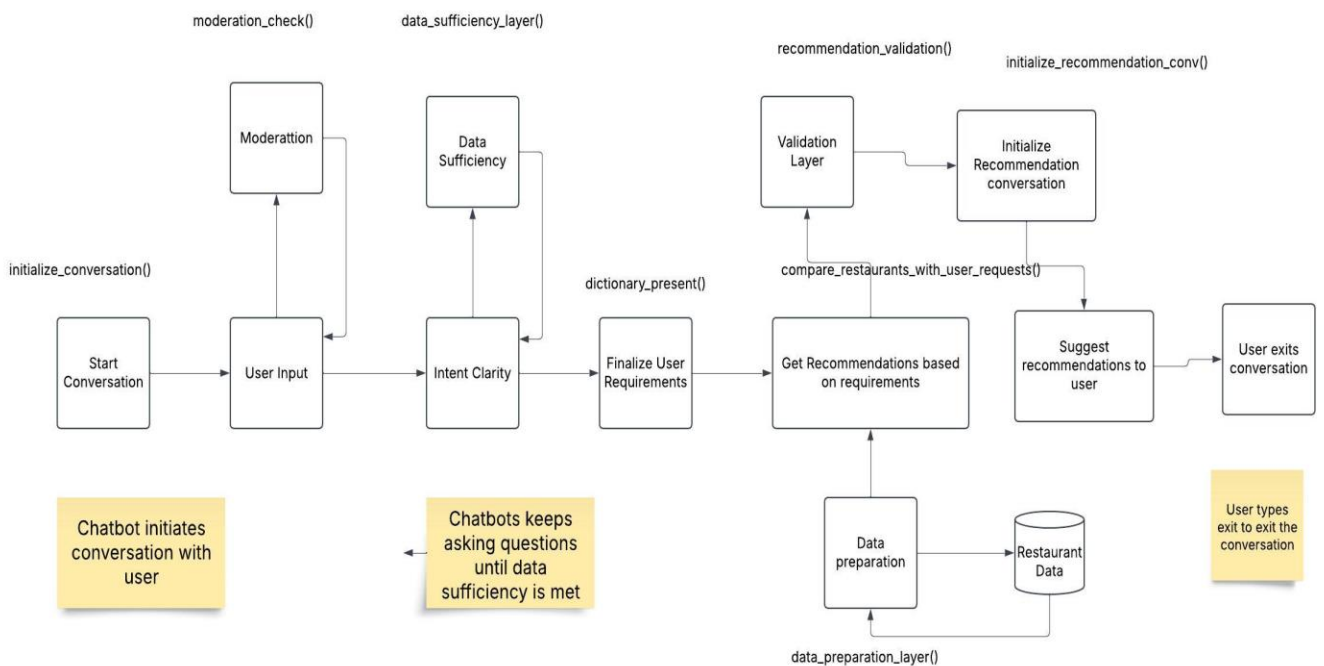


# Restaurant Recommender Chatbot design

**Objective :** Design a chatbot which will recommend Restaurants in Bangalore for given preferences for user. The chatbot will ask relevant questions from user to gather the user preferences and it will try to match it with existing dataset and provide top 3 recommendations.

## Design



## Features used

```
{  
    "Location" : "-",  
    "Online Order Accepted" : "Yes/No",  
    "Table booking allowed" : "Yes/No",  
    "Cuisine" : "-",  
    "Restaurant type" : "-",  
    "Rating" : "Low/Medium/High/Not Important",  
    "Average cost for 2" : "-"  
}
```

## Dataset

The dataset contains the Zomato Bangalore restaurants data from Kaggle Dataset below for Zomato restaurants in Bangalore

<https://www.kaggle.com/datasets/himanshupoddar/zomato-bangalore-restaurants>.

The dataset is cleaned to remove all empty columns and data type modifications for few columns. The dataset is randomly sampled to get 100 random records which is used as master data. Final dataset is attached in the submission.

## Chatbot sample

Bot : Hello! I'm here to help you find the perfect restaurant in Bangalore. Could you please share your preferred location or any specific area you're interested in?

User : I am interested in BTM area

Bot : Great! We have many restaurants in the BTM area. Do you prefer online ordering and table booking?

User : No

Bot : Thank you for the information. What type of cuisine do you prefer (e.g., North Indian, South Indian, Continental, Chinese, etc.)?

User : North India,Chinese

Bot : Thank you for sharing your cuisine preferences. What type of restaurant do you prefer (e.g., Fine Dining, Casual Dining, Street food, Quick Bites, Dhaba)?

User : Casual Dining

Bot : Thank you for the information. Do you have any preference for the minimum rating for the restaurant? If yes, please provide a minimum rating in the range of 2 to 5.

User : Minimum rating of 3

Bot : Thank you for the information. What is your approximate budget for 2 people?

User : 800

Bot : Thank you for providing all the details. Here's the profile based on your preferences:

{'Location': 'BTM', 'Online Order Accepted': 'No', 'Table booking allowed': 'No', 'Cuisine': 'North Indian, Chinese', 'Restaurant type': 'Casual Dining', 'Rating': 'Medium', 'Average cost for 2': '800'}

Bot : Thank you for providing all the information. Kindly wait, while I will share with you the recommended restaurants:

Based on your preferences, here are the top 3 recommended restaurants in BTM:

1. **\*\*Birinz\*\***: Located at 1st Floor, BTM Complex, 9th Main Road, 1st Stage, BTM, Bangalore. Phone: +91 8197022223, +91 9141111222. This casual dining restaurant offers a variety of cuisines including Biryani, Chinese, Mughlai, Fast Food, and Kebab. It has a high rating and an average cost for two is ₹700.

2. **\*\*Capsicum Family Restaurant\*\***: Situated at 774, 3rd Floor, 16th Main, 7th Cross, 2nd Stage, BTM, Bangalore. Phone: 080 49652486. This casual dining spot serves Biryani and North Indian cuisine. It has a medium rating and the average cost for two is ₹800.

3. **\*\*Savoury Restaurant\*\***: Located at 84, Hosur Main Road, Madivala, BTM, Bangalore. Phone: 080 49994999. This casual dining restaurant offers Arabian, North Indian, Chinese, and Fast Food cuisines. It also has a medium rating with an average cost for two at ₹800.

Please note that while these restaurants accept online orders, they do not allow table bookings.

User : exit

Bot : If you have any more questions in the future, feel free to ask. Have a great day!

## **Steps to Run**

Used Azure Open AI gpt4o model for evaluation. Need to set the following environment variables

- AZURE\_API\_VERSION
- AZURE\_DEPLOYMENT\_NAME
- AZURE\_OPENAI\_API\_KEY
- AZURE\_OPENAI\_ENDPOINT

Once set call `dialogue_mgmt_system()` method from `dialog_flow_restaurant.py`

## **Future Improvements**

- 1)Add more features which chatbot can use for better recommendations
- 2)Getting more consistent format of the results.
- 3)Adding more validations to the recommendations
- 4)Add HTML UI layer for chatbot and integrate the backend with flask.