

ShopAssist-AI-ShopAssist-2.0

1. Background

In today's digital age, online shopping has become the go-to option for many consumers. However, the overwhelming number of choices and the lack of personalized assistance can make the shopping experience daunting. To address this, we have developed ShopAssist AI, a chatbot that combines the power of large language models and rule-based functions to ensure accurate and reliable information delivery.

2. Problem Statement

Given a dataset containing information about laptops (product names, specifications, descriptions, etc.), build a chatbot that parses the dataset and provides accurate laptop recommendations based on user requirements.

3. Approach

1. **Conversation and Information Gathering:** The chatbot will utilize language models to understand and generate natural responses. Through a conversational flow, it will ask relevant questions to gather information about the user's requirements.
2. **Information Extraction:** Once the essential information is collected, rule-based functions come into play, extracting the top 3 laptops that best match the user's needs.
3. **Personalized Recommendation:** Leveraging this extracted information, the chatbot engages in further dialogue with the user, efficiently addressing their queries and aiding them in finding the perfect laptop solution.

4. System Functionalities

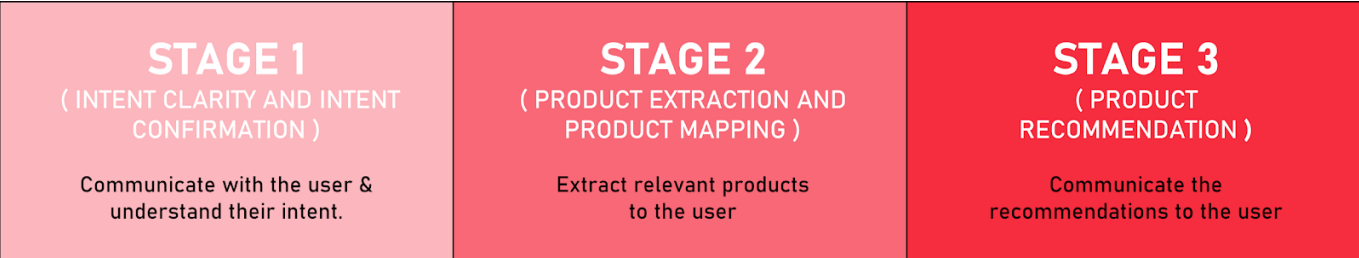
- **User Interface:** ShopAssistAI provides a user-friendly web interface where users can interact with the conversational AI assistant.
- **Conversational AI:** The core of ShopAssistAI is the conversational AI powered by OpenAI's chat model. It guides the user through the process by asking relevant questions and understanding their needs.
- **User Input Moderation:** User input is moderated using OpenAI's moderation API to ensure a safe and secure conversation.
- **User Profile Extraction:** The AI assistant extracts key information from the conversation to build a user profile that reflects their laptop preferences (budget, screen size, processing power, etc.) using OpenAI's function calling mechanism to convert a user requirement string into a JSON object.

We have a dataset `laptop_data.csv` where each row describes the features of a single laptop and also has a small description at the end. The chatbot will leverage large language models to parse this `Description` column and provide recommendations.

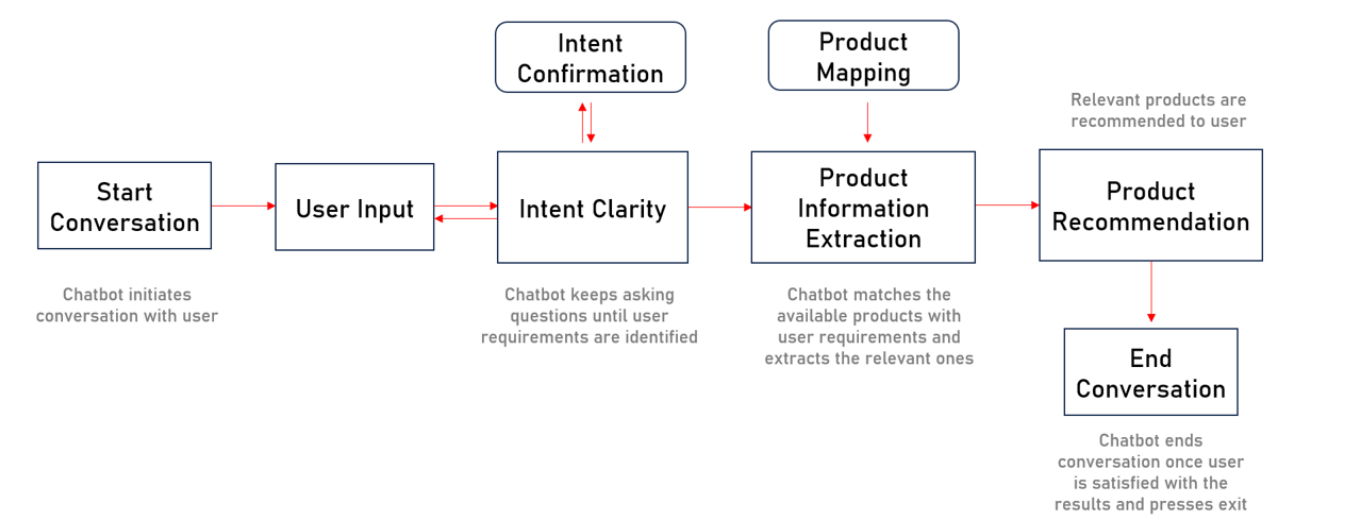
5. System Architecture

ShopAssistAI follows a client-server architecture. Users interact with the web interface hosted on a server running the Flask application. The application interacts with OpenAI's API for conversation generation and

moderation and retrieves and compares laptop data from an external database.



