

## Task 4: Analyze and visualize sentiment patterns in social media data to understand public opinion and attitudes towards specific topics or brands.

### Import Libraries & Load Dataset

```
pip install textblob
import pandas as pd
import matplotlib.pyplot as plt
from textblob import TextBlob
data = pd.read_csv("healthcare_dataset.csv")
data.head(5)
```

Requirement already satisfied: textblob in /usr/local/lib/python3.12/dist-packages (0.19.0)  
Requirement already satisfied: nltk>=3.9 in /usr/local/lib/python3.12/dist-packages (from textblob) (3.9.1)  
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Requirement already satisfied: joblib in /usr/local/lib/python3.12/dist-packages (from nltk>=3.9->textblob) (1.5.3)  
Requirement already satisfied: regex>=2021.8.3 in /usr/local/lib/python3.12/dist-packages (from nltk>=3.9->textblob) (2025.11.3)  
Requirement already satisfied: tqdm in /usr/local/lib/python3.12/dist-packages (from nltk>=3.9->textblob) (4.67.1)

	Name	Age	Gender	Blood Type	Medical Condition	Date of Admission	Doctor	Hospital	Insurance Provider	Billing Amount	Room Number
0	Bobby JacksOn	30	Male	B-	Cancer	1/31/2024	Matthew Smith	Sons and Miller	Blue Cross	18850.28131	328
1	LesLie TErRy	62	Male	A+	Obesity	8/20/2019	Samantha Davies	Kim Inc	Medicare	33643.32729	265
2	DaNnY sMiTh	76	Female	A-	Obesity	9/22/2022	Tiffany Mitchell	Cook PLC	Aetna	27955.09608	205
3	andrEw waTiS	28	Female	O+	Diabetes	11/18/2020	Kevin Wells	Hernandez Rogers and Vang,	Medicare	37909.78241	450
4	adRIENNE bEll	43	Female	AB+	Cancer	9/19/2022	Kathleen Hanna	White-White	Aetna	14238.31781	458

### Select Text Column for Sentiment

```
text_data = data['Medical Condition'].astype(str)
```

### Calculate Sentiment Polarity

```
def get_sentiment(text):
    return TextBlob(text).sentiment.polarity
data['Sentiment_Score'] = text_data.apply(get_sentiment)
```

### Convert Sentiment Score into Labels

```
def sentiment_label(score):
    if score > 0:
        return "Positive"
    elif score < 0:
        return "Negative"
    else:
        return "Neutral"

data['Sentiment_Type'] = data['Sentiment_Score'].apply(sentiment_label)
```

### View Sentiment Data

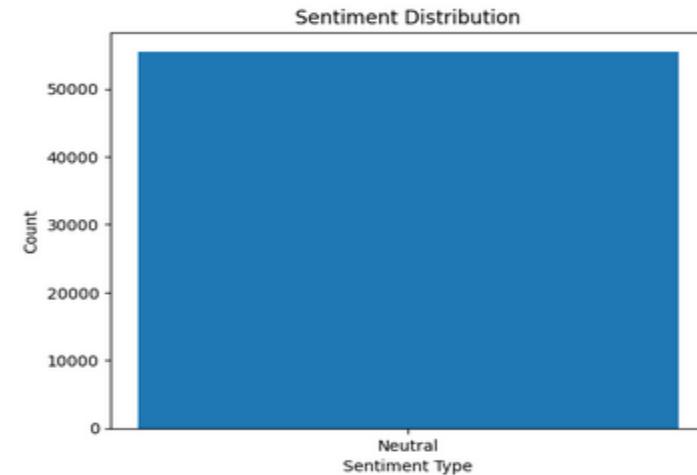
```
data[['Medical Condition', 'Sentiment_Score', 'Sentiment_Type']].head()
```

	Medical Condition	Sentiment_Score	Sentiment_Type
0	Cancer	0.0	Neutral
1	Obesity	0.0	Neutral
2	Obesity	0.0	Neutral
3	Diabetes	0.0	Neutral
4	Cancer	0.0	Neutral

#### Bar Chart – Sentiment Distribution

```
❶ sentiment_count = data['Sentiment_Type'].value_counts()

plt.figure()
plt.bar(sentiment_count.index, sentiment_count.values)
plt.xlabel("Sentiment Type")
plt.ylabel("Count")
plt.title("Sentiment Distribution")
plt.show()
```

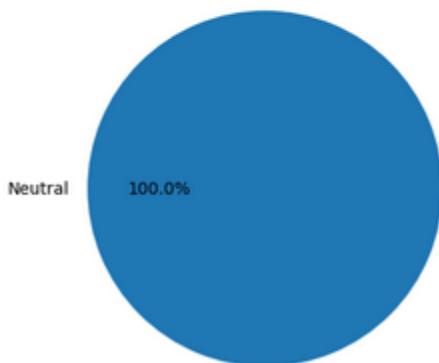


#### Pie Chart – Sentiment Percentage

```
❶ sentiment_count = data['Sentiment_Type'].value_counts()

plt.figure()
plt.pie(sentiment_count.values, labels=sentiment_count.index, autopct='%1.1f%%')
plt.title("Sentiment Percentage Distribution")
plt.show()
```

\*\*\* Sentiment Percentage Distribution



#### Line Plot – Sentiment Trend (Index Based)

```
plt.figure()  
plt.plot(data['Sentiment_Score'])  
plt.xlabel("Record Index")  
plt.ylabel("Sentiment Score")  
plt.title("Sentiment Trend Over Records")  
plt.show()
```

