Bangalore Property Assistant

Introduction

This is a 'Build Your Own Project' that has leveraged the concepts of ShopAssist AI wherein the assistant finds the most suitable laptop for the consumer while in this project the assistant finds the best properties among the listed properties that match the client's requirements.

Objectives

The AI assistant is supposed to act like an experienced real estate agent who asks the user relevant questions about what they are looking for in a property and their budget. When it receives enough information from the user responses, it dwells in the database and presents the top 5 listings that are closest to user requirements.

Design

The assistant uses the 'ChatCompletion' API to converse with the user and ask relevant questions.

The following is a snapshot of the Bangalore housing data that the assistant uses.

house_type	availability	location	size	society	total_sqft	bath	balcony	price	Agent Nan	Contact Number	Housing Society
apartment	available in 2028	Electronic	2 BHK	Vaswani	1056	2	1	3907000	Ramesh Sl	9876543210	Greenwood Apartments
stand alone house	Ready To Move	Domlur	4 Bedroon	Vaswani	2600	5	3	12000000	Sneha Pat	8765432109	Royal Residency
apartment	Ready To Move	Whitefield	3 BHK	Vaswani	1440	2	3	6200000	Amit Singh	7654321098	Silver Oaks Society
apartment	Ready To Move	Kengeri	3 BHK	Vaswani	1521	3	1	9500000	Priya Gupt	6543210987	Golden Gardens
apartment	Ready To Move	Kengeri	2 BHK	Vaswani	1200	2	1	5100000	Sanjay Kur	5432109876	Palm View Society
apartment	Ready To Move	Whitefield	2 BHK	Vaswani	1170	2	1	3800000	Divya Shal	4321098765	Maple Heights
apartment	available in 2028	Marathah	4 BHK	Vaswani	2732	4		20400000	Vikram De	3210987654	Lakeview Towers
apartment	Ready To Move	Marathah	4 BHK	Vaswani	3300	4		60000000	Neha Verr	2109876543	Orchid Enclave
apartment	Ready To Move	Marathah	3 BHK	Vaswani	1310	3	1	6325000	Anil Reddy	1098765432	Sunrise Heights
stand alone house	Ready To Move	Hebbal	6 Bedroon	Vaswani	1020	6		37000000	Pooja Cho	9876543210	Skyline Gardens
apartment	available in 2028	Whitefield	3 BHK	Vaswani	1800	2	2	7000000	Rajesh Iye	8765432109	Ocean Vista
stand alone house	Ready To Move	Whitefield	4 Bedroon	Vaswani	2785	5	3	29500000	Anita Kapo	7654321098	Spring Meadows
apartment	Ready To Move	7th Phase	2 BHK	Vaswani	1000	2	1	3800000	Rahul Sha	6543210987	Riverside Residency
apartment	Ready To Move	Hebbal	2 BHK	Vaswani	1100	2	2	4000000	Kavita Sing	5432109876	Greenwood Apartments
stand alone house	Ready To Move	Sarjapur	3 Bedroon	Vaswani	2250	3	2	14800000	Ganesh Ku	4321098765	Royal Residency
apartment	Ready To Move	Marathah	2 BHK	Vaswani	1175	2	2	7350000	Meera Pat	3210987654	Silver Oaks Society
apartment	Ready To Move	Bellandur	3 BHK	Vaswani	1180	3	2	4800000	Kishore Gu	2109876543	Golden Gardens

The assistant asks questions from the user to understand 6 key requirements:

1. House Type ('stand alone house' or 'apartment')
2. Availability ('yes' or 'no')
3. Location (as entered by the user)
4. Number of Bedrooms (integer)
5. Minimum Carpet Area (integer)
6. Budget (integer)

Once these requirements are acquired from the user, the assistant starts filtering the data that it takes from the *blr_housing_data.csv* file as per the following steps:

Step 1: Remove all the properties that are out of the budget range.

Step 2: Remove all the properties that don't match the house type.

