cognifyz-task1-lvl3-1

November 14, 2023

1 Level 3 Task 1

2 Task: Restaurant Reviews

Analyze the text reviews to identify the most common positive and negative keywords.

Calculate the average length of reviews and explore if there is a relationship between review length and rating.

3 Step 1: Import Libraries

[6]:

```
import pandas as pd
import matplotlib.pyplot as plt
from nltk.corpus import stopwords
```

This imports the necessary libraries: pandas for data manipulation and matplotlib for plotting.

4 Step 2: Load the Data

[7]:

```
df = pd.read_csv("C:\\Users\\Narthana\\Downloads\\Dataset.csv")
```

5 Step 3: Identify Positive Keywords

[8]:

```
positive_keywords = []
stop_words = set(stopwords.words('english'))

for review in df['Cuisines'].dropna():
    words = review.split()
    words = [word.lower() for word in words if word.isalpha() and word.lower() not in stop_words]

    for word in words:
        positive_keywords.append(word)
```

Here, we split each review into words, convert them to lowercase, remove stopwords, and append the words to the positive_keywords list.

6 Step 4: Get the Most Common Positive and Negative Keywords

[22]:

```python
positive_freq = pd.Series(positive_keywords).value_counts()
print("Most common positive keywords:", positive_freq.head(5))
```

```
Most common positive keywords: north      3969
fast       1987
food       1981
indian     1727
chinese    1506
dtype: int64
```

[9]:

```python
negative_freq = pd.Series(negative_keywords).value_counts()
print("Most common negative keywords:", negative_freq.head(5))
```

```
Most common negative keywords: Series([], dtype: int64)
```

```
C:\Users\Narthana\AppData\Local\Temp\ipykernel_8636\2965790279.py:1:
FutureWarning: The default dtype for empty Series will be 'object' instead of
'float64' in a future version. Specify a dtype explicitly to silence this
warning.
  negative_freq = pd.Series(negative_keywords).value_counts()
```

This step calculates the frequency of each word in the positive_keywords list and prints the top 5 most common positive keywords.

7 Step 5: Calculate Average Review Length

[10]:

```python
df['Review Length'] = df['Cuisines'].apply(lambda x: len(str(x).split()))
average_length = df['Review Length'].mean()
print("Average Review Length:", average_length)
```

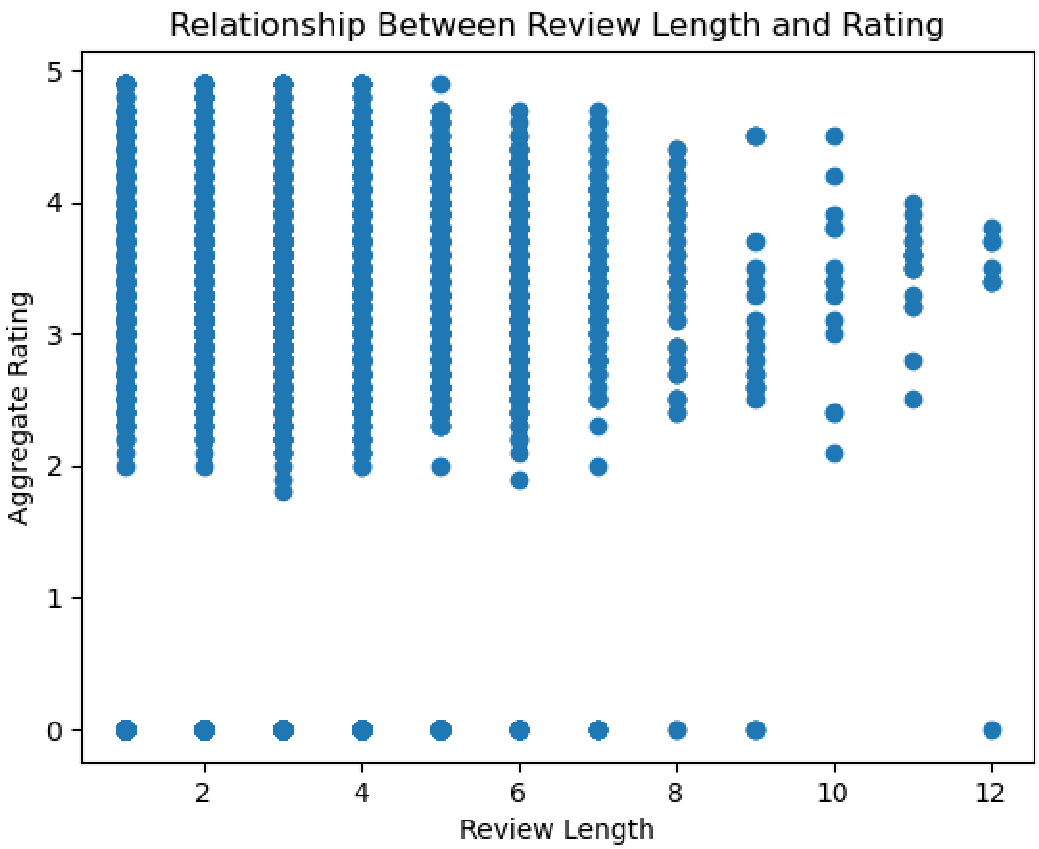
```
Average Review Length: 2.8964506334415243
```

