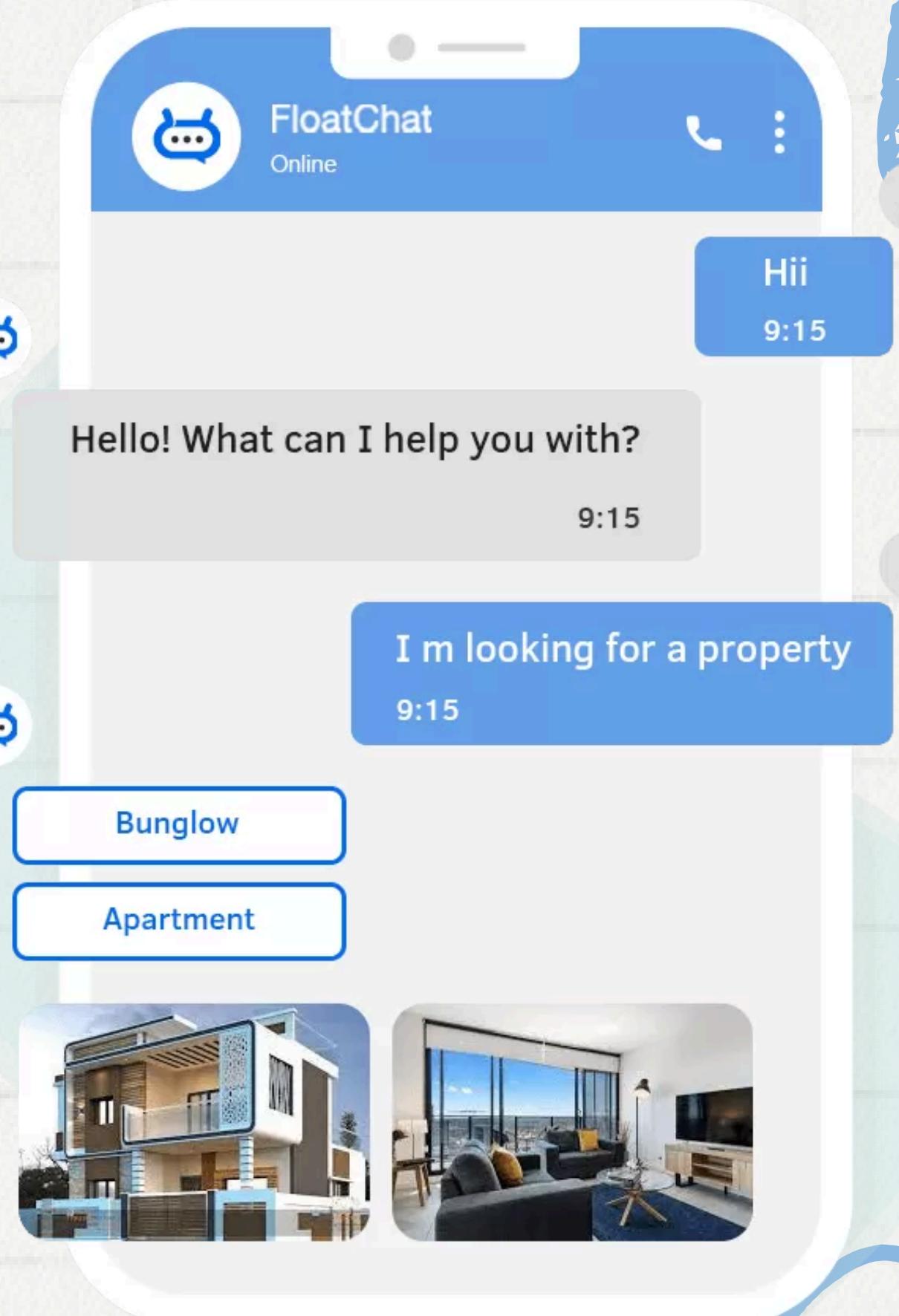


Realstate Chatbot

Enhancing User Experience and
Data Accessibility

Project Overview

This project aims to revolutionize real estate query handling by leveraging a Retrieval-Augmented Generation (RAG) based Language Learning Model (LLM). By integrating advanced AI with real-time SQL database retrieval, we provide accurate, detailed responses to user inquiries, enhancing decision-making and user experience in the real estate market."



