

ShopAssist-System Design

Problem Background: Personalised assistance for shopping a laptop

ShopAssist AI, a chatbot that combines the power of large language models and rule-based functions to ensure accurate and reliable information delivery.

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.

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 top 3 laptops that best matches 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.

System Design:

Dataset: We have a dataset laptop.csv where each row describes the features of a single laptop and also has a small description at the end. The chatbot that we build will leverage LLMs to parse this Description column and provide recommendations

Sample working with Chatbot:————

System: Hello! I'm an intelligent laptop gadget expert and I'm here to help you find the best laptop for your needs. Please let me know what you will be using the laptop for and any specific requirements you have.

User: I need laptop for backend development with high processing speed, High storage is not required because my data is on cloud

Assistant: Great! As a backend developer, you likely require a laptop with high processing speed to handle complex tasks efficiently. Since you mentioned that high storage is not required as your data is on the cloud, we can focus on other important aspects. May I know if you prioritize portability or display quality for your work? Understanding your preferences will help me tailor my

recommendations accordingly.

User: I do not require portability because I will not travel with laptop. Normal display quality will work for me

Assistant: Thank you for providing that information. Since portability is not a priority for you, we can focus on other aspects of the laptop. As a backend developer, high processing speed is important for you, and you mentioned that normal display quality will work for your work. May I know your budget for the laptop? This will help me find options that fit within your price range while meeting the specified requirements.

User: 80 k

Assistant: Thank you for providing all the information. Kindly wait, while I fetch the products:

Assistant:

1. Acer Predator: Intel Core i7 2.8 GHz, 16GB RAM, SSD storage, 17.3" IPS display, NVIDIA GTX graphics, Windows 10, 3.2 kg, Dual Cooling Fans, 1-year warranty, 5 hours battery life. Price: Rs 80,000.
2. Lenovo ThinkPad: AMD Ryzen 7 3.0 GHz, 16GB RAM, SSD storage, 14" IPS display, NVIDIA GTX graphics, Linux OS, 1.6 kg, Backlit Keyboard, 3-year warranty, 6 hours battery life. Price: Rs 60,000.
3. MSI GL65: Intel Core i7 2.6 GHz, 16GB RAM, HDD+SSD storage, 15.6" IPS display, NVIDIA GTX graphics, Windows 10, 2.3 kg, RGB Keyboard, 2-year warranty, 4 hours battery life. Price: Rs 55,000.

ShopAssist

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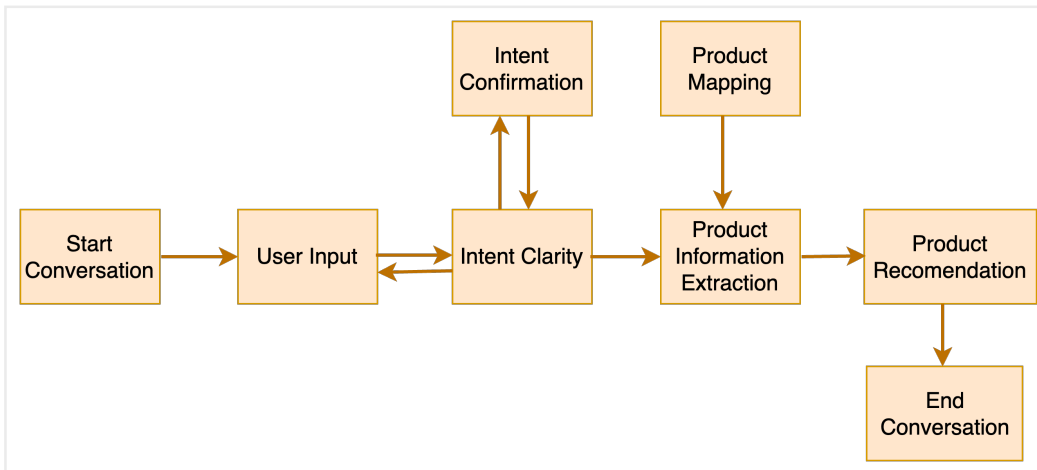
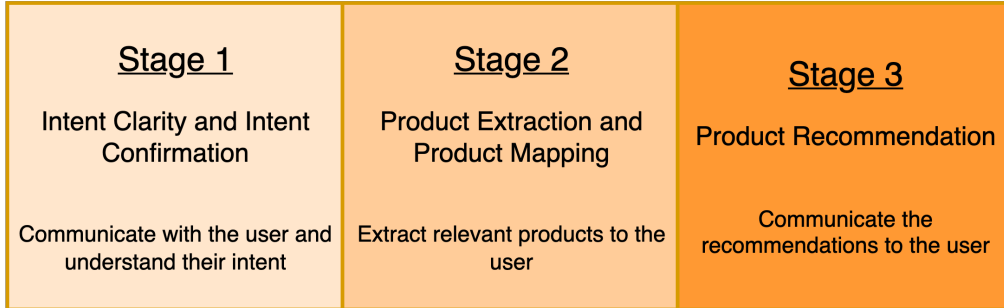
80k

