```
# IMPORTANT: RUN THIS CELL IN ORDER TO IMPORT YOUR KAGGLE DATA SOURCES,
# THEN FEEL FREE TO DELETE THIS CELL.
# NOTE: THIS NOTEBOOK ENVIRONMENT DIFFERS FROM KAGGLE'S PYTHON
# ENVIRONMENT SO THERE MAY BE MISSING LIBRARIES USED BY YOUR
# NOTEBOOK.
import kagglehub
niraliivaghani_flipkart_product_customer_reviews_dataset_path = kagglehub.dataset_download('niraliivaghani/flipkart-product-customer-revi
joshiatri_amazon_shoes_data_path = kagglehub.dataset_download('joshiatri/amazon-shoes-data')

print('Data source import complete.')
```

```
# This Python 3 environment comes with many helpful analytics libraries installed
# It is defined by the kaggle/python Docker image: https://github.com/kaggle/docker-python
# For example, here's several helpful packages to load

import numpy as np # linear algebra
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)

# Input data files are available in the read-only "../input/" directory
# For example, running this (by clicking run or pressing Shift+Enter) will list all files under the input directory

import os
for dirname, _, filenames in os.walk('/kaggle/input'):
    for filename in filenames:
        print(os.path.join(dirname, filename))

# You can write up to 20GB to the current directory (/kaggle/working/) that gets preserved as output when you create a version using "Sav
# You can also write temporary files to /kaggle/temp/, but they won't be saved outside of the current session
```

```
/kaggle/input/amazon-shoes-data/amazon_uk_shoes_reviews-metadata.json
/kaggle/input/amazon-shoes-data/amazon_uk_shoes_products_dataset_2021_12.csv
/kaggle/input/flipkart-product-customer-reviews-dataset/Dataset-SA.csv
```

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2. INITIAL VISUALS OF DATA
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```
#IMPORTING OF NECESSARY LIABRARIES
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from nltk.sentiment.vader import SentimentIntensityAnalyzer
from wordcloud import WordCloud, STOPWORDS, ImageColorGenerator
import os
import nltk
import re
nltk.download('stopwords')
stemmer = nltk.SnowballStemmer("english")
from nltk.corpus import stopwords
import string
stopword=set(stopwords.words('english'))
```

```
/opt/conda/lib/python3.10/site-packages/nltk/twitter/__init__.py:20: UserWarning: The twython library has not been installed. Some f
  warnings.warn("The twython library has not been installed. "
[nltk_data] Error loading stopwords: <urlopen error [Errno -3]
[nltk_data]     Temporary failure in name resolution>
```

1. DATA READING AND INFO

```
#READING THE DATA AND PRINTING THE SHAPE
df=pd.read_csv("/kaggle/input/flipkart-product-customer-reviews-dataset/Dataset-SA.csv") #Reading the file
df.shape #Checking shape of data
```

```
(205052, 6)
```

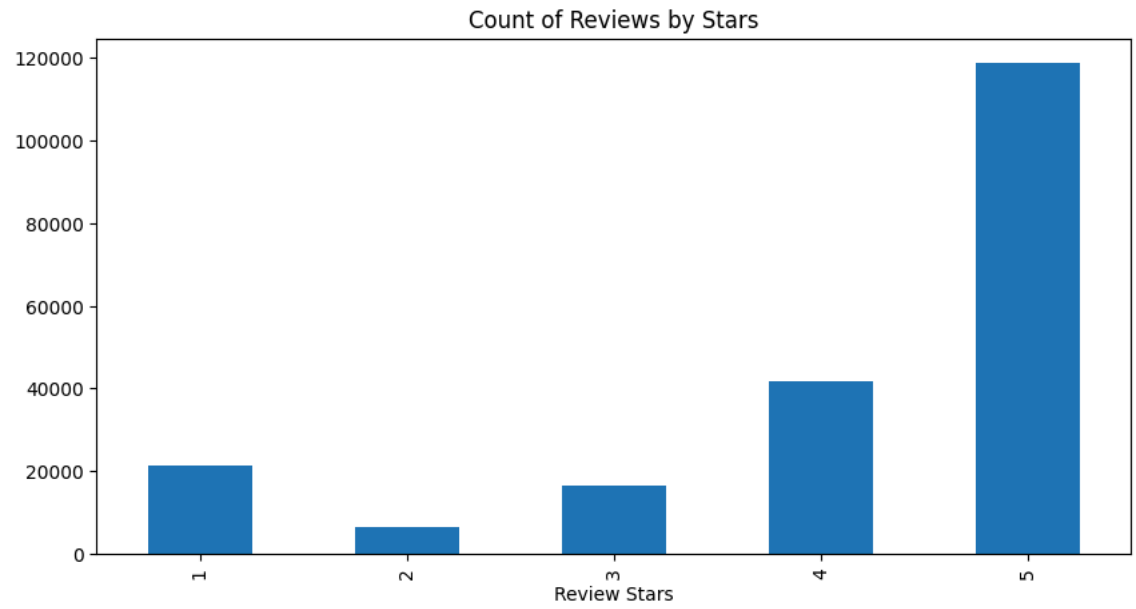
```
df.head(3) #Checking head of data
```

	product_name	product_price	Rate	Review	Summary	Sentiment
0	Candes 12 L Room/Personal Air Cooler??????(Whi...	3999	5	super!	great cooler excellent air flow and for this p...	positive
1	Candes 12 L Room/Personal Air Cooler??????(Whi...	3999	5	awesome	best budget 2 fit cooler nice cooling	positive
2	Candes 12 L Room/Personal Air Cooler??????(Whi...	3999	3	fair	the quality is good but the power of air is de...	positive