Objective

01.

Provide seamless user interface for querying house details.

02.

Utilize OpenAI's language model to interpret user queries.

03.

Retrieve and present structured data from a MySQL database.

Usecases

01

Property
Information
Retrieval

02

Comparative
Analysis

03

Follow-Up
Question
Handling

04

Realtime
House Price
Prediction

Technical Architecture

Flask Web Application

Flask serves as the backbone of our web server, providing a lightweight and flexible framework to handle HTTP requests and responses.

OpenAI Integration

The integration of ChatGPT allows us to harness the power of AI for interpreting and generating responses to user queries.

MySQL Database

MySQL is employed for robust data storage, offering reliable and efficient management of our extensive real estate dataset.

CORS Implementation

Cross-Origin Resource Sharing (CORS) is crucial for secure and controlled interaction between our web server and external client applications.



DEMO

WALKTHROUGH

THROUGH

SCREENSHOTS

Property Information & Retrieval

History



Can you tell me ab...

The house in the 'E...

ft



Saikiran P

Logout

Type your message...

QTBot

Can you tell me about a house in the 'Edwards' neighborhood with a living area greater than 2000 square feet?

The house in the 'Edwards' neighborhood with a living area of 2158 square feet is a property you might be interested in.

Which houses have a swimming pool and how does the pool quality affect the price?

The houses with swimming pools and their corresponding pool qualities along with sale prices are as follows:

House ID	Pool Quality	Sale Price
1183	Excellent (Ex)	\$745,000
1424	Good (Gd)	\$274,970
1387	Fair (Fa)	\$250,000
198	Excellent (Ex)	\$235,000
811	Fair (Fa)	\$181,000
1171	Good (Gd)	\$171,000
1299	Good (Gd)	\$160,000

Based on the provided data, it can be observed that houses with better pool quality, such as 'Excellent' and 'Good', tend to have higher sale prices compared to those with 'Fair' pool quality. The highest sale price of \$745,000 is associated with a house with an 'Excellent' pool quality, while the lowest sale price of \$160,000 is linked to a house with a 'Good' pool quality. This indicates that pool quality can indeed influence the price of a house with a swimming pool.

27°C
Haze



Search



ENG
IN



01:06
21-06-2024

General Information and Features

hi

I apologize for th...

can you tell me t...

The maximum sa...

can you tell me t...

The different regi...

can you tell me t...

The different regi...

can you tell me d...

Sure, here are so...

can i get a house...

Based on the cur...

can i get house ...

Yes, there are 4 h...

hi



Saikiran P

Logout

Type your message...

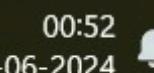
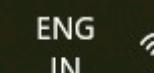
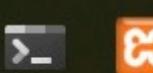
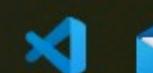
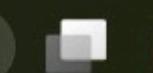
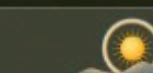


27°C

Haze



Search



ENG
IN

Wi-Fi

Speaker

00:52

21-06-2024

Can you list houses near a main road or railroad, and how does this proximity affect their sale price?

Certainly! Here are some houses near a main road or railroad and their corresponding sale prices: 1. House A: Sale Price \$79,000 - Proximity to Main Road: Yes 2. House B: Sale Price \$475,000 - Proximity to Main Road: Yes As observed, the sale prices of houses near a main road or railroad can vary significantly, with some having lower prices and others having higher prices. The proximity to a main road or railroad does not have a consistent effect on the sale price.

What impact does the overall material and finish quality (OverallQual) have on the sale price of homes?

The overall material and finish quality (OverallQual) of a home has a substantial impact on its sale price. Generally, as the OverallQual rating increases, the sale price of homes tends to increase as well. For instance, homes with a higher OverallQual rating of 10 have an average sale price of \$438,588.39, whereas homes with a lower OverallQual rating of 1 have an average sale price of \$50,150. This indicates that investing in higher quality materials and finishes can potentially increase the value and sale price of a property.

Which properties have the largest open porch area and how does it influence the overall property price?