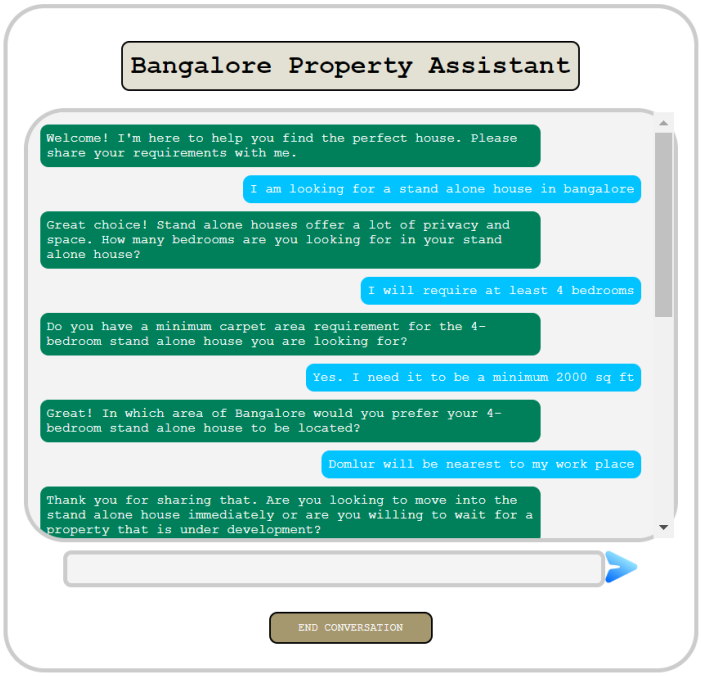
Step 3: From this step onwards, it starts scoring each listing based on the rest of the values and maintains the score in a new column ‘Score’.

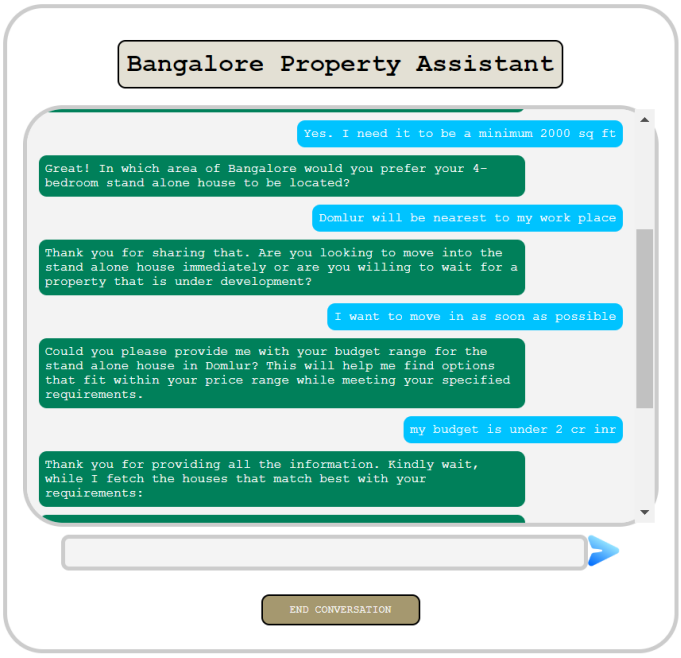
Step 4: Since location has a higher priority, if it matches, the score is incremented by 2. For other requirements (availability, number of bedrooms, carpet area), if they match or are better, the score is incremented by 1.