Here, we calculate the length of each review in the 'Cuisines' column and then find the average review length.

8 Step 6: Explore Relationship Between Review Length and Rating

[11]:

```python
plt.scatter(df['Review Length'], df['Aggregate rating'])
plt.title('Relationship Between Review Length and Rating')
plt.xlabel('Review Length')
plt.ylabel('Aggregate Rating')
plt.show()
```

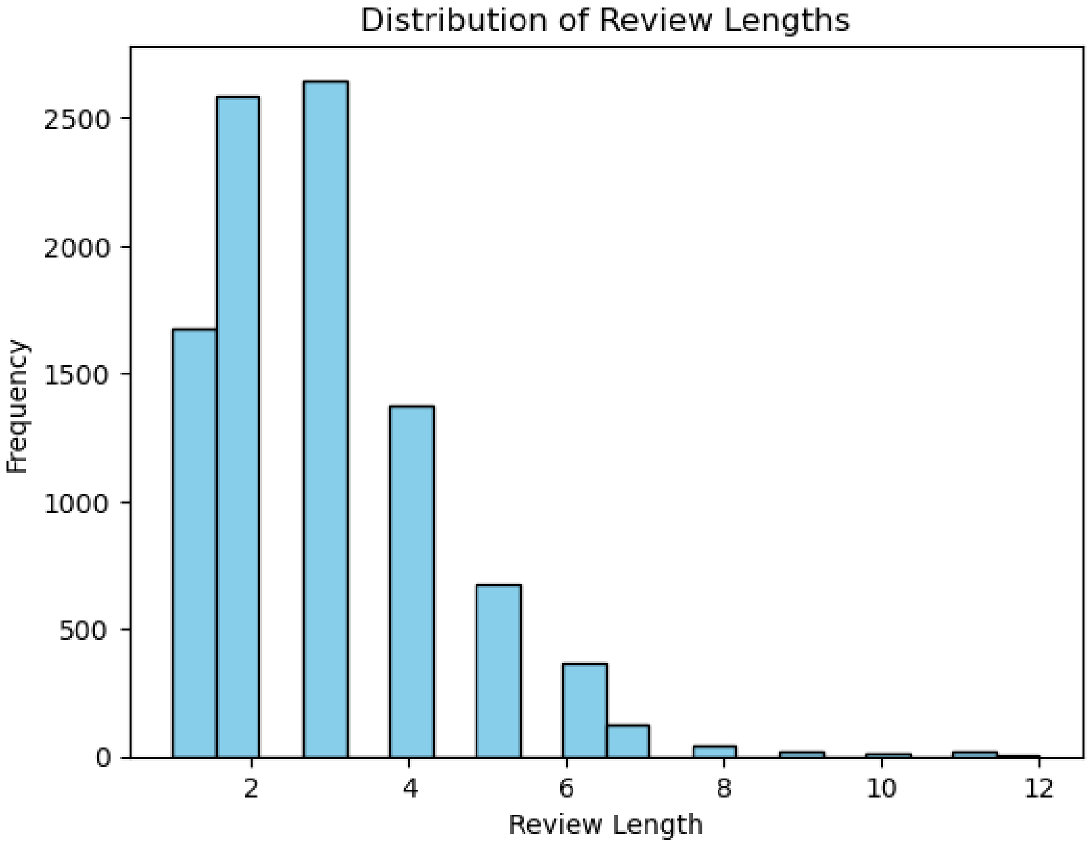


This step creates a scatter plot to visualize the relationship between the length of reviews and the ‘Aggregate rating’.