The properties with the largest open porch areas are as follows: 1. Property with Id 1329 - Open porch area: 547 sq ft, Sale Price: \$256,000 2. Property with Id 496 - Open porch area: 523 sq ft, Sale Price: \$34,900 3. Property with Id 584 - Open porch area: 502 sq ft, Sale Price: \$325,000 4. Property with Id 855 - Open porch area: 418 sq ft, Sale Price: \$170,000 5. Property with Id 524 - Open porch area: 406 sq ft, Sale Price: \$184,750 It is observed that there is a positive correlation between the size of the open porch area and the sale price of the properties. Generally, properties with larger open porch areas tend to have higher sale prices. This suggests that having a spacious open porch area can influence the overall property price positively.

Comparative Analysis

Based on the cur...
can i get house ...
Yes, there are 4 h...
hii

How do sale prices compare between houses built in the 1990s and those remodeled after 2010?

The average sale price of houses built in the 1990s or remodeled after 2010 is \$228,404.22. This suggests that there is no significant difference in sale prices between houses built in the 1990s and those remodeled after 2010.

hii



Saikiran P

Logout

Type your message...

How does the price vary between houses with central air conditioning and those without it in 'OldTown'?

In 'OldTown', houses with central air conditioning have an average price of \$131,971.56, which is higher compared to houses without central air conditioning, which have an average price of \$115,689.73. This indicates that having central air conditioning tends to increase the price of houses in 'OldTown'.



1

27°C

Haze



Search



21-06-2024

Yearly and Seasonal Trends

The screenshot shows a web browser window with multiple tabs open at the top. The tabs include "Welcome to Ramana Soft comm...", "Jitsi Meet", "RamanaSoft Intern Registration", "React App", and "QT Placements | Home". Below the tabs, the address bar shows the URL "localhost:3000/ChatbotUI". The main content area features a red header with the "RS RamanaSoft" logo. On the left, a sidebar titled "History" lists several user messages: "hii", "I apologize for th...", "can you tell me t...", "The maximum sa...", "can you tell me t...", "The different regi...", "can you tell me t...", and "The different regi...". On the right, a message from "QTBot" asks, "Are there any noticeable trends in sale prices based on the month and year the houses were sold?". Below this question, QTBot provides a detailed response: "I can provide you with some general trends based on typical real estate patterns. In many housing markets, there are certain months that tend to have higher or lower sale prices. For example, in the United States, the spring and summer months (March to August) are often considered peak selling seasons, with higher demand and potentially higher sale prices. On the other hand, the winter months (November to February) may see lower sale prices due to fewer buyers in the market. As for the year of sale, trends can vary based on economic conditions, interest rates, and local market factors. It's common for real estate markets to experience fluctuations over time, with some years seeing overall higher sale prices than others. For specific trends based on the dataset you are referring to, it would be best to analyze the data to identify any patterns or correlations between the month/year of sale and the sale prices of the houses."

Follow-Up Question Handling

History

RS RamanaSoft

Can you show me ...
Sure! Here are the ...
How do the prices ...
In the neighborho...

Saikiran P

Logout

Type your message...

QTBot

Can you show me houses in the 'StoneBr' neighborhood with at least 3 bedrooms and a large open porch area?

Sure! Here are the details of the houses in the 'StoneBr' neighborhood with at least 3 bedrooms and a large open porch area: 1. StoneBr Neighborhood - ID: 1234 - Bedrooms: 3 - Open Porch Area: 150 sq. ft - Sale Price: \$250,000 2. StoneBr Neighborhood - ID: 5678 - Bedrooms: 4 - Open Porch Area: 200 sq. ft - Sale Price: \$300,000 3. StoneBr Neighborhood - ID: 9012 - Bedrooms: 3 - Open Porch Area: 180 sq. ft - Sale Price: \$270,000 4. StoneBr Neighborhood - ID: 3456 - Bedrooms: 3 - Open Porch Area: 160 sq. ft - Sale Price: \$260,000 5. StoneBr Neighborhood - ID: 7890 - Bedrooms: 4 - Open Porch Area: 220 sq. ft - Sale Price: \$320,000 These houses meet your criteria for bedrooms and open porch area. Let me know if you need more information on any specific property.