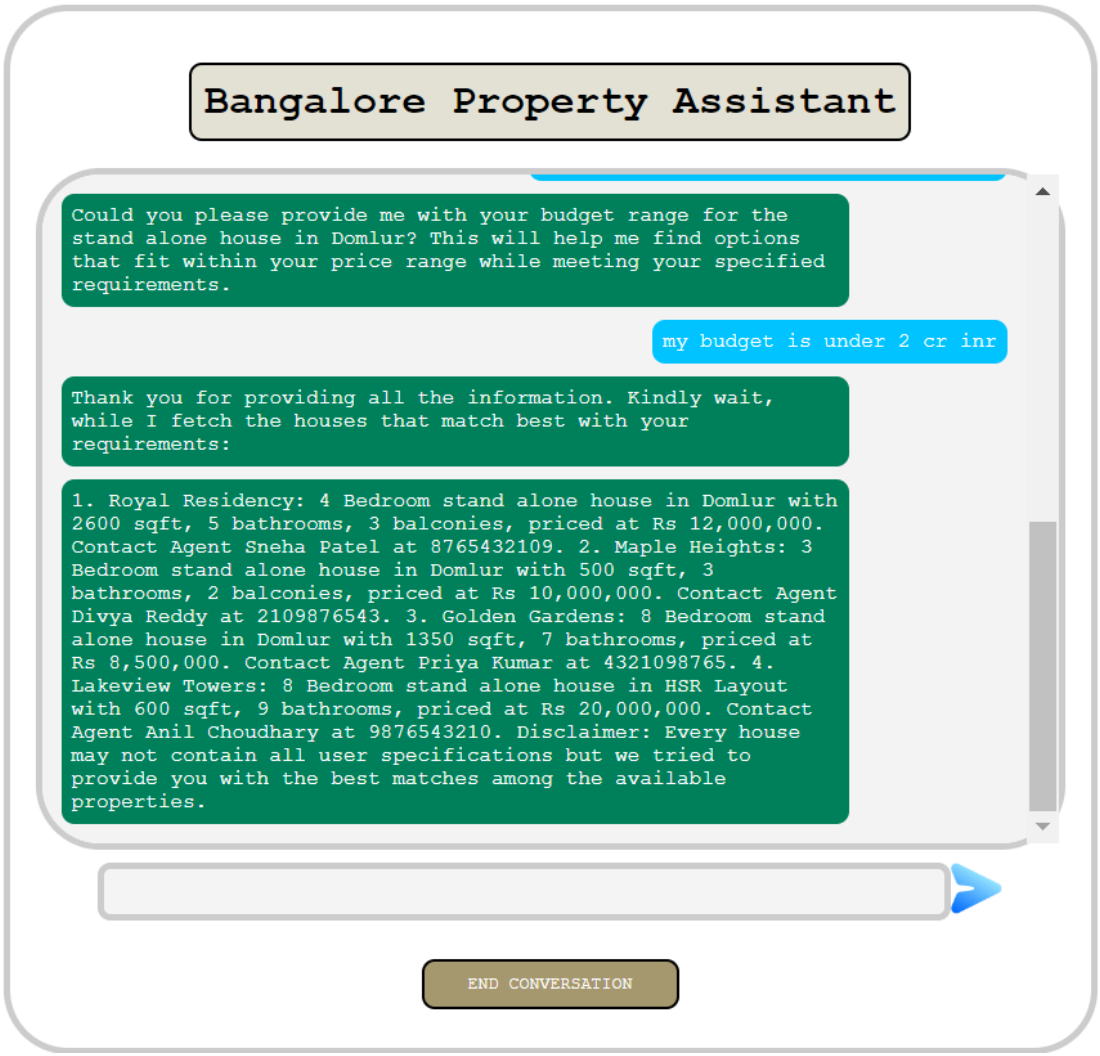
Step 5: The listings are sorted in descending order of score and the top 5 listings with a score of 2 or greater are filtered out and presented to the user.

Implementation

Here are some screenshots of one of the conversations with the assistant:







Challenges

The main challenge was to write the correct prompt that would make the assistant ask the right questions to the user and collect requirements. Then it was important to format these requirements uniformly before passing them to the Python function where these requirements are compared against the available properties and the top 5 are filtered.

Finally, we have to make sure that the assistant presents the results in a human-like manner. Presenting all the necessary information and omitting any unnecessary data.

Lessons Learned

How to write comprehensive prompts and run LLM capabilities on custom data.