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College of Engineering for Women

Deparment of CSE(AIML)

CHAT BOT

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CHATBOT

A chatbot is an artificial intelligence (AI) software that can simulate a conversation with users in natural language through messaging applications, websites, mobile apps, or through the telephone.

• What is a Chatbot?

A chatbot is a program designed to interact with users by mimicking conversations with real humans. These interactions can be as simple as answering frequently asked questions or as complex as handling intricate customer service tasks.

• Types of Chatbots

Rule-Based Chatbots: These chatbots follow predefined rules and can only respond to specific commands. They are limited in scope and flexibility.

AI-Powered Chatbots: These use machine learning (ML) and natural language processing (NLP) to understand and respond to user inputs more naturally. They can learn from interactions and improve over time.

• How Chatbots Work

Input Processing: The chatbot receives the user's message.

Understanding Intent: Using NLP, the chatbot interprets the user's intent.

Formulating Response: Based on the intent, the chatbot generates an appropriate response.

Delivering Response: The chatbot sends the response back to the user.

• Common Uses of Chatbots

Customer Service: Answering questions, resolving issues, providing product information.

E-commerce: Assisting with product recommendations, processing orders.

Healthcare: Scheduling appointments, providing health advice.

Entertainment: Engaging users with interactive content, games, and activities.

Education: Tutoring, providing study material, answering academic queries.

• Benefits of Chatbots

24/7 Availability: Chatbots can operate around the clock, providing assistance anytime.

Cost-Effective: Reduces the need for human customer service agents, saving costs.

Scalability: Can handle multiple queries simultaneously without compromising performance.

Consistency: Provides consistent responses, reducing human error.

• Challenges

Complexity in Understanding: Accurately understanding and processing natural language can be challenging.

Context Awareness: Maintaining context over long conversations is difficult.

Personalization: Providing personalized experiences requires extensive data and advanced algorithms.

• Future of Chatbots

The future of chatbots lies in advanced AI and NLP technologies, enabling more intuitive and human-like interactions. Innovations in voice recognition, sentiment analysis, and contextual understanding will make chatbots even more versatile and effective.

By leveraging these capabilities, businesses and organizations can enhance customer engagement, streamline operations, and provide more personalized experiences.

• Integration with Other Systems

Modern chatbots are increasingly integrated with other systems and platforms to enhance their functionality and provide a seamless user experience. For example:

E-commerce Platforms: Integration with e-commerce platforms enables chatbots to manage inventory, track orders, and handle transactions.

Social Media: Chatbots can be deployed on social media platforms like Facebook, Twitter, and WhatsApp to engage with users directly on these channels.

PYTHON CODE:

```
Import re
Import datetime
Import random

# Simulate weather responses
Def get_weather(city):
   Weather_conditions = [
      F”The weather in {city} is sunny with a high of 25°C.”,
      F”The weather in {city} is rainy with a high of 18°C.”,
      F”The weather in {city} is cloudy with a high of 20°C.”,
      F”The weather in {city} is stormy with a high of 22°C.”
   ]
   Return random.choice(weather_conditions)

# Comprehensive chatbot response dictionary
Responses = {
   “hi”: “Hello! How can I help you today?”,
   “hello”: “Hi there! How can I assist you?”,
```

“hey”: “Hey! What’s up?”,

“how are you”: “I’m a chatbot, so I don’t have feelings, but I’m here to help you! How are you?”,

“I’m good”: “That’s great to hear! What can I do for you today?”,

“I’m not so good”: “I’m sorry to hear that. How can I assist you?”,

“what is your name”: “I am a simple chatbot created with Python. What’s your name?”,

“my name is (.*)”: “Nice to meet you, {0}!”,

“how old are you”: “I’m ageless, but I was created quite recently.”,

“what can you do”: “I can chat with you, answer some questions, and keep you company! I can also tell you the current date and time, do basic math, tell jokes, sing songs, and recommend foods and restaurants.”,

“tell me a joke”: lambda: random.choice([

“Why don’t scientists trust atoms? Because they make up everything!”,

“Why did the scarecrow win an award? Because he was outstanding in his field!”,

“Why don’t skeletons fight each other? They don’t have the guts.”

]),

“sing a song”: lambda: “Twinkle, twinkle, little star, How I wonder what you are!”,

“recommend a food”: lambda: random.choice([

“How about trying some sushi today?”,

“I recommend having a nice bowl of pho.”,

“You should try a delicious pizza!”

]),

“recommend a restaurant”: lambda: random.choice([

“I heard the Italian restaurant on 5th Avenue is great!”,

“You should try the new sushi place downtown.”,

“The burger joint on Main Street has amazing reviews.”

]),

“what is your favorite color”: “I don’t have preferences, but I think all colors are beautiful.”,

