Group Project

A chatbot is a computer application created to mimic human conversation. Using natural language processing and machine learning techniques, chatbots understand and respond to user inputs in messaging services, mobile applications, and websites. A chatbot can provide customer support, retrieve information, entertain, and more. In addition to automating conventional communication methods, chatbots are designed to facilitate informal communication between users and the bot. **For your group project, design and implement analytic bots for the company.**

Assume you are advising an online retailer or a company on customer service. You have two options: either choose an online retailer that doesn't have a chatbot or an offline retailer that doesn't have a chatbot.

(e.g.,) https://www.restaurantpm.com/
Develop food ordering chatbot for the local Montreal restaurant.

Build Scenarios
The chatbot must respond to the queries of the users based on their inputs. The range of questions asked by users should be restricted based on the context.

Includes
- At least 4 conversation scenarios.
- Each scenario should consist of at least 3 questions and potential answer pairs.
- **You should suggest at least one scenario which could integrate data analytics aspects for the company or retailers.** At least one scenario should cover how apply one of the data analytics libraries or API.

[Sample Scenario]
Scenario 1- Order the food

User	Chatbot
"Hello"	"Hello and Welcome! How may I help you?"
"I am looking to order Chinese Food"	"Sure, what would you like to order today?"
"One Japanese tofu and sweat and sour chicken"	"Done. Your order ID 12345 is Your final amount is $ 35.5 including tax. And your order is placed for one chicken dumpling and two spring rolls. Would you like to pay in cash or with a credit card?"
"I will pay for credit card"	"Great! The delivery person will reach out to you soon! Is there anything else I can assist you with?"
"No! Thanks very much!"	

Scenario 2- Order status check

User	Chatbot
"I haven't received my order yet. Would it be possible for you to check the status of my order?"	"Could you please provide me with your order ID?

"123456"	"Order status for Order ID: 123456. The delivery guy is in your locality. It will take about 5 minutes for your food to arrive."
"Awesome"	"Thanks for your patience"

[Step 3] Develop your chatbot!

```python
# Define a list of keywords and responses
scenario = {
    "hi": "Hello!",
    "how are you": "I'm good, thanks for asking!",
    "bye": "Goodbye!",
    "default": "I'm sorry, I don't understand what you're saying."
}

# Create a function to handle user inputs
def chatbot_response(user_input, scenario):
    for keyword in scenario:
        if keyword in user_input.lower():
            return scenario[keyword]
    return scenario["default"]

# Start the chatbot
print("Chatbot: Hi, how can I help you today?")
while True:
    user_input = input("You: ")
    if user_input.lower() == "bye":
        print("Chatbot: Goodbye!")
        break
    else:
        print("Chatbot: " + chatbot_response(user_input,scenario))
```

Requirement - Coding

- To increase flexibility in handling data, incorporate Pandas into the retailer's data management system (e.g., menu, price, etc.). If you have already incorporated Pandas from assignment 1, you are exempted from this task.
- In addition, suggest at least one data analytics related Python library or API (excluding Pandas) to further develop your chatbot functionality.

Proposal

Presentation (.pptx) Less than 3 pages	**Problem Statement** - Brief description of the company or retailer - *The rationale for developing a chatbot for the retailer*

Code Submission

Jupyter NoteBook	Submit your Jupyter notebook file. - Beautify your code – make clear documentation.

	Requirement
	- To increase flexibility in handling data, incorporate Pandas into the retailer's data management system (e.g., menu, price, etc.). If you have already incorporated Pandas from assignment 1, you are exempted from this task.
	- Logically describe the rule and implement the rule.
	- In addition, suggest at least one data analytics related Python library or API (excluding Pandas) to further develop your chatbot functionality.

Final Presentation

	1. Problem Statement
Final Report(.pptx)	- Brief description of the company or retailer
(Less than 20 pages)	- *The rationale for developing a chatbot for the retailer*
	- *What's something new from the current service that they are offering?*
[Note] Appendix and References are excluded form the page limit.	
	- **Scenarios - Describe your chatbot and scenarios.**
	- Describe each scenario that you considered briefly.
Appendix. – Excluded from the page limit.	- If the chatbot replicates the current services that the retailer offers from other online sources (e.g., web order, uber eats, etc.), mark this as the replicated services.
References	- If you have suggested any additional services that retailers are not offering, mark this scenario as the new scenario. Include the rationale for considering this scenario and how this scenario can help users' experience with the retailers.
	[Note] If you have made the changes from your first group assignment, describe how you changed the scenarios or what scenario you have considered in the Appendix.
	2. Describe python libraries (for data analytics) or API (1 page)
	- Suggest how you would like to integrate analytics Python libraries or API.
	- Include the rationale for why the libraries are useful for the retailer's service.
	- Future suggestions for the code extension (e.g., additional python libraries). **You don't need to write the code.** You can share your idea and the proper python library.
	- **Be creative!**
	[Extra Point] – Use the library to extend your code.
	[Note] If you have made the changes from your first group assignment other than applying data analytics related python libraries or API (excluding pandas), describe how you changed the code in the Appendix.
	[Extra Point] Explore more than 1 libraries or APIs.

	[Extra Point] Share Database Schema to visualize your data collection plan **3. Suggestion for the retailers, and future suggestion** - Describe how the chatbot will help the retailer to improve your business.

Presentation (8 min + 2min Q&A)	- Prepare a presentation as the version for pitching your ideas to the clients (company). - Assume that you had a proposal for your initial idea and 2nd round meetings with the company. *Scenarios that you have considered.* - Describe the Python libraries or API that you used for the group assignment 2. - Explain rationale for incorporating specific python libraries & API. - If you modify the code (e.g., consider Pandas for data analytics library). Describe the major changes that you made from the previous code. [Note] You don't need to share the demo of your chatbot

Discussion (3 min + 2min Q&A)
   - Strength
   - Weakness
   - Suggestion
	- Each group will be assigned to be a discussant for at least one group.
	- After the code submission, you will be asked to review other group's work.
	- Leading 5 min discussion (after the presentation)

A further suggestion for students interested in data analytics in their future careers.
- Explore how to use GitHub and share your work on GitHub. You can use your final report as the description of your work. (e.g.,) https://github.com/chandrikadeb7/Face-Mask-Detection (Use your documentation for the description your work and add Jupyter notebook file as the reference).
- Share your GitHub link on your CV.