9 Step 7: Distribution of Review Lengths

[26]:

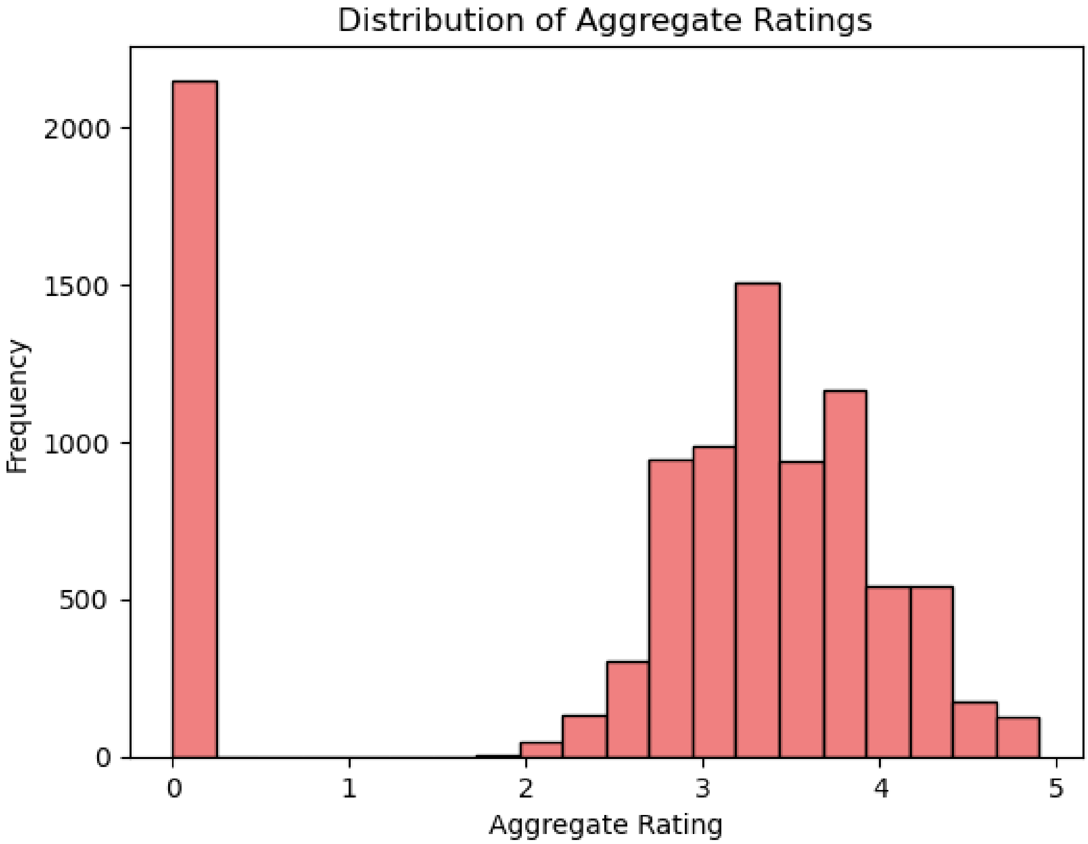
```
# Plot the distribution of review lengths
plt.hist(df['Review Length'], bins=20, color='skyblue', edgecolor='black')
plt.title('Distribution of Review Lengths')
plt.xlabel('Review Length')
plt.ylabel('Frequency')
plt.show()
```



This step uses a histogram to show the distribution of review lengths. The bins=20 parameter specifies the number of bins (or bars) in the histogram.

