```
1  import pandas as pd
2  df = pd.read_csv('/content/googleplaystore_user_reviews.csv')
3  df.head()
```

	App	Translated_Review	Sentiment	Sentiment_Polarity	Sentiment_Subjectivity
0	10 Best Foods for You	I like eat delicious food. That's I'm cooking ...	Positive	1.00	0.533333
1	10 Best Foods for You	This help eating healthy exercise regular basis	Positive	0.25	0.288462
2	10 Best Foods for You	NaN	NaN	NaN	NaN
3	10 Best Foods for You	Works great especially going grocery store	Positive	0.40	0.875000
4	10 Best Foods for You	Best idea us	Positive	1.00	0.300000

Next steps: Generate code with df | View recommended plots

```
1  import pandas as pd
2  import matplotlib.pyplot as plt
3  import seaborn as sns
4  from wordcloud import WordCloud
5  from collections import Counter
6  import re
```

```
1  # Basic statistics about the dataset
2  print(df.describe())
3  print(df.info())
```

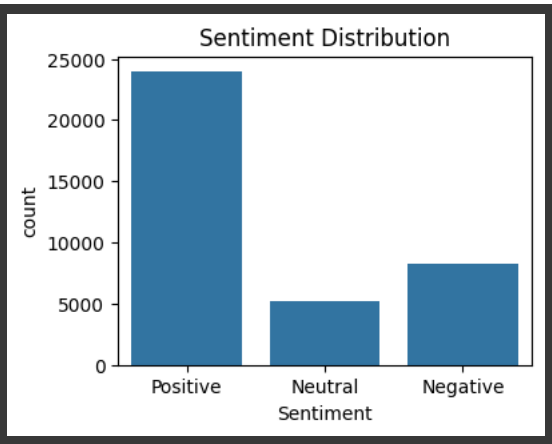
```
       Sentiment_Polarity  Sentiment_Subjectivity
count        37432.000000            37432.000000
mean             0.182146                0.492704
std              0.351301                0.259949
min             -1.000000                0.000000
25%              0.000000                0.357143
50%              0.150000                0.514286
75%              0.400000                0.650000
max              1.000000                1.000000
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 64295 entries, 0 to 64294
Data columns (total 5 columns):
 #   Column                  Non-Null Count  Dtype
---  ------                  --------------  -----
 0   App                     64295 non-null  object
 1   Translated_Review       37427 non-null  object
 2   Sentiment               37432 non-null  object
 3   Sentiment_Polarity      37432 non-null  float64
 4   Sentiment_Subjectivity  37432 non-null  float64
dtypes: float64(2), object(3)
memory usage: 2.5+ MB
None
```

```
1 # Handling missing values
2 df = df.dropna()
```

```
1 # Exploratory Data Analysis (EDA)
2 # Sentiment distribution
3 sentiment_counts = df['Sentiment'].value_counts()
4 print(sentiment_counts)
```

```
Sentiment
Positive    23998
Negative     8271
Neutral      5158
Name: count, dtype: int64
```

```
1  # Visualize sentiment distribution
2  plt.figure(figsize=(4, 3))
3  sns.countplot(x='Sentiment', data=df)
4  plt.title('Sentiment Distribution')
5  plt.show()
```

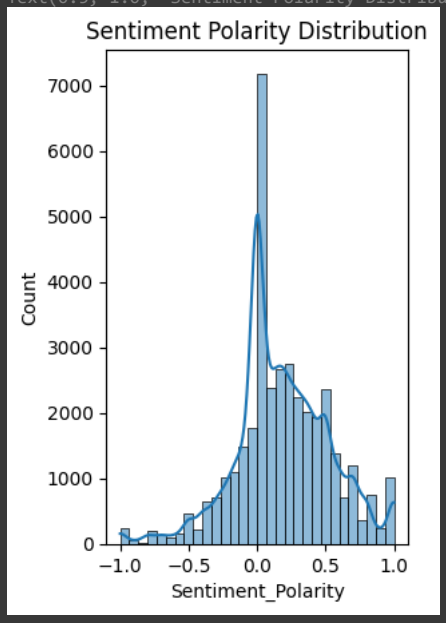



```
1 # Sentiment Polarity and Subjectivity distribution
2 plt.figure(figsize=(12, 5))
```

