

EXPERIMENT 3

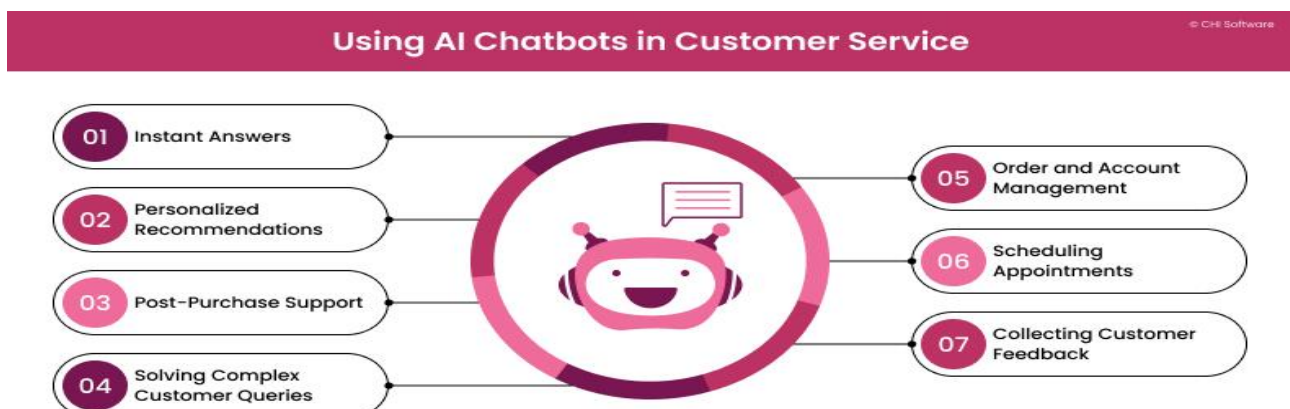
Aim:

To design an AI-powered chatbot that assists customers in resolving issues related to product troubleshooting, order tracking, and general inquiries. The chatbot should handle various customer queries efficiently while maintaining a conversational and user-friendly tone. Using Straightforward Prompts, Tabular Format Prompting and Preceding Question Prompting techniques.

To create an AI-powered chatbot for customer support, use a combination of techniques including straightforward prompts, tabular formatting, and preceding question prompts to guide the chatbot's responses. These techniques help the chatbot handle product troubleshooting, order tracking, and general inquiries effectively while maintaining a user-friendly tone.



In today's fast-paced digital world, customers expect quick, accurate, and convenient support whenever they reach out for help. AI-powered chatbots have emerged as a vital solution, transforming how businesses handle customer service by automating responses and providing instant assistance 24/7. These intelligent systems are no longer just simple FAQ responders; they have evolved to manage complex tasks such as product troubleshooting, order tracking, and addressing a wide range of general inquiries effectively.



Core Functionalities: Product Troubleshooting, Order Tracking, and General Inquiries



1. Product Troubleshooting

Product troubleshooting is crucial for helping users quickly resolve issues without waiting for human intervention. The chatbot should guide customers in diagnosing problems, providing step-by-step instructions, and suggesting solutions based on common scenarios. Critical to this function is the ability to recognize problem patterns from user inputs and respond with clear, actionable advice.

Typical Customer Queries:

- ◆ "Why won't my smart thermostat connect to Wi-Fi?"
- ◆ "My headphones won't charge; what can I do?"•
- ◆ "How do I reset my router to factory settings?"
- ◆ "The printer is showing a paper jam error, but there's no jam."

The chatbot should be able to identify the device and issue, then offer troubleshooting paths such as checking connections, software updates, or reset steps. Linking to relevant manuals or tutorial videos can further enhance support effectiveness.

2. Order Tracking

Order tracking is a high-demand feature that provides customers with real-time updates about their purchases. The chatbot integrates with the company's order management system to retrieve up-to-date information such as shipping status, estimated delivery dates, and any delays.

Typical Customer Queries:

- ◆ "Where is my order #12345?"
- ◆ "Has my package shipped yet?"
- ◆ "What's the expected delivery date for my recent purchase?"
- ◆ "My tracking number isn't working; can you help?"

By quickly pulling the correct order details using customer identifiers, the chatbot gives transparent updates and can even notify customers proactively about changes in delivery schedules. This immediate access to order information significantly reduces support calls and improves customer satisfaction.

3. General Inquiries

Aside from technical help and order updates, customers frequently ask broader questions about company policies, procedures, and other common topics. The chatbot should efficiently handle FAQs, ensuring users get clear answers with minimal back and-forth.

Typical Customer Queries:

- ◆ "What is your return policy?"
- ◆ "Do you provide international shipping?"
- ◆ "How can I change my payment method?"
- ◆ "What are your customer support hours?"

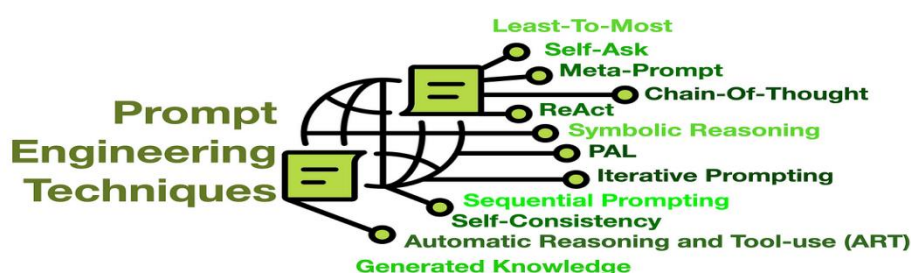
Providing accurate and concise responses to general inquiries builds user confidence and allows human agents to focus on more complex or sensitive matters.

Through seamless management of these three core functionalities, the chatbot becomes a reliable assistant that enhances the customer experience by delivering timely, precise, and user-friendly support across a wide range of scenarios.

Prompt Engineering Techniques for Chatbot Design

Designing an AI chatbot that effectively supports customers depends heavily on the quality of prompts used to communicate with the AI. Prompt engineering techniques shape how the chatbot understands user inputs and generates accurate, context-aware responses. Below, we explore three key techniques employed in our chatbot design—**Straightforward Prompts**, **Tabular Format Prompting**, and **Preceding Question Prompting**—highlighting how each contributes to clear, efficient customer interactions.

12 Prompt Engineering Techniques



1. Straightforward Prompts:

1. For Product Troubleshooting:

- Instead of complex questions, present clear, concise options for common issues. For example, "Is the product not turning on? Or is the product not connecting to Wi-Fi?".

2. For Order Tracking:

- Use prompts like "What is your order number?" or "Please provide the email address associated with your order" to efficiently retrieve order information.

3. For General Inquiries:

- Offer a list of frequently asked questions (FAQs) or categories like "Returns," "Shipping," or "Product Information".

2. Tabular Format Prompts:

1. Present troubleshooting steps in a table:

- For example, a table listing steps for a faulty printer, with each step having a clear instruction and a corresponding image or video link.

2. Show order tracking details in a table:

- Display order status, tracking number, delivery address, and estimated delivery date in a tabular format for easy readability.

3. Organize FAQs into a table:

- Create a table with columns for question and answer, making it easy for the user to find information quickly.

3. Preceding Question Prompts:

1. Ask a clarifying question before presenting options:

- For example, "Before we troubleshoot your printer, what specific issue are you experiencing?".

2. **Guide the user through a process:**

- "To track your order, please first tell us if you have the order number or if you need to look up your order by email address".

3. **Use leading questions to understand the user's needs:**

- "Are you looking for information about shipping, returns, or product details?".

Chatbot Design Overview

Feature	Description
Domain	Customer Service (Product Support, Order Tracking, General Inquiries)
Tone	Friendly, Conversational, Supportive
Techniques Used	Straightforward Prompts, Tabular Prompting, Preceding Question Prompting
Core Functionalities	Troubleshooting guide, Order tracking, Answering FAQs

Prompting Techniques Implementation

1. **Straightforward Prompting**

Use Case: Order Tracking

User: "Where is my order?"

Bot Prompt Template:

css
CopyEdit
Please provide your order ID so I can track your package.

Follow-Up Response:

nginx
CopyEdit
Your order [#123456] was shipped on May 20 and is currently out for delivery.
Estimated arrival: May 24.

2. Tabular Format Prompting

Use Case: Product Troubleshooting

User: "My smart vacuum cleaner won't turn on. What should I do?"

Bot Response (Tabular format):

Step	Action	Details
1	Check power connection	Ensure the plug is securely inserted.
2	Inspect battery	Charge the battery for at least 2 hours.
3	Reset device	Hold the reset button for 5 seconds.
4	Firmware update	Connect to the app and update to the latest version.

3. Preceding Question Prompting

Use Case: General Inquiries

User: "Do you sell replacement filters?"

Bot: "Yes, we offer replacement filters for most models. Can you tell me your vacuum model?"

User: "It's the X-200 Pro."

Bot:

pgsql

CopyEdit

Great! We have filters compatible with X-200 Pro. Would you like to see the price and delivery options?

Conversation Flow Example (All Techniques Combined)

User: "My blender stopped working."

Bot:

vbnet

CopyEdit

Let me help! Could you describe the issue—does it not turn on at all or does it power on but not blend?

User: "It doesn't turn on at all."

Bot (Tabular Format):

Step	Check	Action
1	Power connection	Ensure it's plugged into a working outlet.
2	Circuit breaker	Check if the breaker tripped.
3	Reset button	Press and hold the reset button if available.

Bot Follow-Up:

pgsql

CopyEdit

Did any of these steps help, or would you like to start a warranty claim?

Back-End Design Tips

Component	Details
NLP Engine	Use GPT-based model fine-tuned for customer support scenarios
Context Retention	Track previous interactions to support preceding prompts
API Integration	Order tracking system, product database, troubleshooting knowledge base
UI Channel	Website widget, Mobile app, Social media messaging support

Conclusion

Designing an AI-powered chatbot using **Straightforward Prompts**, **Tabular Format Prompting**, and **Preceding Question Prompting** offers a structured and intelligent approach to customer support. These techniques enable the chatbot to:

- ◆ Provide **clear and direct answers** for quick resolutions (Straightforward Prompts)
- ◆ Deliver **step-by-step troubleshooting guides** in a visually organized way (Tabular Format Prompting),
- ◆ Maintain **context-aware, natural conversations** that feel human-like and personalized (Preceding Question Prompting).

By integrating these strategies, the chatbot can efficiently handle diverse customer queries related to product issues, order status, and general support while ensuring a friendly and user-centric experience. This not only improves customer satisfaction but also reduces support workload and enhances service scalability.