Date: 17 October 2023
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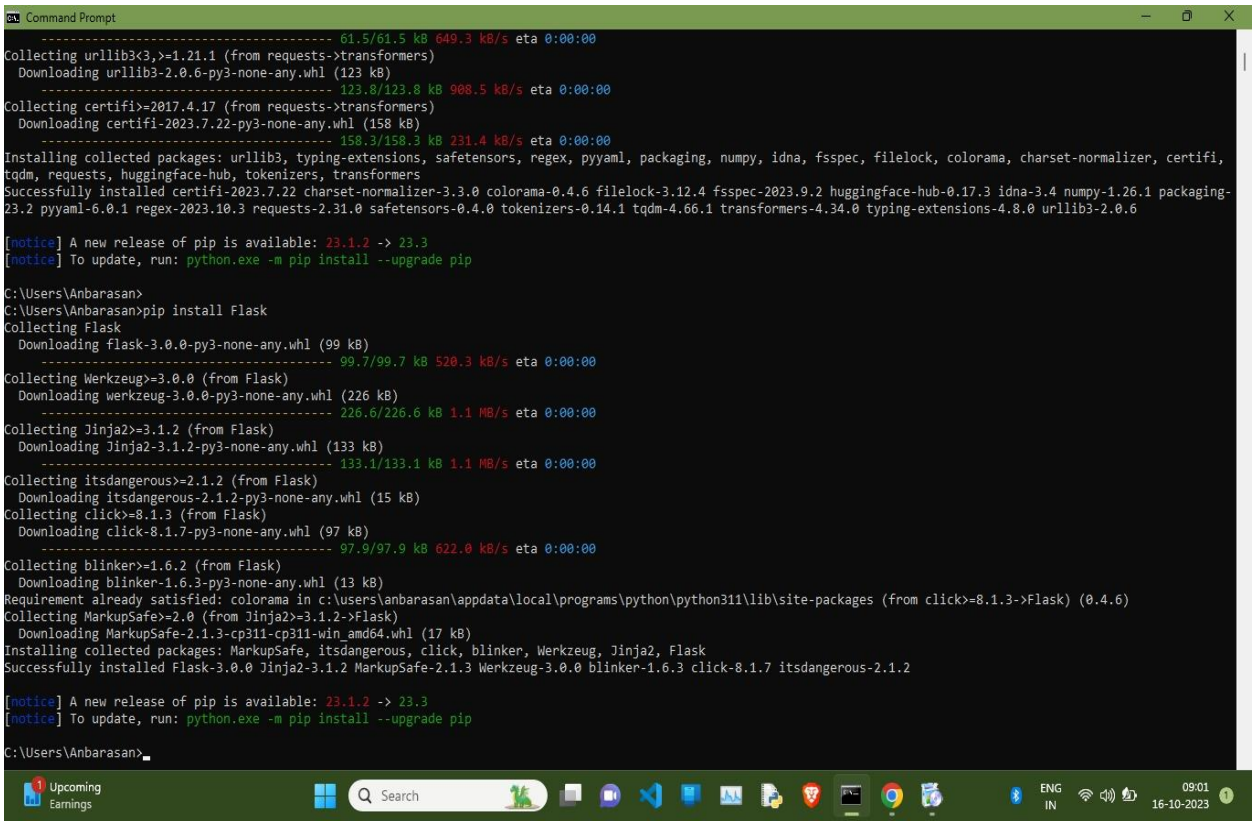
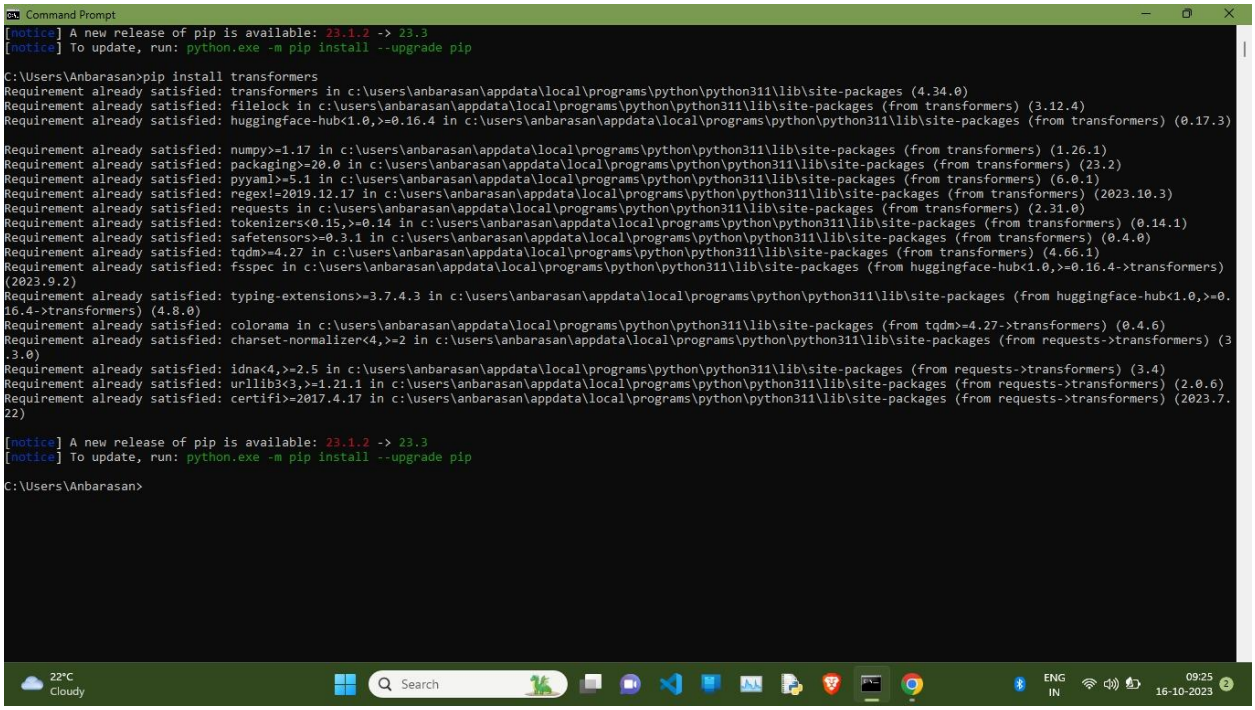
Installing Packages