10 Step 8: Distribution of Aggregate Ratings

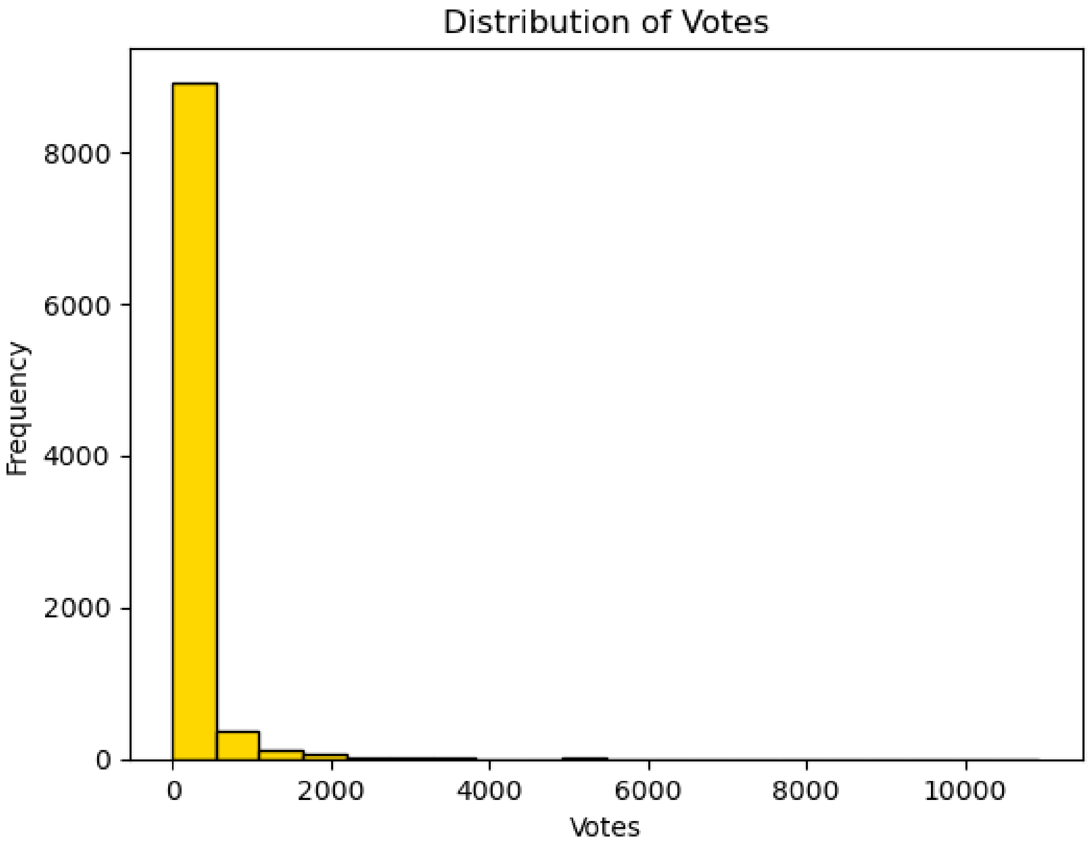
[27]:
```
# Plot the distribution of aggregate ratings
plt.hist(df['Aggregate rating'], bins=20, color='lightcoral', edgecolor='black')
plt.title('Distribution of Aggregate Ratings')
plt.xlabel('Aggregate Rating')
plt.ylabel('Frequency')
plt.show()
```



This step creates a histogram to visualize the distribution of aggregate ratings.