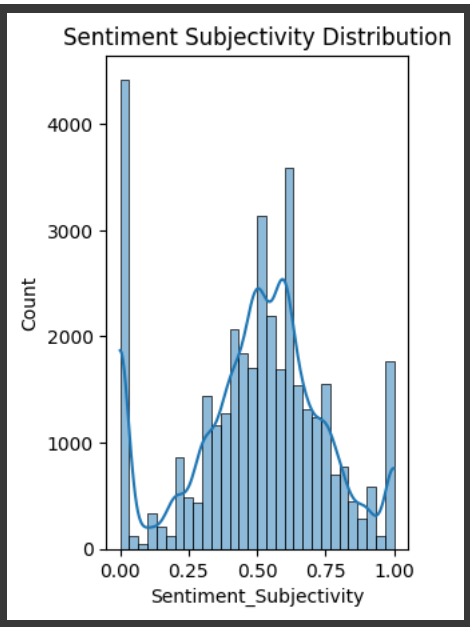
```
<Figure size 1200x500 with 0 Axes>
<Figure size 1200x500 with 0 Axes>
```

```
1 plt.subplot(1, 2, 1)
2 sns.histplot(df['Sentiment_Polarity'], bins=30, kde=True)
3 plt.title('Sentiment Polarity Distribution')
```

```
Text(0.5, 1.0, 'Sentiment Polarity Distribution')
```




```
1 plt.subplot(1, 2, 2)
2 sns.histplot(df['Sentiment_Subjectivity'], bins=30, kde=True)
3 plt.title('Sentiment Subjectivity Distribution')
4 plt.show()
```



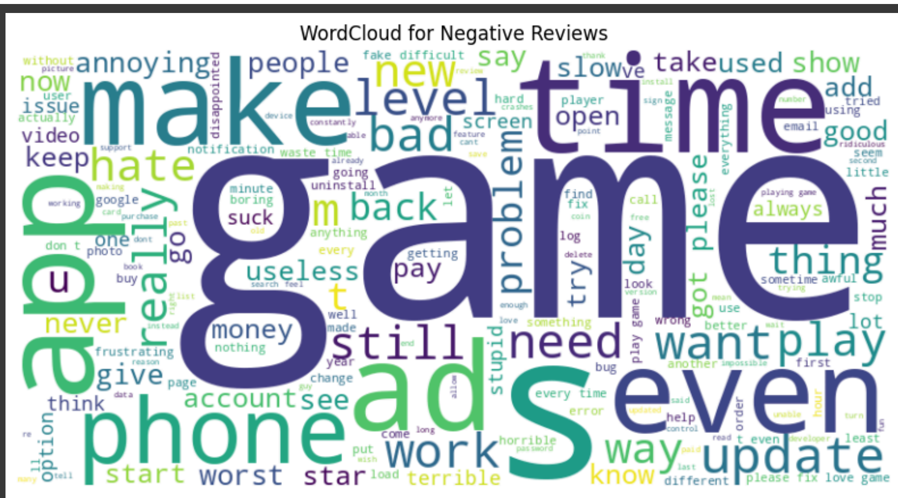

```
# Text Cleaning for WordCloud
def clean_text(text):
    text = re.sub(r'\W+', ' ', text)
    text = text.lower()
    return text
df['cleaned_review'] = df['Translated_Review'].apply(clean_text)
```

```
# WordCloud for positive reviews
positive_reviews = ' '.join(df[df['Sentiment'] == 'Positive']['cleaned_review'])
wordcloud = WordCloud(width=800, height=400, background_color='white').generate(positive_reviews)

plt.figure(figsize=(10, 5))
plt.imshow(wordcloud, interpolation='bilinear')
plt.axis('off')
plt.title('WordCloud for Positive Reviews')
plt.show()
```


```
# WordCloud for negative reviews
negative_reviews = ' '.join(df[df['Sentiment'] == 'Negative']['cleaned_review'])
wordcloud = WordCloud(width=800, height=400, background_color='white').generate(negative_reviews)

plt.figure(figsize=(10, 5))
plt.imshow(wordcloud, interpolation='bilinear')
plt.axis('off')
plt.title('WordCloud for Negative Reviews')
plt.show()
```




```
# Common words in reviews
all_reviews = ' '.join(df['cleaned_review'])
word_counts = Counter(all_reviews.split())
common_words = word_counts.most_common(10)
print("Most common words:", common_words)
```

```
Most common words: [('i', 39013), ('it', 11852), ('game', 9397), ('the', 6592), ('s', 5596), ('like', 5505), ('good', 5283), ('this', 50
```

```
# Average polarity and subjectivity for each sentiment
avg_polarity = df.groupby('Sentiment')['Sentiment_Polarity'].mean()
avg_subjectivity = df.groupby('Sentiment')['Sentiment_Subjectivity'].mean()
print("Average Polarity by Sentiment:", avg_polarity)
print("Average Subjectivity by Sentiment:", avg_subjectivity)
```

```
Average Polarity by Sentiment: Sentiment
Negative   -0.256173
Neutral     0.000000
Positive    0.372402
Name: Sentiment_Polarity, dtype: float64
Average Subjectivity by Sentiment: Sentiment
Negative    0.535087
Neutral     0.079786
Positive    0.566949
Name: Sentiment_Subjectivity, dtype: float64
```