1. Package name: transformers
   Use: For GPT-3 integration
   Command to install: pip install transformers



2. Package name: Flask
   Use: For web app development
   Command to install: pip install Flask



Program for basic chat bot conversation

I provided source code file called “AI_Phase3_source_code.ipynb” in my git hub repository

```
# import all required libraries
import numpy as np
import string
from nltk.corpus import stopwords
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.feature_extraction.text import CountVectorizer
from sklearn.neural_network import MLPClassifier
from sklearn.feature_extraction.text import TfidfTransformer,TfidfVectorizer
from sklearn.pipeline import Pipeline
```

```
# importing the dataset
df = pd.read_csv(r"C:\Users\COMPAQ\Desktop\IBM\dataset\dialogs.txt", sep='\t')

df.head()
```

	hi, how are you doing?	i'm fine. how about yourself?
0	i'm fine. how about yourself?	i'm pretty good. thanks for asking.
1	i'm pretty good. thanks for asking.	no problem. so how have you been?
2	no problem. so how have you been?	i've been great. what about you?
3	i've been great. what about you?	i've been good. i'm in school right now.
4	i've been good. i'm in school right now.	what school do you go to?

#add column names

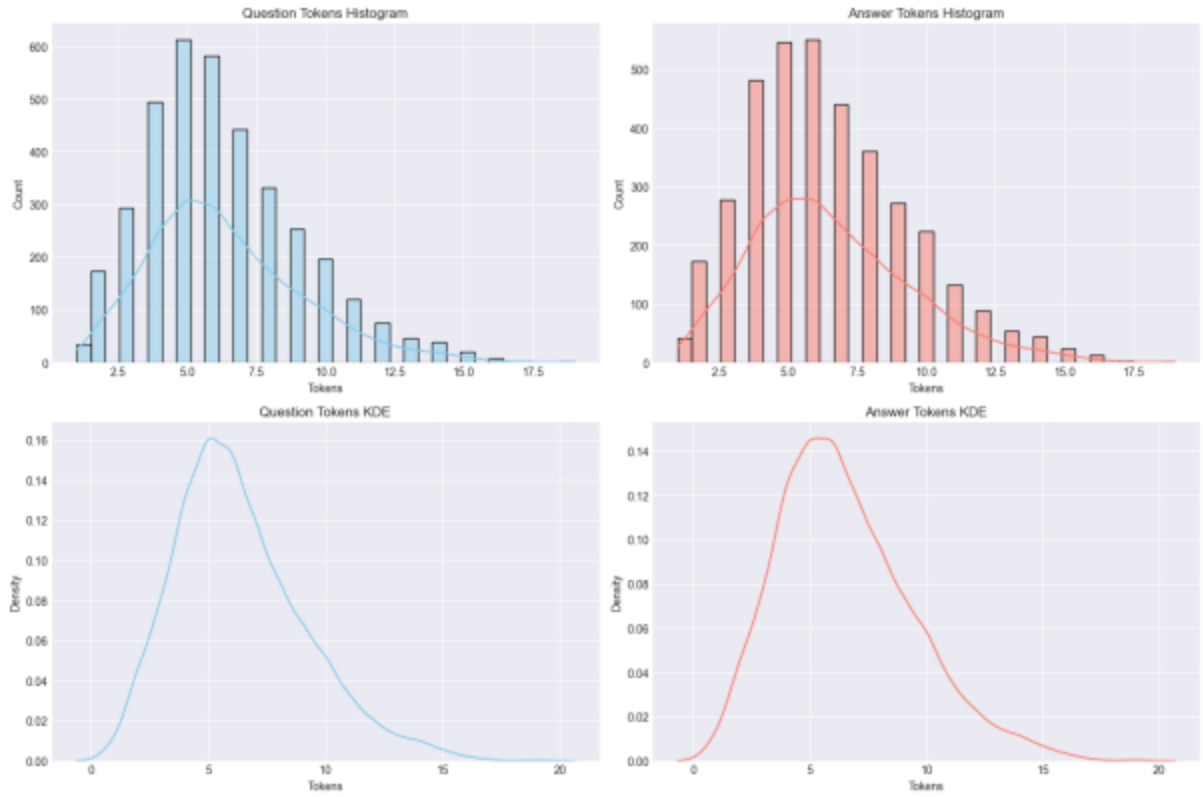
```
df.columns=['Questions','Answers']
df
```