11 Step 9: Distribution of Votes

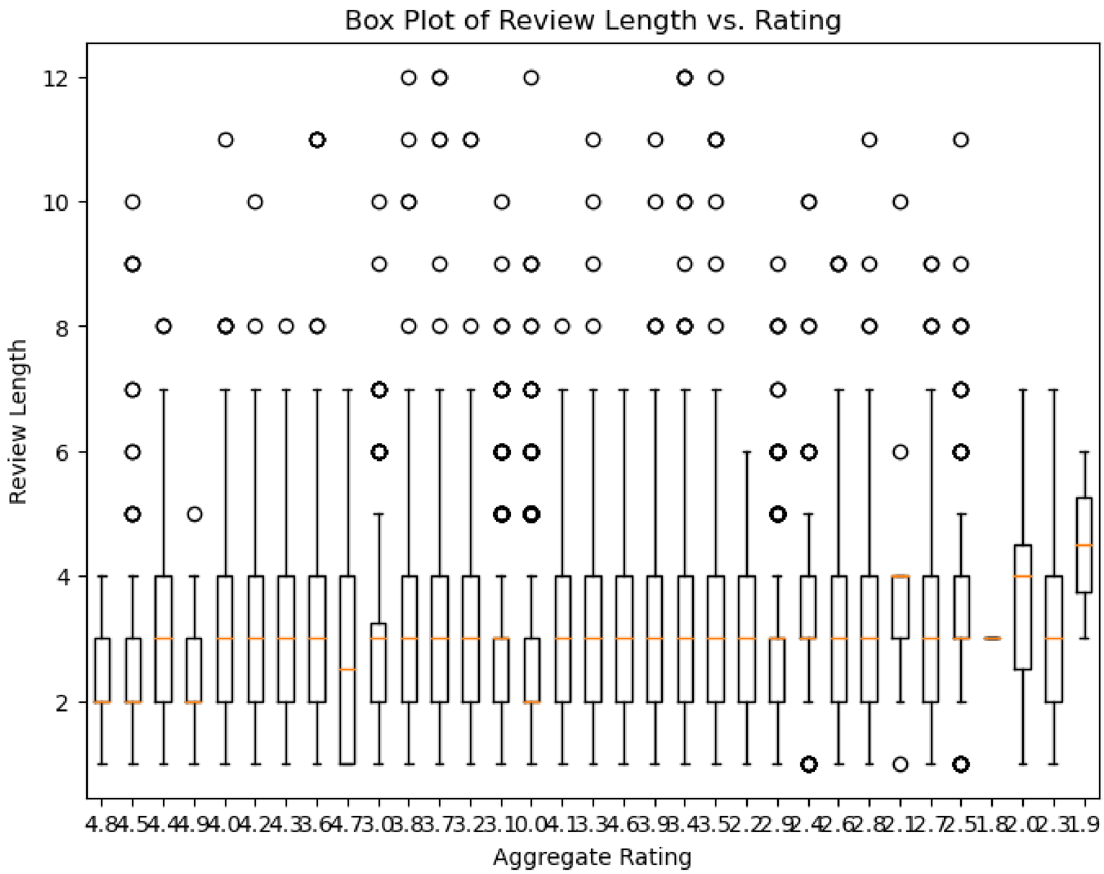
[28]:
```
# Plot the distribution of votes
plt.hist(df['Votes'], bins=20, color='gold', edgecolor='black')
plt.title('Distribution of Votes')
plt.xlabel('Votes')
plt.ylabel('Frequency')
plt.show()
```



This step generates a histogram to display the distribution of votes.

12 Step 10: Box Plot for Review Length vs. Rating

```
[29]: # Box plot for review length vs. rating
plt.figure(figsize=(8, 6))
plt.boxplot([df[df['Aggregate rating'] == rating]['Review Length'] for rating␣
 ↪in df['Aggregate rating'].unique()],
            labels=df['Aggregate rating'].unique())
plt.title('Box Plot of Review Length vs. Rating')
plt.xlabel('Aggregate Rating')
plt.ylabel('Review Length')
plt.show()
```



This step creates a box plot to compare the distribution of review lengths for different aggregate ratings.