CHATBOT SYSTEM DESIGN



6. Implementation Details

The Flask application utilizes various functionalities:

- **Routing:** Maps user requests to appropriate functions based on URLs.
- **Conversation Management:** Handles conversation initiation, response generation through OpenAI's chat model, and conversation history maintenance.
- **User Input Processing:** Captures user input, performs moderation checks, and extracts user profiles from conversation history (converting user input string to JSON using OpenAI Function calling).
- **Recommendation Logic:** Compares user profiles with laptop data, validates recommendations, and generates recommendation text.

Major Functions

- `initialize_conversation()`: Initializes the variable conversation with the system message.
- `get_chat_completions()`: Takes the ongoing conversation as the input and returns the response by the assistant.

- `moderation_check()`: Checks if the user's or the assistant's message is inappropriate. If any of these is inappropriate, it ends the conversation.
- `intent_confirmation_layer()`: Evaluates if the chatbot has captured the user's profile clearly.
- `dictionary_present()`: Checks if the final understanding of the user's profile is returned by the chatbot as a Python dictionary.
- `compare_laptops_with_user()`: Compares the user's profile with the different laptops and comes back with the top 3 recommendations.
- `initialize_conv_reco()`: Initializes the recommendations conversation.

Prerequisites

- Python 3.9+
- OpenAI API Key(you have to add openai api key in the empty txt file (OpenAI_API_Key))

Getting Started

To get started with ShopAssist AI, follow these steps:

1. Clone the repository:

```
git clone https://github.com/abtGIT/ShopAssist-AI-ShopAssist-2.0.git
cd ShopAssist-AI-ShopAssist-2.0
```

2. Lunch VS Code from Anaconda

- In VS Code go to **File** > **Open Folder...** and select the **ShopAssist-AI-ShopAssist-2.0** folder.
- Open a terminal in VS Code (**Ctrl+`** or go to **Terminal** > **New Terminal**).

3. Install dependencies:

```
pip install -r requirements.txt
```

3. Initialize the conversation:

```
python app.py
```

Note: This version includes steps to create and activate the Conda environment with Python 3.11.9 Or above, ensuring users set up python environment correctly before installing dependencies and running the application.

7. Appendix - B

User output example screenshot:

ShopAssist AI (ShopAssist 2.0)

Welcome! How can I assist you today in finding the perfect laptop for your needs?

I am looking for developer friendly laptop

Great! As a developer, you likely require a laptop that can handle coding, testing, and running multiple applications smoothly. To provide you with the best recommendation, could you please specify what programming languages or tools you primarily work with? Understanding this will help me tailor my questions to your specific needs. Can you please share more about the programming languages or tools you use?

Send

End Conversation

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purposes? This will help me provide you with a well-rounded recommendation. Let me know if my understanding is aligned with your requirements so far.

YEs

Great! Since GPU intensity is your priority and you have a budget of 1 lakh, we will focus on finding a laptop with high GPU intensity within that range. Now, to further enhance our understanding and provide you with the best recommendation, could you please specify your preferences for display quality, portability, multitasking, and processing speed in a laptop for development purposes? This will assist in ensuring that the laptop meets all your requirements effectively. Let me know your preferences for these aspects.

Yes



Type your message...

Send

End

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give me configuration

I need a laptop with high GPU intensity, medium Display quality, low Portability, low Multitasking, high Processing speed and a budget of 1 lakh.

you have not recommended any laptop yet

Sure! Here is a summary of the laptops in the catalogue: 1. ASUS ROG Strix G: Intel Core i7 2.9 GHz, 16GB RAM, 17.3" IPS display, NVIDIA RTX graphics, Aura Sync RGB Keyboard, 2 years warranty, 5 hours battery life, Price: Rs. 85,000 2. Acer Predator: Intel Core i7 2.8 GHz, 16GB RAM, 17.3" IPS display, NVIDIA GTX graphics, Dual Cooling Fans, 1 year warranty, 5 hours battery life, Price: Rs. 80,000 3. MSI GL65: Intel Core i7 2.6 GHz, 16GB RAM, 15.6" IPS display, NVIDIA GTX graphics, RGB Keyboard, 2 years warranty, 4 hours battery life, Price: Rs. 55,000 How can I assist you further?

Type your message...

Send

End