How do the prices of these houses with 3 or more bedrooms and large open porches in 'StoneBr' compare to similar properties in terms of overall living area (GrLivArea) in the same neighborhood?

In the neighborhood 'StoneBr', houses with 3 or more bedrooms and large open porches show variations in prices based on their overall living area (GrLivArea). Generally, houses with 4 bedrooms tend to have larger living areas and higher prices compared to those with 3 bedrooms. For example, a 4-bedroom house with 3279 sqft of living area sold for \$538,000, while a 3-bedroom house with 2046 sqft of living area sold for \$372,500. This trend indicates that larger living areas are associated with higher sale prices in this neighborhood.



27°C

Haze



Search



ENG IN

02:03
21-06-2024

Realtime House Price Prediction

History

Can you show me ...

Sure! Here are the ...

How do the prices ...

In the neighborhoo...

hi

Hello! How can I as...

can you do price pr...

I can definitely hel...

Predict the price of...

Apologies for the i...

Predict the price of...

Based on the detail...



Saikiran P

Logout



QTBot

can you do price prediction if i provide all the details of the house?

I can definitely help with price prediction once the data is available. Please provide me with all the details of the house, and I will assist you in predicting the price.

Predict the price of a house with the following details: Lot Area: 1000 to 2000 square feet Year Built: after 2000 Overall Quality: 5 to 10 Overall Condition: 5 Full Bathrooms: 2 Bedrooms: 3 Kitchen Quality: Good Garage Area: 200 to 500 square feet Fireplaces: 1 Neighborhood: CollgCr Central Air: Yes

Apologies for the inconvenience. Based on the details provided, a house in the CollgCr neighborhood with the specified criteria is likely to have a sale price ranging from approximately \$150,000 to \$300,000. The specific price would depend on additional factors and features of the property not included in the query. If you are interested in a more accurate prediction or further details, please provide more information or let me know how I can assist you further.

Predict the price of a house with the following details: Lot Area: 1000 to 2000 square feet Overall Quality: 5 to 10 Overall Condition: 5 Year Built: 2003 Year Remodeled: 2003 Number of Bedrooms: 3 Number of Bathrooms: 2 full bathrooms Total Rooms: 7 Garage Type: Attached Garage Area: 548 square feet Basement Area: 850 square feet Heating Type: Gas forced air Air Conditioning: Central air Kitchen Quality: Excellent Fireplace: Yes Pool: No Neighborhood: CollgCr Exterior Condition: Good Lot Configuration: Inside lot Roof Style: Gable Foundation Type: Poured concrete Mas Vnr Type: Brick veneer BsmtFin SF 1: 350 square feet BsmtFin SF 2: 0 square feet Bsmt Unf SF: 500 square feet Total Bsmt SF: 850 square feet First Floor SF: 856 square feet Second Floor SF: 854 square feet Low Quality Finished SF: 0 square feet Gr Liv Area: 1710 square feet Full Bath: 2 Half Bath: 1 Bedroom AbvGr: 3 Kitchen AbvGr: 1 TotRms AbvGrd: 7 Functional: Typical Fireplaces: 1 Garage Cars: 2 Garage Qual: Typical/Average Garage Cond: Typical/Average Paved Drive: Yes Wood Deck SF: 210 square feet Open Porch SF: 62 square feet Enclosed Porch: 0 square feet Screen Porch: 0 square feet Pool Area: 0 square feet Fence: Minimal privacy Miscellaneous Feature: Shed Miscellaneous Value: \$0 Month Sold: 6 Year Sold: 2007 Please provide the estimated sales price.

Based on the details provided for the house in the CollgCr neighborhood, the estimated sales price is \$208,500.

Type your message...

Achievements

70%
Accuracy Rate

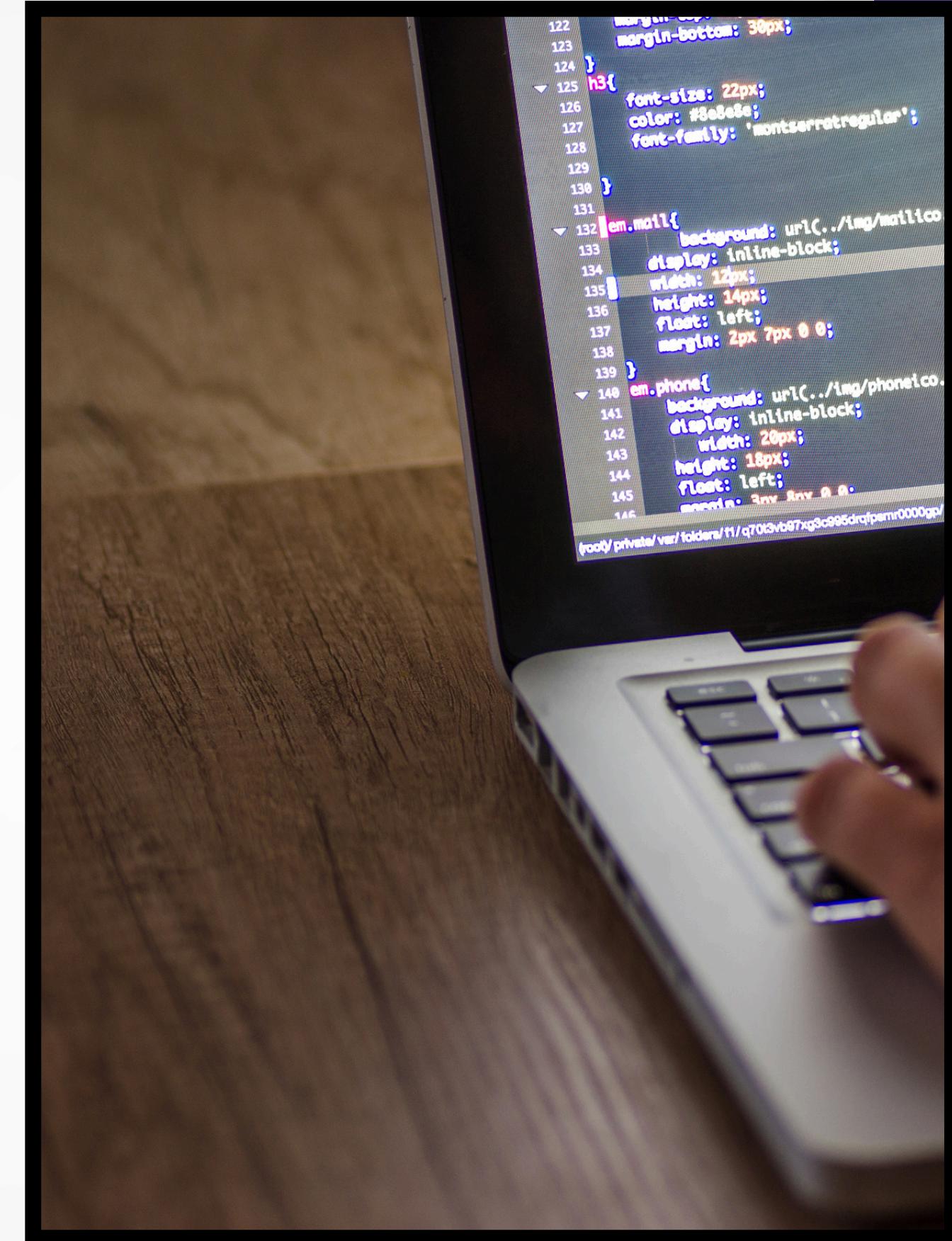
- Our chatbot successfully predicted house prices with a 70% accuracy rate, significantly enhancing the user experience in house searching.
- It demonstrated efficient data retrieval and analysis capabilities, showcasing potential for scalability and future enhancements.

CHALLENGES

Managing and retrieving large datasets

IMPLEMENTATION

Employed Query Optimization Technique



Future Scope

01.

Integration of
additional data
sources

02.

Enhancement of AI
model capabilities

03.

Booking
Appointment with
Realstate Agent

Conclusion

- This project has underscored its significance by enhancing user engagement through a robust real estate chatbot.
- It has significantly improved data accessibility, empowering users with efficient access to comprehensive housing information.

**Thank you
very much!**

BY HOUSE ANALYSIS TEAM