**CHATBOT USING PYTHON**

**PREPROCESSING DATASET**

**Preprocessing a dataset for a chatbot using Python typically involves several steps to clean and prepare the data for training or use in a chatbot model.**

**Data Collection:**

**Data Cleaning:**

**Remove any irrelevant or unnecessary data.**

**Handle missing values or placeholders if applicable.**

**Convert the text to lowercase to ensure consistency.**

**Tokenization:**

**Stopword Removal:**

**Remove common stopwords**

**Special Character and Punctuation Removal:**

**Lemmatization or Stemming (optional):**

**Data Formatting:**

**Data Splitting:**

**Encoding:**

**Padding (if using sequences):**

**Save Preprocessed Data:**

**CODE FOR PREPROCESSING DATASET:**

**import nltk**

**from nltk.corpus import stopwords**

**from nltk.tokenize import word\_tokenize**

**# Sample dataset**

**dataset = ["Hello, how can I help you?", "I need assistance with my account.", ...]**

**# Step 3: Tokenization**

**tokenized\_data = [word\_tokenize(sentence) for sentence in dataset]**

**# Step 4: Stopword Removal**

**stop\_words = set(stopwords.words('english'))**

**filtered\_data = [[word for word in sentence if word.lower() not in stop\_words] for sentence in tokenized\_data]**

**# Step 5: Special Character and Punctuation Removal**

**cleaned\_data = [[word for word in sentence if word.isalnum()] for sentence in filtered\_data]**

**# Now, you can format and encode the data as needed for your chatbot model.**

**PREPROCESSED DATA SET:**

**Machine: Hi, how are you doing?**

**Human: I'm fine. How about yourself?**

**Machine: I'm pretty good. Thanks for asking.**

**Human: No problem. So how have you been?**

**Machine: I've been great. What about you?**

**Human: I've been good. I'm in school right now.**

**Machine: What school do you go to?**

**Human: I go to PCC.**

**Machine: Do you like it there?**

**Human: It's okay. It's a really big campus.**

**Machine: Good luck with school.**

**Human: Thank you very much.**

**Machine: How's it going?**

**Human: I'm doing well. How about you?**

**Machine: Never better, thanks.**

**Human: So how have you been lately?**

**Machine: I've actually been pretty good. You?**

**Human: I'm actually in school right now.**

**Machine: Which school do you attend?**

**Human: I'm attending PCC right now.**

**Machine: Are you enjoying it there?**

**Human: It's not bad. There are a lot of people there.**

**Machine: Good luck with that.**

**Machine: How are you doing today?**

**Human: I'm doing great. What about you?**

**Machine: I'm absolutely lovely, thank you.**

**Human: Everything's been good with you?**

**Machine: I haven't been better. How about yourself?**

**Human: I started school recently.**

**Machine: Where are you going to school?**

**Human: I'm going to PCC.**

**Machine: How do you like it so far?**

**Human: I like it so far. My classes are pretty good right now.**

**Machine: I wish you luck.**

**Machine: It's an ugly day today.**

**Human: I know. I think it may rain.**

**Machine: It's the middle of summer, it shouldn't rain today.**

**Human: That would be weird.**

**Machine: Yeah, especially since it's ninety degrees outside.**

**Human: I know, it would be horrible if it rained and it was hot outside.**

**Machine: Yes, it would be.**

**Human: I really wish it wasn't so hot every day.**

**Machine: Me too. I can't wait until winter.**

**Human: I like winter too, but sometimes it gets too cold.**

**Machine: I'd rather be cold than hot.**

**Human: Me too.**

**Machine: It doesn't look very nice outside today.**

**Human: You're right. I think it's going to rain later.**

**Machine: In the middle of the summer, it shouldn't be raining.**

**Human: That wouldn't seem right.**

**Machine: Considering that it's over ninety degrees outside, that would be weird.**

**Human: Exactly, it wouldn't be nice if it started raining. It's too hot.**

**Machine: I know, you're absolutely right.**

**Human: I wish it would cool off one day.**

**Machine: That's how I feel, I want winter to come soon.**

**Human: I enjoy the winter, but it gets really cold sometimes.**

**Machine: I know what you mean, but I'd rather be cold than hot.**

**Human: That's exactly how I feel.**

**Machine: I wish it was a nicer day today.**

**Human: That is true. I hope it doesn't rain.**

**Machine: It wouldn't rain in the middle of the summer.**

**Human: It wouldn't seem right if it started raining right now.**

**Machine: It would be weird if it started raining in ninety-degree weather.**

**Human: Exactly, it wouldn't be nice if it started raining. It's too hot.**

**Machine: I know, you're absolutely right.**

**Human: I wish it would cool off one day.**

**Machine: I know what you mean. I can't wait until it's winter.**

**Human: Winter is great. I wish it didn't get so cold sometimes, though.**

**Machine: I would rather deal with the winter than the summer.**

**Machine: It's such a nice day.**

**Human: Yes, it is.**

**Machine: It looks like it may rain soon.**

**Human: Yes, and I hope that it does.**

**Machine: Why is that?**

**Human: I really love how rain clears the air.**

**Machine: Me too. It always smells so fresh after it rains.**

**Human: Yes, but I love the night air after it rains.**

**Machine: Really? Why is it?**

**Human: Because you can see the stars perfectly.**

**Machine: I really hope it rains today.**

**Human: Yeah, me too.**

**Machine: Isn't it a nice day?**

**Human: Yes, I think so too.**

**Machine: I think that it's going to rain.**

**Human: I hope that it does.**

**Machine: You like the rain?**

**Human: The sky looks so clean after it rains. I love it.**

**Machine: I understand. Rain does make it smell cleaner.**

**Human: I especially love the night air when it rains.**

**Machine: Really? Why?**

**Human: The stars look so much closer after it rains.**

**Machine: I really want it to rain today.**

**Human: Yeah, so do I.**

**Machine: Don't you think it's nice out?**

**Human: Yes, I think so too.**

**Machine: I think that it's going to rain.**

**Human: Hopefully it will.**

**Machine: How come?**

**Human: I like how clear the sky gets after it rains.**

**Machine: I feel the same way. It smells so good after it rains.**

**Human: Yes, but I love the night air after it rains.**

**Machine: Really? Why is it?**

**Human: Because you can see the stars perfectly.**

**Machine: I really hope it rains today.**

**Human: Yeah, so do I.**

**Machine: Hello, may I speak to Alice, please?**

**Human: This is she. How's it going?**

**Machine: I've been trying to call you all day.**

**Human: Sorry about that. I was cleaning up.**

**Machine: It's okay.**

**Human: So what were you calling me about?**

**Machine: Oh, I just wanted to see if you wanted to hang out tomorrow.**

**Human: Sure, what did you want to do?**

**Machine: Maybe we can go see a movie or something.**

**Human: That sounds like fun. Let's do it.**

**Machine: I'll see you tomorrow then.**

**Human: See you then. Goodbye.**

**Machine: Hi, how are you. Is Alice there?**

**Human: Speaking. What's up?**

**Machine: Why haven't you answered the phone?**

**Human: My bad, I had chores to do.**

**Machine: That's all right.**

**Human: What was the reason for your call?**

**Machine: I want to do something tomorrow with you.**

**Human: Sounds good. What did you have in mind?**

**Machine: I was thinking about seeing a movie.**

**Human: Okay, let's go see a movie.**

**Machine: Until then.**

**Machine: What's your favorite movie?**

**Human: My favorite movie is Superbad.**

**Machine: Oh, why is that?**

**Human: It's the funniest movie that I've ever seen.**

**Machine: That's true. It is a very funny movie.**

**Human: You've seen it before?**

**Machine: Yes, I saw that movie the first day it came out in theaters.**

**Human: Didn't you laugh through the whole movie? I did.**

**Machine: Me too. That movie brought tears to my eyes.**

**Human: Mine too.**

**Chatbot by preparing the enivironment and implementing basic user interactions. Installation of required libraries, like transformers for GPT-3 integration and flask for web app development:**

**1.Set Up a Virtual Environment (Optional):**

**# Create a virtual environment (Python 3.7+)**

**python -m venv chatbot-env**

**# Activate the virtual environment**

**chatbot-env\Scripts\activate # On Windows**

**2.Install Required Libraries:**

**pip install transformers**

**pip install flask**

**pip install openai**

**Create Your GPT-3 API Key:**

**To integrate GPT-3, you need to create an API key from the OpenAI platform. You can follow OpenAI's documentation on how to create an API key: https://platform.openai.com/signup**

**3.Set Up Your Flask Web Application:**

**from flask import Flask, render\_template, request**

**import openai**

**app = Flask(\_name\_)**

**# Configure your OpenAI API key**

**api\_key = 'YOUR\_OPENAI\_API\_KEY'**

**openai.api\_key = api\_key**

**@app.route('/')**

**def home():**

**return render\_template('index.html')**

**@app.route('/get\_response', methods=['POST'])**

**def get\_response():**

**user\_input = request.form['user\_input']**

**response = generate\_response(user\_input)**

**return response**

**def generate\_response(user\_input):**

**# Use GPT-3 to generate a response**

**response = openai.Completion.create(**

**engine="text-davinci-002",**

**prompt=f"User: {user\_input}\nChatGPT: ",**

**max\_tokens=50**

**)**

**return response.choices[0].text**

**if \_name\_ == '\_main\_':**

**app.run(debug=True)**

**4.Create HTML Templates:**

**<!DOCTYPE html>**

**<html>**

**<head>**

**<title>Chatbot</title>**

**</head>**

**<body>**

**<h1>Chatbot</h1>**

**<div id="chat-container">**

**<div id="chat"></div>**

**<input type="text" id="user-input" placeholder="Your message..." onkeydown="handleKeyPress(event)">**

**<button onclick="sendMessage()">Send</button>**

**</div>**

**<script>**

**function sendMessage() {**

**var user\_input = document.getElementById("user-input").value;**

**var chat = document.getElementById("chat");**

**if (user\_input.trim() == "") return;**

**chat.innerHTML += <div class="user-message">${user\_input}</div>;**

**document.getElementById("user-input").value = "";**

**fetch("/get\_response", {**

**method: "POST",**

**body: new URLSearchParams({user\_input}),**

**headers: {**

**"Content-Type": "application/x-www-form-urlencoded"**

**}**

**})**

**.then(response => response.text())**

**.then(data => {**

**chat.innerHTML += <div class="bot-message">${data}</div>;**

**});**

**}**

**function handleKeyPress(event) {**

**if (event.key === "Enter") {**

**sendMessage();**

**}**

**}**

**</script>**

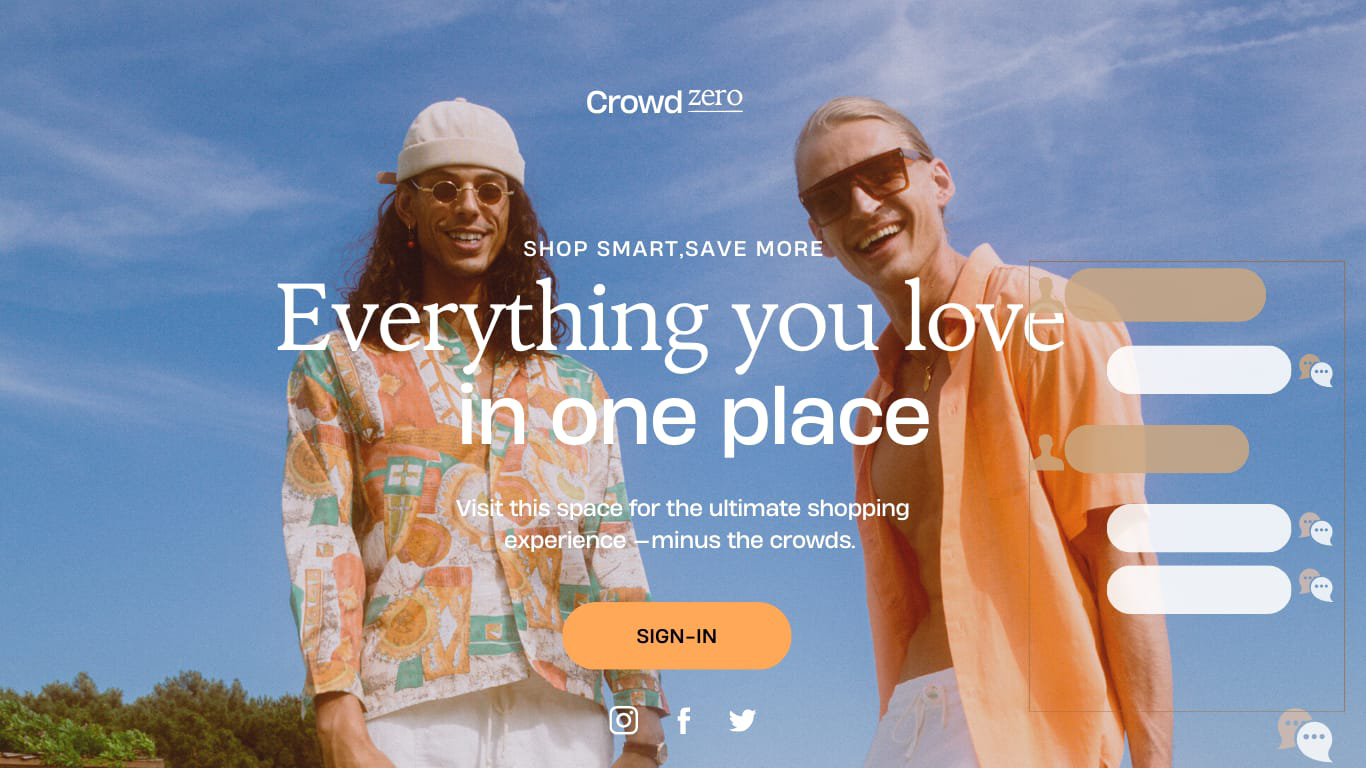
**</body>**

**</html>**

**5.Run Your Flask Application:**

**python app.py**

**Your chatbot web application should be accessible at http://localhost:5000/.**

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**A chatbot and a person

Description automatically generated**