

CREATE A CHATBOT IN PYTHON

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PACKAGES INSTALLATION :

```
!pip install transformers flask
```

Requirement already satisfied: transformers in d:\anaconda\lib\site-packages (4.32.1)

Requirement already satisfied: flask in d:\anaconda\lib\site-packages (2.2.2)

Requirement already satisfied: filelock in d:\anaconda\lib\site-packages (from transformers) (3.9.0)

Requirement already satisfied: huggingface-hub<1.0,>=0.15.1 in d:\anaconda\lib\site-packages (from transformers) (0.15.1)

Requirement already satisfied: numpy>=1.17 in d:\anaconda\lib\site-packages (from transformers) (1.24.3)

Requirement already satisfied: packaging>=20.0 in d:\anaconda\lib\site-packages (from transformers) (23.1)

Requirement already satisfied: pyyaml>=5.1 in d:\anaconda\lib\site-packages (from transformers) (6.0)

Requirement already satisfied: regex!=2019.12.17 in d:\anaconda\lib\site-packages (from transformers) (2022.7.9)

Requirement already satisfied: requests in d:\anaconda\lib\site-packages (from transformers) (2.31.0)

Requirement already satisfied: tokenizers!=0.11.3,<0.14,>=0.11.1 in d:\anaconda\lib\site-packages (from transformers) (0.13.2)

Requirement already satisfied: safetensors>=0.3.1 in d:\anaconda\lib\site-packages (from transformers) (0.3.2)

Requirement already satisfied: tqdm>=4.27 in d:\anaconda\lib\site-packages (from transformers) (4.65.0)

Requirement already satisfied: Werkzeug>=2.2.2 in d:\anaconda\lib\site-packages (from flask) (2.2.3)

Requirement already satisfied: Jinja2>=3.0 in d:\anaconda\lib\site-packages (from flask) (3.1.2)

Requirement already satisfied: itsdangerous>=2.0 in d:\anaconda\lib\site-packages (from flask) (2.0.1)

Requirement already satisfied: click>=8.0 in d:\anaconda\lib\site-packages (from flask) (8.0.4)

Requirement already satisfied: colorama in d:\anaconda\lib\site-packages (from click>=8.0->flask) (0.4.6)

Requirement already satisfied: fsspec in d:\anaconda\lib\site-packages (from huggingface-hub<1.0,>=0.15.1->transformers) (2023.4.0)

Requirement already satisfied: typing-extensions>=3.7.4.3 in d:\anaconda\lib\site-packages (from huggingface-hub<1.0,>=0.15.1->transformers) (4.7.1)

Requirement already satisfied: MarkupSafe>=2.0 in d:\anaconda\lib\site-packages (from Jinja2>=3.0->flask) (2.1.1)

Requirement already satisfied: charset-normalizer<4,>=2 in d:\anaconda\lib\site-packages (from requests->transformers) (2.0.4)

Requirement already satisfied: idna<4,>=2.5 in d:\anaconda\lib\site-packages (from requests->transformers) (3.4)

Requirement already satisfied: urllib3<3,>=1.21.1 in d:\anaconda\lib\site-packages (from requests->transformers) (1.26.16)

Requirement already satisfied: certifi>=2017.4.17 in d:\anaconda\lib\site-packages (from requests->transformers) (2023.7.22)

WARNING: Skipping D:\anaconda\Lib\site-packages\tensorflow_io_gcs_filesystem-0.31.0.dist-info due to invalid metadata entry 'name'

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Preprocessing :

!pip install pandas
!pip install numpy
!pip install nltk

df = pd.read_csv("dialogs.csv")
df.head()

	how are you doing? hi i'm fine. how about yourself?	Unnamed: 2	Unnamed: 3	Unnamed: 4	Unnamed: 5	Unnamed: 6	Unnamed: 7	Unnamed: 8	Unnamed: 9	...	Unnamed: 991	Unnamed: 992	Unnamed: 993	Unr
0	i'm fine. how about yourself? 'ti'm pretty good...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN ...	NaN	NaN	NaN	
1	i'm pretty good. thanks for asking. 'tno proble...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN ...	NaN	NaN	NaN	
2	no problem. so how have you been?'ti've been g...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN ...	NaN	NaN	NaN	
3	i've been great. what about you?'ti've been go...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN ...	NaN	NaN	NaN	
4	i've been good. i'm in school right now.'twhat...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN ...	NaN	NaN	NaN	

5 rows × 1001 columns

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'> RangeIndex: 3724 entries, 0 to 3723 Columns: 1001 e  
ntries, hi to Unnamed: 1000 dtypes: float64(996), object(5) memory usage: 28.4+ MB
```

```
df = df.drop_duplicates()
```

```
df = df.dropna()
```

```
df['message'] = df['message'].str.lower()  
df['message'] = df['message'].str.replace(['^\w\s'], '')
```

```
nlTK.download('punkt')  
nlTK.download('stopwords')  
from nlTK.corpus import stopwords
```

```
stop_words = set(stopwords.words('english'))
```

```
from nlTK.stem import WordNetLemmatizer
```

```
lemmatizer = WordNetLemmatizer()
```

```
df.to_csv("cleaned_dialogs.csv", index=False)
```

Web app development :

```
from transformers import GPT2LMHeadModel, GPT2Tokenizer  
from flask import Flask, request, jsonify  
  
app = Flask(__name__)  
  
# Load the GPT-2 model and tokenizer  
model_name = "gpt2"  
model = GPT2LMHeadModel.from_pretrained(model_name)  
tokenizer = GPT2Tokenizer.from_pretrained(model_name)  
  
@app.route("/chat", methods=["POST"])  
def chat():  
    user_input = request.json["user_input"]
```

```

# Generate a response from the chatbot
input_ids = tokenizer.encode(user_input, return_tensors="pt")
response_ids = model.generate(input_ids, max_length=100, num_return_sequences=1, no_
repeat_ngram_size=2)
response = tokenizer.decode(response_ids[0], skip_special_tokens=True)

return jsonify({"response": response})

if __name__ == "__main__":
    app.run(debug=True)

```

```

user_input = widgets.Text(placeholder="Type your message...")
output = widgets.Output()

def on_send_message(change):
    if change.new and change.new[-1] == '\n':
        with output:
            clear_output()
            user_message = user_input.value.strip() # Remove leading/trailing whitespace
            display(widgets.HTML("<strong>You:</strong> " + user_message))

            # Send user input to the chatbot and display the response
            response = get_chatbot_response(user_message)
            display(widgets.HTML("<strong>Chatbot:</strong> " + response))
            user_input.value = "" # Clear the input field

user_input.observe(on_send_message, names='value')
display(user_input)
display(output)

output: Text(value="", placeholder="Type your message...")

```