```
df.index.name="Index" #Setting of Index name


#Cleaning of reviews
def clean(text):
    text = str(text).lower() #Setting text in lower letters
    text = re.sub('\[.*?\]', '', text) #Removing signs
    text = re.sub('https?://\S+|www\.\S+', '', text) #Removing links
    text = re.sub('<.*?>+', '', text) #Removing signs like <>?
    text = re.sub('[%s]' % re.escape(string.punctuation), '', text) #Removing punctuation
    text = re.sub('\n', '', text)
    text = re.sub('\w*\d\w*', '', text)
    text = [word for word in text.split(' ') if word not in stopword]
    text=" ".join(text)
    text = [stemmer.stem(word) for word in text.split(' ')]
    text=" ".join(text)
    return text
df["Summary"] = df["Summary"].apply(clean) #applying of above cleaning in dataset
```

2. INITIAL VISUALS OF DATA

```
#Visual of ratings
ax = df['Rate'].value_counts().sort_index()\
    .plot(kind='bar',
          title='Count of Reviews by Stars',
          figsize=(10, 5))
ax.set_xlabel('Review Stars')
plt.show()
```




```
#Checking of rating category
np.array(pd.Categorical(df['Rate']).categories)
```

```
array(['1', '2', '3', '4', '5', 'Bajaj DX 2 L/W Dry Iron',
       'Nova Plus Amaze NI 10 1100 W Dry Iron?Ã\x83Â¿?Ã\x83Â¿(Grey & Turquoise)',
       'Pigeon Favourite Electric Kettle??????(1.5 L, Silver, Black)'],
      dtype=object)
```

```
#Dropping of wrong inputs
df.drop(index =[175906,17299,175895],axis=0,inplace=True)
```

3. WORDCLOUD

```
#Checking one of the row details
df.iloc[41623]
```

```
product_name     Indigo Creatives Large Size Swimming Ring With...
product_price                                                  899
Rate                                                             1
Review                                                waste of money!
Summary                          bad productthand tube help protect
Sentiment                                                negative
Name: 41624, dtype: object
```

```
#Creating of wordcloud
text = " ".join(i for i in df.Summary)
stopwords = set(STOPWORDS)
wordcloud = WordCloud(stopwords=stopwords,
                      background_color="black").generate(text)
plt.figure( figsize=(15,10))
plt.imshow(wordcloud, interpolation='bilinear')
plt.axis("off")
plt.show()
```


```
#Copying df to create a dummy
dfr=df.copy()
```

4. SENTIMENTAL ANALYSIS

```
#Polarizing data
nltk.download('vader_lexicon') #Downloading of vader lexicon for scores
sentiments = SentimentIntensityAnalyzer() #Using sentiment analyser
# pos,neg and neutal scores in summary
dfr["Positive"] = [sentiments.polarity_scores(i)["pos"] for i in df["Summary"]]
dfr["Negative"] = [sentiments.polarity_scores(i)["neg"] for i in df["Summary"]]
dfr["Neutral"] = [sentiments.polarity_scores(i)["neu"] for i in df["Summary"]]
dfr["Combined"] = [sentiments.polarity_scores(i)["compound"] for i in df["Summary"]]
dfr = dfr[["Summary", "Positive", "Negative", "Neutral","Combined"]]
print(df.head(7))
```

```
[nltk_data] Error loading vader_lexicon: <urlopen error [Errno -3]
[nltk_data]     Temporary failure in name resolution>
                                          product_name product_price Rate  \
```

```
      Index
      0      Candes 12 L Room/Personal Air Cooler??????(Whi...          3999    5
      1      Candes 12 L Room/Personal Air Cooler??????(Whi...          3999    5
      2      Candes 12 L Room/Personal Air Cooler??????(Whi...          3999    3
      3      Candes 12 L Room/Personal Air Cooler??????(Whi...          3999    1
      4      Candes 12 L Room/Personal Air Cooler??????(Whi...          3999    3
      5      Candes 12 L Room/Personal Air Cooler??????(Whi...          3999    5
      6      Candes 12 L Room/Personal Air Cooler??????(Whi...          3999    5

                        Review                                          Summary  \
      Index
      0                  super!  great cooler excel air flow price amaz unbelie...
      1                awesome                 best budget  fit cooler nice cool
      2                   fair                     qualiti good power air decent
      3          useless product                                  bad product fan
      4                   fair                                    ok ok product
      5                awesome  cooler realli fantast provid good air flow hig...
      6      highly recommended                                     good product

            Sentiment
      Index
      0      positive
      1      positive
      2      positive
      3      negative
      4       neutral
      5      positive
      6      positive
```

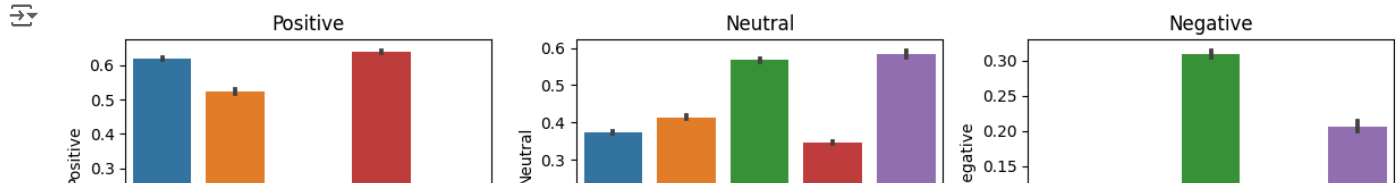
```
dfr["RATE"]=df["Rate"]


#Checking of dummy data with analysis
dfr
```

Index	Summary	Positive	Negative	Neutral	Combined	RATE
0	great cooler excel air flow price amaz unbelie...	0.653	0.000	0.347	0.9062	5
1	best budget fit cooler nice cool	0.855	0.000	0.145	0.8957	5
2	qualiti good power air decent	0.420	0.000	0.580	0.4404	3
3	bad product fan	0.338	0.515	0.147	-0.2960	1
4	ok ok product	0.815	0.000	0.185	0.5267	3
...	...	...	...	...	...	...
205047	good product	0.744	0.000	0.256	0.4404	5
205048	nice	1.000	0.000	0.000	0.4215	5
205049	nice fast deliveri	0.583	0.000	0.417	0.4215	3
205050	awesom product	0.000	0.000	1.000	0.0000	5
205051	good mix bowl includ one disappointmentand sou...	0.244	0.000	0.756	0.4404	4

205049 rows × 6 columns

5. SA VISULAIZATION

```
fig, axs = plt.subplots(1, 3, figsize=(12, 3))
sns.barplot(data=dfr, x='RATE', y='Positive', ax=axs[0])
sns.barplot(data=dfr, x='RATE', y='Negative', ax=axs[2])
sns.barplot(data=dfr, x='RATE', y='Neutral', ax=axs[1])
axs[0].set_title('Positive')
axs[1].set_title('Neutral')
axs[2].set_title('Negative')
plt.tight_layout()
plt.show()
```



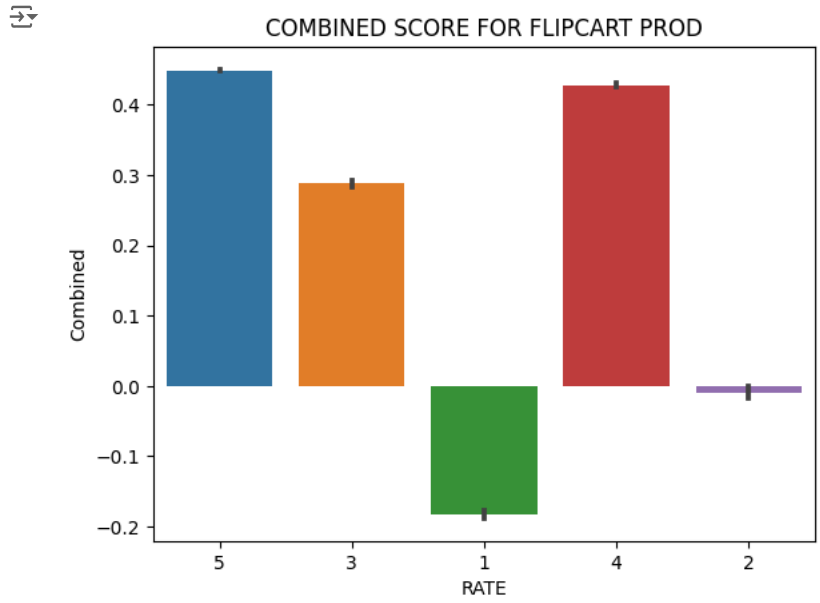
Analysis Finding

In positive we can see more positive score for high ratings as compared to low ratings.

In neutarl we can see more neutral score for low and moderate rating as compared to top ratings.

In negative we can see more negative score for low ratings as compared to high ratings.

```
#COMPOUND SCORE
ax = sns.barplot(data=dfr, x='RATE', y='Combined')
ax.set_title('COMBINED SCORE FOR FLIPCART PROD')
plt.show()
```



Analysis finding

We can see above more the rating indiactes a higher positve combined score

whereas for low ratings there is a low and negative combined score

Start coding or generate with AI.