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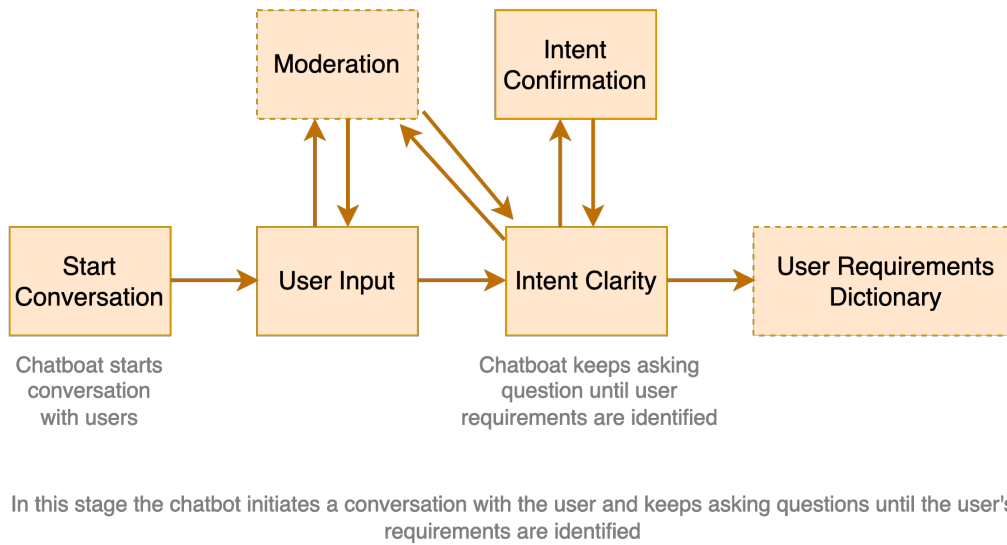
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END CONVERSATION

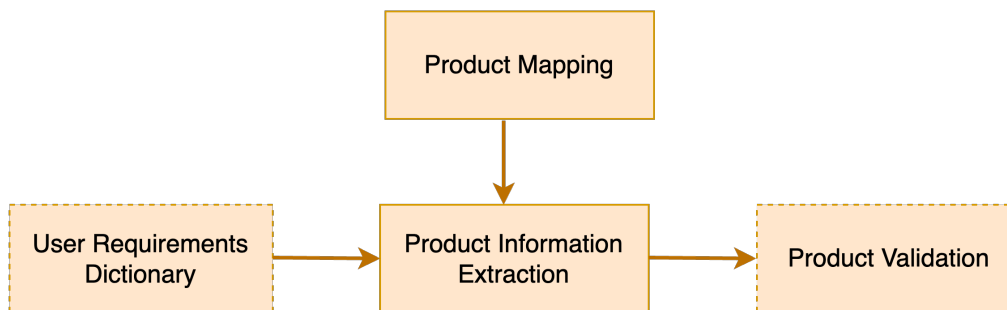
System Design: ShopAssist AI



Stage 1: Intent clarity and Intent Confirmation Layers



Stage 2: Product mapping and Information extraction



Stage 3: Product recommendations



Google Colab Intro: <https://www.youtube.com/watch?v=inN8seMm7UI>
Google collab link: <https://colab.research.google.com/drive/1GTIPSzTvz7IdYEIkLiMLibRJH3HcpvXo?usp=sharing>

Technology used: LLM: openai: gpt-3.5-turbo

Web Technology: Flask

Environment Setup: Install Anaconda

Create conda environment by using following command

conda create --name shopassist python=3.10

Activate environment:

conda activate shopassist

Install Dependencies:

conda install flask openai

Run Flask Web server:

python app.py

It will launch ui in browser at <http://127.0.0.1:5000/> url