	Questions	Answers
0	i'm fine. how about yourself?	i'm pretty good. thanks for asking.
1	i'm pretty good. thanks for asking.	no problem. so how have you been?
2	no problem. so how have you been?	i've been great. what about you?
3	i've been great. what about you?	i've been good. i'm in school right now.
4	i've been good. i'm in school right now.	what school do you go to?
...	...	...
3719	that's a good question. maybe it's not old age.	are you right-handed?
3720	are you right-handed?	yes. all my life.
3721	yes. all my life.	you're wearing out your right hand. stop using...
3722	you're wearing out your right hand. stop using...	but i do all my writing with my right hand.
3723	but i do all my writing with my right hand.	start typing instead. that way your left hand ...

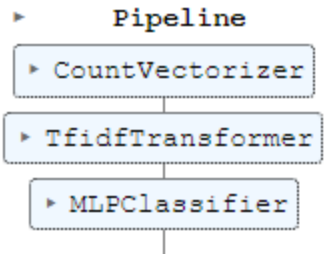
3724 rows × 2 columns

```
# Data Preprocessing
```

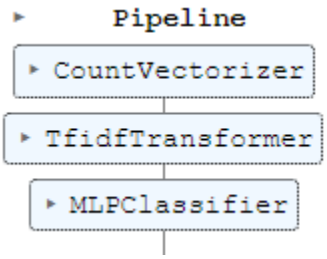
```
# Assuming you have a DataFrame 'df' with 'Questions' and 'Answers' columns

df['question tokens'] = df['Questions'].apply(lambda x: len(x.split()))
df['answer tokens'] = df['Answers'].apply(lambda x: len(x.split()))

plt.style.use('fivethirtyeight')
fig, ax = plt.subplots(nrows=1, ncols=3, figsize=(20, 5))
sns.set_palette('Set2')

# Create bar plots for question tokens and answer tokens
sns.barplot(x='question tokens', y=df.index, data=df, ax=ax[0])
ax[0].set_xlabel('Question Tokens')
ax[0].set_ylabel('Index')
ax[0].set_title('Question Tokens Bar Plot')

sns.barplot(x='answer tokens', y=df.index, data=df, ax=ax[1])
ax[1].set_xlabel('Answer Tokens')
ax[1].set_ylabel('Index')
ax[1].set_title('Answer Tokens Bar Plot')

# Create a scatter plot with a regression line for the relationship between question and
answer tokens
sns.regplot(x='question tokens', y='answer tokens', data=df, ax=ax[2],
scatter_kws={'alpha':0.5})
ax[2].set_xlabel('Question Tokens')
ax[2].set_ylabel('Answer Tokens')
ax[2].set_title('Scatter Plot of Question Tokens vs. Answer Tokens')

plt.tight_layout()
plt.show()
```




```
#Function for converting upper to lower case
def cleaner(x):
   return [a for a in (''.join([a for a in x if a not in string.punctuation])).lower().split()]

#Model
Pipe = Pipeline([
   ('bow',CountVectorizer(analyzer=cleaner)),
   ('tfidf',TfidfTransformer()),
   ('classifier',MLPClassifier())
])

Pipe.fit(df['Questions'],df['Answers'])
```



Pipe.fit(df['Questions'],df['Answers'])



#Text

Pipe.predict(['like how clear the sky gets after it rains.'])[0]

```
'i feel the same way. it smells so good after it rains.'
```

Pipe.predict(['i want this trip to be perfect, i hope it stays warm.'])[0]

```
"this california weather is so uncertain, it's impossible to know what'll happen."
```

Pipe.predict(['it would not be good if it got cold this weekend.'])[0]

```
'i want this trip to be perfect, i hope it stays warm.'
```

Pipe.predict(['it would be nice if the weather would never change.'])[0]

```
'that would be great, then we could plan things sooner.'
```

Pipe.predict(['why is that?'])[0]

```
'because i love the snow.'
```

Pipe.predict(['What are you doing'])[0]

```
"i'm going to change the light bulb. it burnt out."
```