

# Exno.3-Scenario-Based Report Development Utilizing Diverse Prompting Techniques

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**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. In this experiment, we will employ different prompt patterns to guide the development process of the chatbot, ranging from basic task-oriented prompts to more complex, persona-driven prompts.

## Algorithm: 1. Direct Instruction Prompts

**Objective:** Guide the chatbot to respond concisely to customer inquiries. **Prompt Pattern:** Prompt: "When a customer asks for the status of their order, reply with: 'Your order is currently being processed and will be delivered by [date].'"

**2. Contextual Prompting** **Objective:** Incorporate specific context to provide detailed answers based on the user's previous interaction. **Prompt Pattern:** Prompt: "If the customer previously mentioned that they haven't received their order, say, 'I see that you mentioned your order hasn't arrived yet. Let me check the details for you and get back shortly.'"

**3. Persona-Based Prompting** **Objective:** Design the chatbot to adopt a specific persona, making the interaction more engaging. **Prompt Pattern:** Prompt: "Pretend you are a friendly, helpful customer service representative. Use a conversational tone, such as 'Hey there! I'm here to help with any questions you might have. Let's get your issue sorted!'"

**4. Few-Shot Prompting** **Objective:** Teach the AI how to respond using a few examples, enabling it to generalize for similar situations. **Prompt Pattern:** Prompt: "Here are some examples of how to handle technical questions: 'My phone isn't charging.' → 'Have you tried using a different cable? If that doesn't work, it may be an issue with the port.' 'The screen is flickering.' → 'It sounds like a display issue. Have you tried restarting the device?' Now, respond to: 'My app keeps crashing.'"

**5. Chain of Thought Prompting** **Objective:** Use a step-by-step reasoning approach for resolving more complex or technical issues. **Prompt Pattern:** Prompt: "When a customer reports their laptop overheating, guide them through the following steps: Ask if they are using the laptop on a soft surface. Suggest moving the laptop to a flat, hard surface for better airflow. Ask if they've cleaned the vents recently. Recommend restarting the device to see if the issue persists. Now, solve: 'My laptop fan is making a loud noise.'"

**6. Instruction with Constraints** **Objective:** Instruct the chatbot to provide assistance while adhering to specific constraints (e.g., response length or tone). **Prompt Pattern:** Prompt: "Respond to order inquiries in no more than 50 words and avoid using technical jargon. For example, 'Your order is on the way and should arrive by [date]. Feel free to reach out if you need anything else.'"

**7. Reflective Prompting** **Objective:** Ensure that the chatbot reflects the user's query back to them before providing a response, reducing misunderstandings. **Prompt Pattern:** Prompt: "When a customer asks for help, first reflect their question back to them. For example, if they ask 'How can I reset my password?' respond with 'You're asking how to reset your password, correct? Here's how you can do it.'"

## 1.Direct Instruction Prompts

Objective: Guide the chatbot to respond concisely to customer inquiries. Prompt Pattern: Prompt: "When a customer asks for the status of their order, reply with: 'Your order is currently being processed and will be delivered by [date].'"

## 2.Contextual Prompting

Objective: Incorporate specific context based on the user's previous interaction. Prompt Pattern: Prompt: "If the customer previously mentioned they haven't received their order, say, 'I see that you mentioned your order hasn't arrived yet. Let me check the details for you and get back shortly.'"

## 3.Persona-Based Prompting

Objective: Design the chatbot to adopt a friendly, helpful persona. Prompt Pattern: Prompt: "Pretend you are a friendly customer service representative. Use a conversational tone, such as: 'Hey there! I'm here to help with any questions you might have. Let's get your issue sorted!'"

## 3.Few-Shot Prompting

Objective: Teach the chatbot through examples to generalize its responses. Prompt Pattern: Prompt: "Here are some examples of handling technical questions: 'My phone isn't charging.' → 'Have you tried using a different cable? If that doesn't work, it may be an issue with the port.' 'The screen is flickering.' → 'It sounds like a display issue. Have you tried restarting the device?' Now, respond to: 'My app keeps crashing.'"

## 4.Chain of Thought Prompting

Objective: Guide the chatbot through step-by-step reasoning for technical issues.

Prompt: "When a customer reports their laptop overheating, guide them: Ask if they are using it on a soft surface. Suggest using a flat, hard surface. Ask if vents are cleaned. Recommend restarting the device. Now, solve: 'My laptop fan is making a loud noise.'"

## 5.Instruction with Constraints

Objective: Provide assistance under specific constraints (e.g., response length, tone). Prompt Pattern: Prompt: "Respond to order inquiries in no more than 50 words, avoiding technical jargon. Example: 'Your order is on the way and should arrive by [date]. Feel free to reach out if you need anything else.'"

## 6.Reflective Prompting

Objective: Reflect the customer's query back before giving a solution to reduce misunderstandings. Prompt Pattern: Prompt: "When a customer asks for help, first reflect their question. Example: 'You're asking how to reset your password, correct? Here's how you can do it.'"

## Experiment Workflow Summary

Stage	Prompt Type	Purpose
Scenario Design	Role, Few-Shot	Generate synthetic customer conversations
Model Training	Chain-of-Thought, Instruction	Improve logical flow and intent handling
Evaluation	Zero-Shot, Reflexive	Test generalization and refine responses
Report Generation	Persona, Comparative	Summarize findings and support with data

Final Report Structure (Suggested): Introduction Aim, background, and chatbot purpose.

Prompt Design Types of prompts used and their roles in development.

Data Collection Methods and sources for training data.

Model Implementation Architecture, training techniques, and tools utilized.

Evaluation Metrics Accuracy, F1-score, response relevance, customer satisfaction.

Findings & Analysis Observations on the impact of different prompting techniques.

Conclusion & Recommendations Identified improvement areas and proposals for future work.

### Result:

Thus the Prompts were exected successfully .