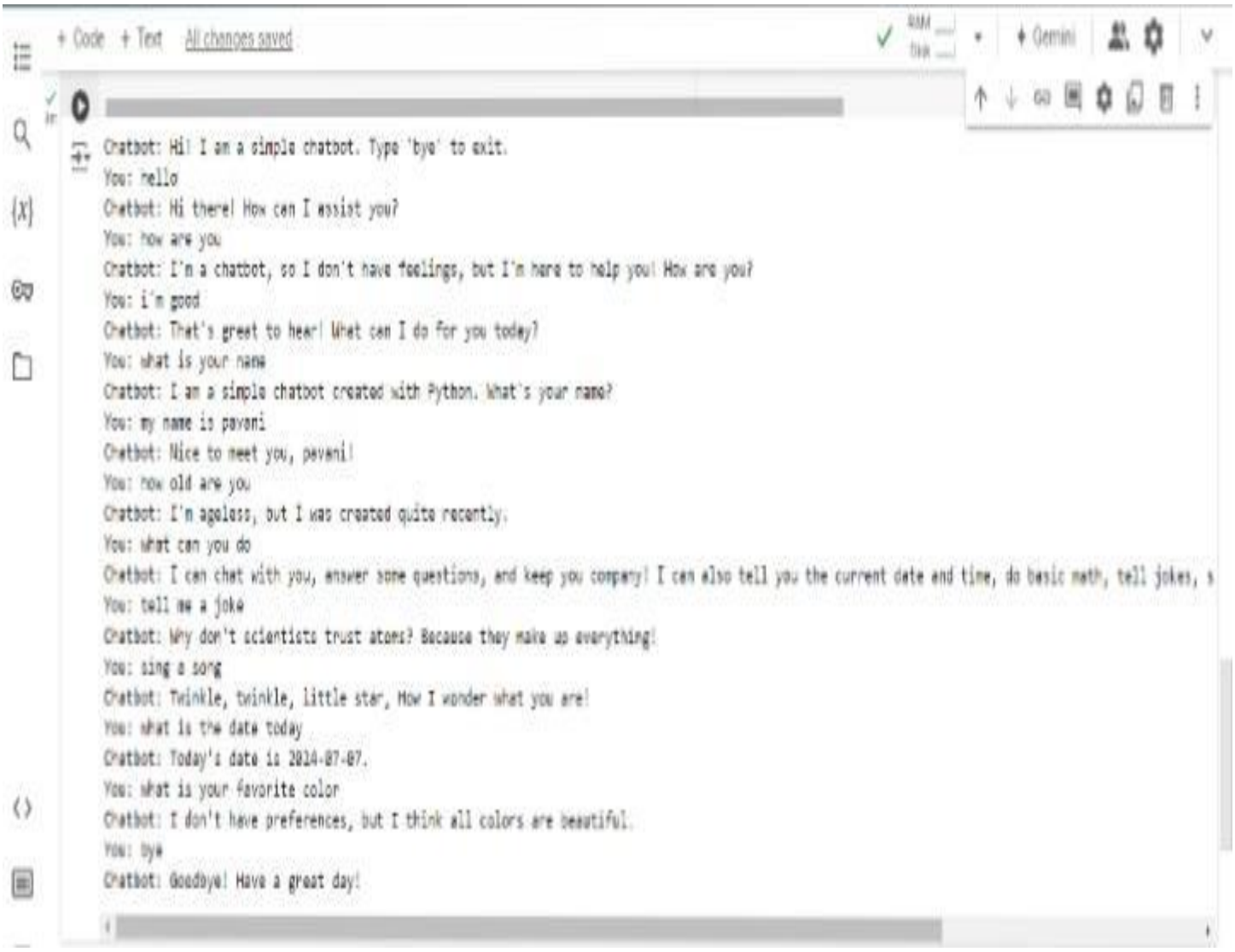
“bye”: “Goodbye! Have a great day!”,

“what is the date today”: lambda: f”Today’s date is {datetime.datetime.now().strftime(‘%Y-%m-%d’)}.”,

```
    “what time is it”: lambda: f”The current time is {datetime.datetime.now().strftime(‘%H:%M:%S’)}.”,
    “what is the weather in (.*)”: lambda city: get_weather(city),
    “what is (.*)”: lambda query: f”I’m not sure about ‘{query}’, but I’m always learning new things!”,
    “calculate (.*)”: lambda expression: f”The result is {eval(expression)}.”,
    “default”: “I’m sorry, I don’t understand that. Can you please rephrase?”
}

# Function to handle user input and generate responses
Def chatbot_response(user_input):
    # Convert user input to lowercase to make the chatbot case-insensitive
    User_input = user_input.lower()
    For pattern, response in responses.items():
        Match = re.match(pattern, user_input)
        If match:
            If callable(response):
                Return response(*match.groups())
```

```
        Return response.format(*match.groups())
    Return responses[“default”]


# Function to start the chatbot conversation interactively
Def start_chatbot():
    Print(“Chatbot: Hi! I am a simple chatbot. Type ‘bye’ to exit.”)
    While True:
        User_input = input(“You: “)
        If user_input.lower() == “bye”:
            Print(“Chatbot: Goodbye! Have a great day!”)
            Break
        Else:
            Print(“Chatbot:”, chatbot_response(user_input))


# Start the chatbot
If __name__ == “__main__”:
    Start_chatbot()
```

OUTPUT:


+ Code + Text All changes saved
Gemini
Chatbot: Hi! I am a simple chatbot. Type 'bye' to exit.
You: hello
Chatbot: Hi there! How can I assist you?
You: how are you
Chatbot: I'm a chatbot, so I don't have feelings, but I'm here to help you! How are you?
You: i'm good
Chatbot: That's great to hear! What can I do for you today?
You: what is your name
Chatbot: I am a simple chatbot created with Python. What's your name?
You: my name is pavani
Chatbot: Nice to meet you, pavani!
You: how old are you
Chatbot: I'm ageless, but I was created quite recently.
You: what can you do
Chatbot: I can chat with you, answer some questions, and keep you company! I can also tell you the current date and time, do basic math, tell jokes, s
You: tell me a joke
Chatbot: Why don't scientists trust atoms? Because they make up everything!
You: sing a song
Chatbot: Twinkle, twinkle, little star, How I wonder what you are!
You: what is the date today
Chatbot: Today's date is 2024-07-07.
You: what is your favorite color
Chatbot: I don't have preferences, but I think all colors are beautiful.
You: bye
Chatbot: Goodbye! Have a great day!