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TASK:12

Implementation of Chatbot For Technical Support

CO4, CO5 S3

PROBLEM STATEMENT :

E-commerce platforms often face high volumes of customer queries about products, orders, and technical issues. Human support alone is slow and cannot scale efficiently. This task aims to implement an AI-powered chatbot to provide instant technical support, guide users, and enhance the customer experience.

AIM :

To design a smart chatbot capable of understanding user queries, resolving technical issues, and assisting customers in navigating the e-commerce system effectively.

OBJECTIVE :

- Automate responses to common technical and account-related issues.
- Use NLP to interpret user queries accurately.
- Escalate complex issues to human agents.
- Improve support efficiency and user satisfaction.

DESCRIPTION :

The chatbot acts as the first point of contact for users with technical problems. It interprets queries using AI, retrieves relevant solutions, provides step-by-step guidance, and learns from interactions to improve over time. The chatbot will serve as the first point of contact for users facing technical issues on the e-commerce platform. It will be capable of understanding natural language queries, identifying the underlying intent, and providing accurate solutions in real-time. The system will handle a wide range of user requests, including account issues, product queries, payment problems, and order tracking. By integrating with the platform's knowledge base and AI recommendation system, the chatbot can also suggest related products or troubleshooting guides tailored to the user's situation. Over time, the chatbot will learn from interactions, improving its accuracy and efficiency. Additionally, it can escalate complex or unresolved issues to human agents, ensuring that users always receive assistance. Analytics from user interactions will help identify common problems, optimize the support process, and enhance overall user experience, making the platform more reliable, responsive, and user-friendly.

ALGORITHM :

1. **Start:** User initiates a query via the e-commerce platform interface.
2. **Input Preprocessing:**

    - Convert text to lowercase.
    - Remove punctuation, special characters, and stop words.
    - Tokenize and normalize words.

3. **Intent Recognition:**

    - Pass the preprocessed query through an NLP/NLU model.
    - Identify the user's intent (e.g., account issue, order tracking, payment problem, product inquiry).

4. **Entity Extraction:**

    - Extract relevant entities like product names, order IDs, error codes, dates, etc.

5. **Knowledge Base Matching:**

    - Search the internal knowledge base for solutions related to the recognized intent and entities.
    - If a matching solution exists, retrieve it.

6. **AI Recommendation (Optional):**

    - Suggest related products, troubleshooting steps, or FAQs using the e-commerce recommendation system.

7. **Response Generation:**

    - Construct a human-like response.
    - Include step-by-step guidance or links to resources if needed.

8. **Confidence Check:**

    - If the system's confidence in the response is below a threshold, escalate the query to a human agent.

9. **Interaction Logging:**

    - Record the conversation for learning and analytics.
    - Update the knowledge base if new solutions are identified.

10. **End:**

    - Return the response to the user and await further queries.

PROGRAM :

```
# Install ChatterBot first if not installed:
# pip install chatterbot==1.0.5
# pip install chatterbot_corpus

from chatterbot import ChatBot
from chatterbot.trainers import ChatterBotCorpusTrainer, ListTrainer

# Create chatbot instance
tech_support_bot = ChatBot(
    'EcommerceTechBot',
    storage_adapter='chatterbot.storage.SQLStorageAdapter',
    database_uri='sqlite:///tech_support_db.sqlite3',
    logic_adapters=[
        'chatterbot.logic.BestMatch',
        'chatterbot.logic.MathematicalEvaluation'
    ]
)

# Training using predefined English corpus
trainer_corpus = ChatterBotCorpusTrainer(tech_support_bot)
trainer_corpus.train('chatterbot.corpus.english')

# Custom training with e-commerce technical support queries
```

```
trainer_custom = ListTrainer(tech_support_bot)

custom_conversations = [

    ["Hi", "Hello! How can I assist you with your e-commerce queries today?"],

    ["I cannot login to my account", "Please make sure your username and password are correct. If forgotten, click on 'Forgot Password' to reset."],

    ["How do I track my order?", "You can track your order using the 'Track Order' section on our website with your order ID."],

    ["Payment failed", "Please check your payment details or try another payment method. Contact support if the issue persists."],

    ["I want to return a product", "Go to 'My Orders', select the product, and click 'Return'. Follow the instructions provided."],

    ["Thanks", "You're welcome! Happy shopping!"]

]

trainer_custom.train(custom_conversations)



# Chat loop

print("Ecommerce Technical Support Chatbot (type 'exit' to quit)")

while True:

    user_input = input("You: ")

    if user_input.lower() == 'exit':

        print("Chatbot: Thank you for using the support service. Goodbye!")

        break

    response = tech_support_bot.get_response(user_input)

    print(f"Chatbot: {response}")
```

OUTPUT :

Ecommerce Technical Support Chatbot (type 'exit' to quit)

You: Hi

Chatbot: Hello! How can I assist you with your e-commerce queries today?

You: I cannot login to my account

Chatbot: Please make sure your username and password are correct. If forgotten, click on 'Forgot Password' to reset.

You: How do I track my order?

Chatbot: You can track your order using the 'Track Order' section on our website with your order ID.

You: Payment failed

Chatbot: Please check your payment details or try another payment method. Contact support if the issue persists.

You: I want to return a product

Chatbot: Go to 'My Orders', select the product, and click 'Return'. Follow the instructions provided.

You: Thanks

Chatbot: You're welcome! Happy shopping!

You: exit

Chatbot: Thank you for using the support service. Goodbye!

CONCLUSION :

The chatbot for technical support effectively automates responses to common e-commerce issues, such as login problems, order tracking, payment failures, and product returns. It provides instant support, reduces dependency on human agents, and improves customer satisfaction. With its ability to learn from interactions, the system becomes more accurate over time, ensuring a faster and more efficient support process for users.