[30]:
```
pip install wordcloud
```

```
Requirement already satisfied: wordcloud in
c:\users\narthana\anaconda3\lib\site-packages (1.9.2)
Requirement already satisfied: matplotlib in
c:\users\narthana\anaconda3\lib\site-packages (from wordcloud) (3.7.0)
Requirement already satisfied: numpy>=1.6.1 in
c:\users\narthana\anaconda3\lib\site-packages (from wordcloud) (1.23.5)
Requirement already satisfied: pillow in c:\users\narthana\anaconda3\lib\site-
packages (from wordcloud) (9.4.0)
Requirement already satisfied: fonttools>=4.22.0 in
c:\users\narthana\anaconda3\lib\site-packages (from matplotlib->wordcloud)
(4.25.0)
Requirement already satisfied: kiwisolver>=1.0.1 in
c:\users\narthana\anaconda3\lib\site-packages (from matplotlib->wordcloud)
(1.4.4)
Requirement already satisfied: packaging>=20.0 in
```

```
c:\users\narthana\anaconda3\lib\site-packages (from matplotlib->wordcloud)
(22.0)
Requirement already satisfied: pyparsing>=2.3.1 in
c:\users\narthana\anaconda3\lib\site-packages (from matplotlib->wordcloud)
(3.0.9)
Requirement already satisfied: cycler>=0.10 in
c:\users\narthana\anaconda3\lib\site-packages (from matplotlib->wordcloud)
(0.11.0)
Requirement already satisfied: python-dateutil>=2.7 in
c:\users\narthana\anaconda3\lib\site-packages (from matplotlib->wordcloud)
(2.8.2)
Requirement already satisfied: contourpy>=1.0.1 in
c:\users\narthana\anaconda3\lib\site-packages (from matplotlib->wordcloud)
(1.0.5)
Requirement already satisfied: six>=1.5 in c:\users\narthana\anaconda3\lib\site-
packages (from python-dateutil>=2.7->matplotlib->wordcloud) (1.16.0)
Note: you may need to restart the kernel to use updated packages.
```

13 Step 11: Word Cloud for Most Frequent Words

[31]:

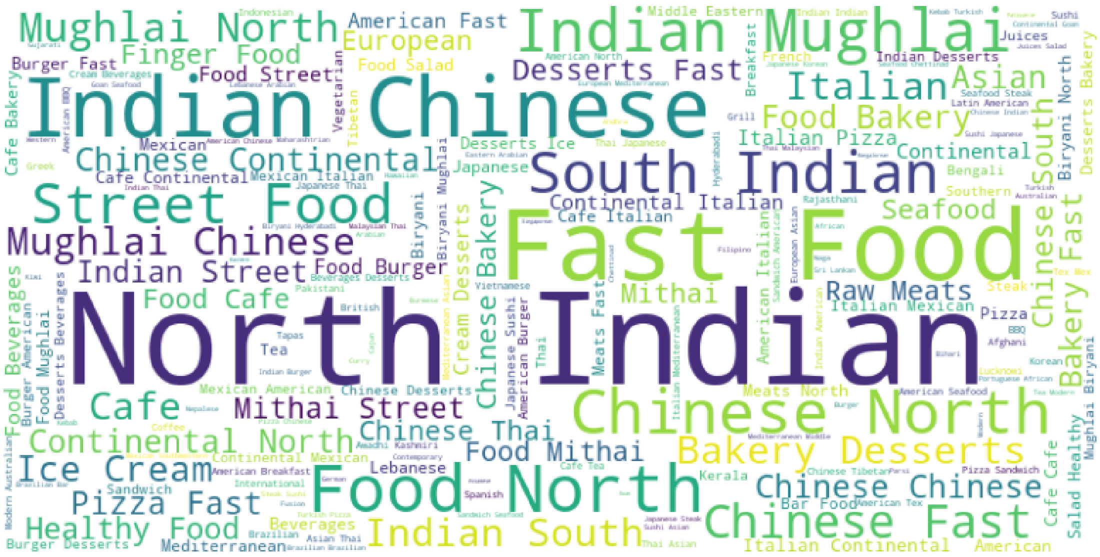
```
from wordcloud import WordCloud

# Concatenate all reviews into a single string
all_reviews = ' '.join(df['Cuisines'].dropna())

# Generate a word cloud
wordcloud = WordCloud(width=800, height=400, background_color='white').
  ↪generate(all_reviews)

# Display the word cloud using matplotlib
plt.figure(figsize=(10, 6))
plt.imshow(wordcloud, interpolation='bilinear')
plt.axis('off')
plt.title('Word Cloud of Most Frequent Words in Cuisines')
plt.show()
```

Word Cloud of Most Frequent Words in Cuisines



[ ]: