

```
In [1]: import pandas as pd
        from textblob import TextBlob
        import matplotlib.pyplot as plt
```

```
In [3]: data = pd.read_csv('twitter_training.csv')
```

```
In [4]: data.head()
```

```
Out[4]:
```

	3364	Facebook	Irrelevant	I mentioned on Facebook that I was struggling for motivation to go for a run the other day, which has been translated by Tom's great auntie as 'Hayley can't get out of bed' and told to his grandma, who now thinks I'm a lazy, terrible person 🤔
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0	352	Amazon	Neutral	BBC News - Amazon boss Jeff Bezos rejects clai...
1	8312	Microsoft	Negative	@Microsoft Why do I pay for WORD when it funct...
2	4371	CS-GO	Negative	CSGO matchmaking is so full of closet hacking,...
3	4433	Google	Neutral	Now the President is slapping Americans in the...
4	6273	FIFA	Negative	Hi @EAHelp I've had Madeleine McCann in my cel...

```
In [5]: col_names = ['ID', 'Entity', 'Sentiment', 'Content']
        df = pd.read_csv('twitter_training.csv', names=col_names)
```

```
In [6]: df.head()
```

```
Out[6]:
```

	ID	Entity	Sentiment	Content
0	3364	Facebook	Irrelevant	I mentioned on Facebook that I was struggling ...
1	352	Amazon	Neutral	BBC News - Amazon boss Jeff Bezos rejects clai...
2	8312	Microsoft	Negative	@Microsoft Why do I pay for WORD when it funct...
3	4371	CS-GO	Negative	CSGO matchmaking is so full of closet hacking,...
4	4433	Google	Neutral	Now the President is slapping Americans in the...

```
In [7]: df.shape
```

```
Out[7]: (1000, 4)
```

```
In [8]: df.describe
```

```
Out[8]: <bound method NDFrame.describe of      ID      Entity  Sentiment \
0      3364      Facebook  Irrelevant
1       352        Amazon    Neutral
2      8312      Microsoft  Negative
3      4371        CS-GO    Negative
4      4433        Google    Neutral
..      ...      ...      ...
995   4891  GrandTheftAuto(GTA)  Irrelevant
996   4359        CS-GO  Irrelevant
997   2652      Borderlands    Positive
998   8069      Microsoft    Positive
999   6960  johnson&johnson    Neutral

      Content
0  I mentioned on Facebook that I was struggling ...
1  BBC News - Amazon boss Jeff Bezos rejects clai...
2  @Microsoft Why do I pay for WORD when it funct...
3  CSGO matchmaking is so full of closet hacking,...
4  Now the President is slapping Americans in the...
..      ...
995  ★ Toronto is the arts and culture capital of ...
996  tHIS IS ACTUALLY A GOOD MOVE TOT BRING MORE VI...
997  Today sucked so it's time to drink wine n play...
998  Bought a fraction of Microsoft today. Small wins.
999  Johnson & Johnson to stop selling talc baby po...
```

```
[1000 rows x 4 columns]>
```

```
In [9]: df.isnull().sum()
```

```
Out[9]: ID          0
      Entity        0
      Sentiment     0
      Content        0
      dtype: int64
```

```
In [10]: df.dropna(axis=0, inplace=True)
```

```
In [11]: df.isnull().sum()
```

```
Out[11]: ID          0
      Entity        0
      Sentiment     0
      Content        0
      dtype: int64
```

```
In [12]: df.duplicated().sum()
```

```
Out[12]: 0
```

```
In [13]: df.drop_duplicates(inplace=True)
      df.duplicated().sum()
```

```
Out[13]: 0
```

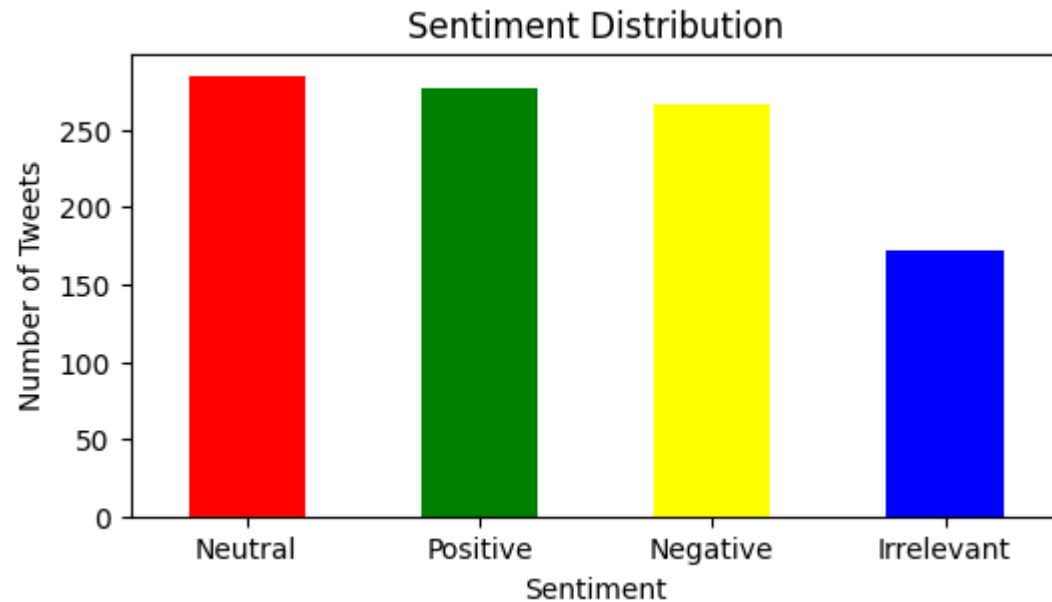
```
In [14]: df.shape
```

```
Out[14]: (1000, 4)
```

```
In [15]: sentiment_counts = df['Sentiment'].value_counts()
      sentiment_counts
```

```
Out[15]: Sentiment
      Neutral      285
      Positive     277
      Negative     266
      Irrelevant   172
      Name: count, dtype: int64
```

```
In [16]: plt.figure(figsize=(6, 3))
sentiment_counts.plot(kind='bar', color=['red', 'green', 'yellow', 'blue'])
plt.title('Sentiment Distribution')
plt.xlabel('Sentiment')
plt.ylabel('Number of Tweets')
plt.xticks(rotation=0)
plt.show()
```

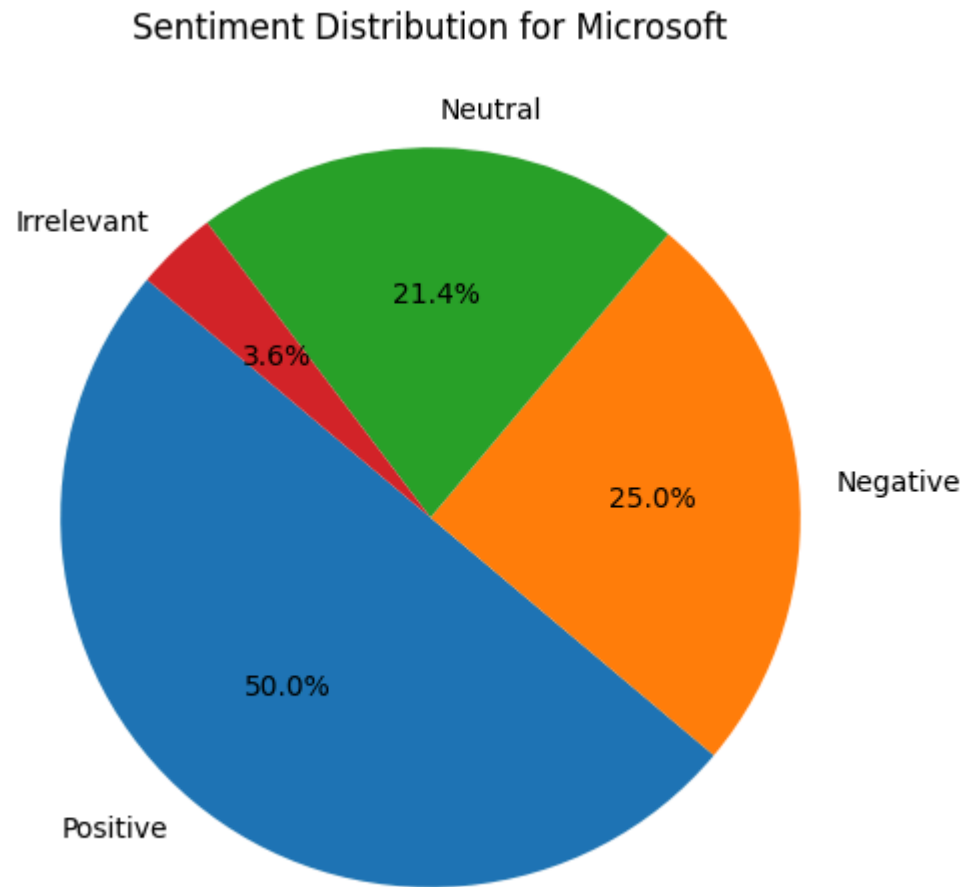


```
In [19]: brand_data = df[df['Entity'].str.contains('Microsoft', case=False)]
brand_sentiment_counts = brand_data['Sentiment'].value_counts()
brand_sentiment_counts
```

```
Out[19]: Sentiment
Positive      14
Negative       7
Neutral        6
Irrelevant     1
Name: count, dtype: int64
```

```
In [20]: plt.figure(figsize=(6, 6))
plt.pie(brand_sentiment_counts, labels=brand_sentiment_counts.index, autopct='%1.1f%%', startangle=140)
```

```
plt.title('Sentiment Distribution for Microsoft')  
plt.show()
```



In []: