is-of-instagram-play-store-reviews

January 11, 2024

1 Sentiment Analysis of Instagram Play Store Reviews

2 Importing necessary Libraries

[1]:
```
import numpy as np
import pandas as pd
from textblob import TextBlob
import re
import matplotlib.pyplot as plt
import seaborn as sns
import warnings
warnings.filterwarnings('ignore')
```

```
/opt/conda/lib/python3.10/site-packages/scipy/__init__.py:146: UserWarning: A
NumPy version >=1.16.5 and <1.23.0 is required for this version of SciPy
(detected version 1.23.5
  warnings.warn(f"A NumPy version >={np_minversion} and <{np_maxversion}"
```

3 Importing dataset

[2]:
```
df = pd.read_csv('/kaggle/input/instagram-play-store-reviews/instagram.csv')
df = df.head(50000)
df.head()
```

[2]:

	review_description	rating	review_date
0	The app is good for connecting with friends, f…	3	2023-07-11 23:57:07
1	Used to be my favorite social media app, but "…	2	2023-07-22 21:37:09
2	Instagram is the best of all the social media…	5	2023-07-25 03:24:58
3	I love this app.. but as of late, I have been …	2	2023-07-09 04:49:57
4	Used to be a great app but there are so many m…	3	

```
4  2023-07-17 16:47:04
```

4 Shape of dataset

[3]:
```
rows, cols = df.shape
print(f"There are {rows} and {cols} columns in dataset")
```

```
There are 50000 and 3 columns in dataset
```

5 Identify and Remove Duplicate data

[4]:
```
print(f"There are {df.duplicated().sum()} duplicate values")
df = df.drop_duplicates()
```

```
There are 0 duplicate values
```

[5]:
```
df['review_description'][0]
```

[5]:
```
"The app is good for connecting with friends, family and even potential business
partners. However as of recently I've experienced some problems with the
messages portion of the app (ex: themes aren't showing up on my end but are
present on other person's end). Idk if it has to do with a bug but it happened
all of sudden out of nowhere on both of my pages (one private the other public).
But besides the occasional bugs and sometimes the app/website being down
randomly, I say it's a decent app."
```

6 Data Cleaning

[6]:
```
for i in range(len(df['review_description'])):
    df['review_description'][i]= re.sub(r"(@\[A-Za-z0-9]+)|([^0-9A-Za-z␣
 ↪\t])|(\w+:\/\/\S+)|^rt|http.+?", "",df['review_description'][i])
```

7 Data Description

[7]:
```
df.describe().transpose()
```

[7]:

	count	mean	std	min	25%	50%	75%	max
rating	50000.0	2.23468	1.474845	1.0	1.0	2.0	3.0	5.0

[8]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 50000 entries, 0 to 49999
Data columns (total 3 columns):
```

```
 #   Column              Non-Null Count  Dtype
---  ------              --------------  -----
 0   review_description  50000 non-null  object
 1   rating              50000 non-null  int64
 2   review_date         50000 non-null  object
dtypes: int64(1), object(2)
memory usage: 2.5+ MB
```

8 Identify Null values

[9]:
```
df.isna().sum()
```

[9]:
```
review_description    0
rating                0
review_date           0
dtype: int64
```

9 Function to classify Sentiment Score

[10]:
```
def analyze(x):
        if(x>=0.5):
            return "Positive"
        elif x<=-0.5:
            return "Negative"
        else:
            return "Neutral"
```

10 Function to calculate sentiment score using TextBlob

[11]:
```
def score(x):
        blob = TextBlob(x)
        return blob.sentiment.polarity
```

[12]:
```
df['score']=df['review_description'].apply(score)
df['analysis']=df['score'].apply(analyze)
```

[13]:
```
df.head()
```

[13]:

	review_description	rating	\
0	The app is good for connecting with friends fa…	3	
1	Used to be my favorite social media app but im…	2	
2	Instagram is the best of all the social media …	5	
3	I love this app but as of late I have been hav…	2	
4	Used to be a great app but there are so many m…	3	

```
            review_date     score analysis
0  2023-07-11 23:57:07  0.054365  Neutral
1  2023-07-22 21:37:09 -0.138148  Neutral
2  2023-07-25 03:24:58  0.310648  Neutral
3  2023-07-09 04:49:57  0.087500  Neutral
4  2023-07-17 16:47:04  0.109686  Neutral
```

[14]:
```
df['analysis'].unique()
```

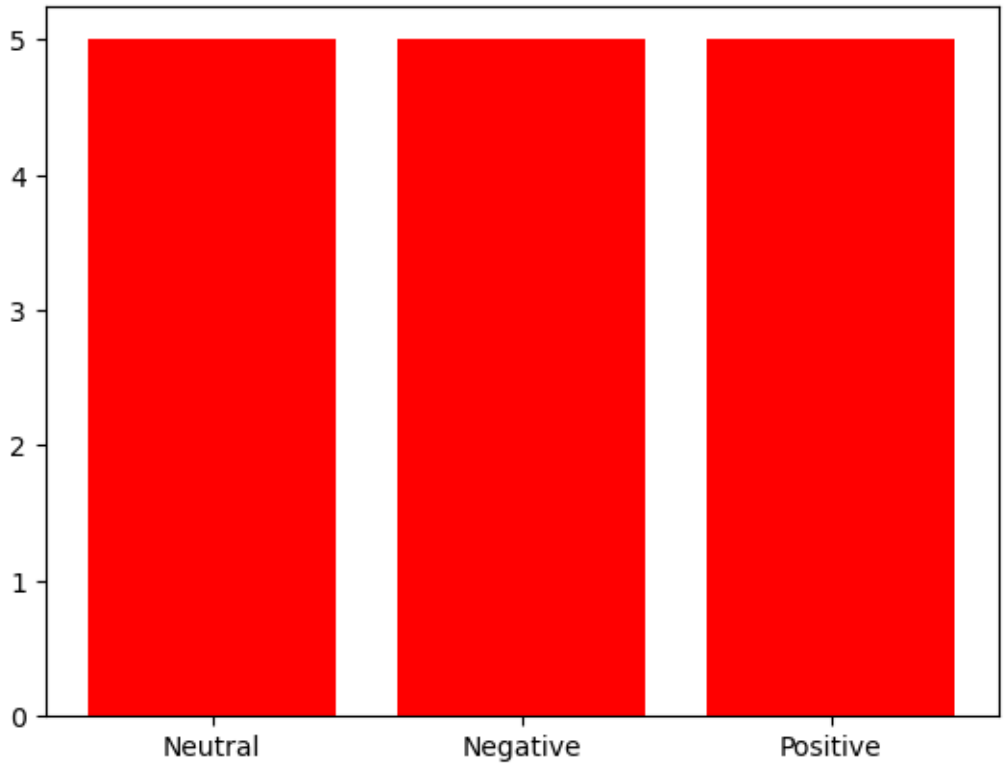
[14]:
```
array(['Neutral', 'Negative', 'Positive'], dtype=object)
```

[15]:
```
df["rating"].value_counts()
```

[15]:
```
1    24569
2     7532
5     6915
3     6410
4     4574
Name: rating, dtype: int64
```

[16]:
```
# Plotting a barplot to check relation between analysis and rating.
plt.bar(df['analysis'],df['rating'],color ='r')
```

[16]:
```
<BarContainer object of 50000 artists>
```



[17]:
```
df.describe().T
```

[17]:

	count	mean	std	min	25%	50%	75%	max
rating	50000.0	2.234680	1.474845	1.0	1.00000	2.000	3.000000	5.0
score	50000.0	0.068158	0.290136	-1.0	-0.07381	0.025	0.215852	1.0

[18]:
```
df.describe(include='object').T
```

[18]:

	count	unique	top	freq
review_description	50000	49971	Not working properly	7
review_date	50000	49883	2023-07-11 15:07:07	2
analysis	50000	3	Neutral	43753

11 Define a rating function to classify rating.

[19]:
```
def rating(x):
    if x>=8 and x<=10:
        return 'Positive'
    elif x>=4 and x<=7:
         return 'Neutral'
    else:
```

```
        return 'Negative'
```

[20]:
```
df['rating_analysis']=df['rating'].apply(rating)
```

[21]:
```
df['final_rating'] = 'Positive'
```

[22]:
```
for i in range(len(df)):
    if (df['analysis'][i]=='Positive' and df['rating_analysis'][i] ==␣
 ↪'Positive'):
        df['final_rating'][i] = 'Positive'

    elif (df['analysis'][i] == 'Positive' and df['rating_analysis'][i] ==␣
 ↪'Neutral')or (df['analysis'][i] == 'Neutral' and df['rating_analysis'][i] ==␣
 ↪'Positive'):
        df['final_rating'][i] = 'Positive'

    elif (df['analysis'][i] == 'Negative' and df['rating_analysis'][i] ==␣
 ↪'Neutral')or (df['analysis'][i] == 'Neutral' and df['rating_analysis'][i] ==␣
 ↪'Negative'):
        df['final_rating'][i] = 'Neutral'

    elif (df['analysis'][i] == 'Neutral' and df['rating_analysis'][i] ==␣
 ↪'Neutral'):
        df['final_rating'][i] = 'Neutral'

    elif (df['analysis'][i] == 'Negative' and df['rating_analysis'][i] ==␣
 ↪'Negative'):
        df['final_rating'][i] = 'Negative'

    else:
        df['final_rating'][i] = 'Neutral'
```

[23]:
```
df.head()
```

[23]:
```
                                review_description  rating  \
0  The app is good for connecting with friends fa…       3
1  Used to be my favorite social media app but im…       2
2  Instagram is the best of all the social media …       5
3  I love this app but as of late I have been hav…       2
4  Used to be a great app but there are so many m…       3

           review_date     score analysis rating_analysis final_rating
0  2023-07-11 23:57:07  0.054365  Neutral        Negative      Neutral
1  2023-07-22 21:37:09 -0.138148  Neutral        Negative      Neutral
2  2023-07-25 03:24:58  0.310648  Neutral         Neutral      Neutral
3  2023-07-09 04:49:57  0.087500  Neutral        Negative      Neutral
```

```
4  2023-07-17 16:47:04  0.109686  Neutral        Negative      Neutral
```

[24]:
```
df.tail()
```

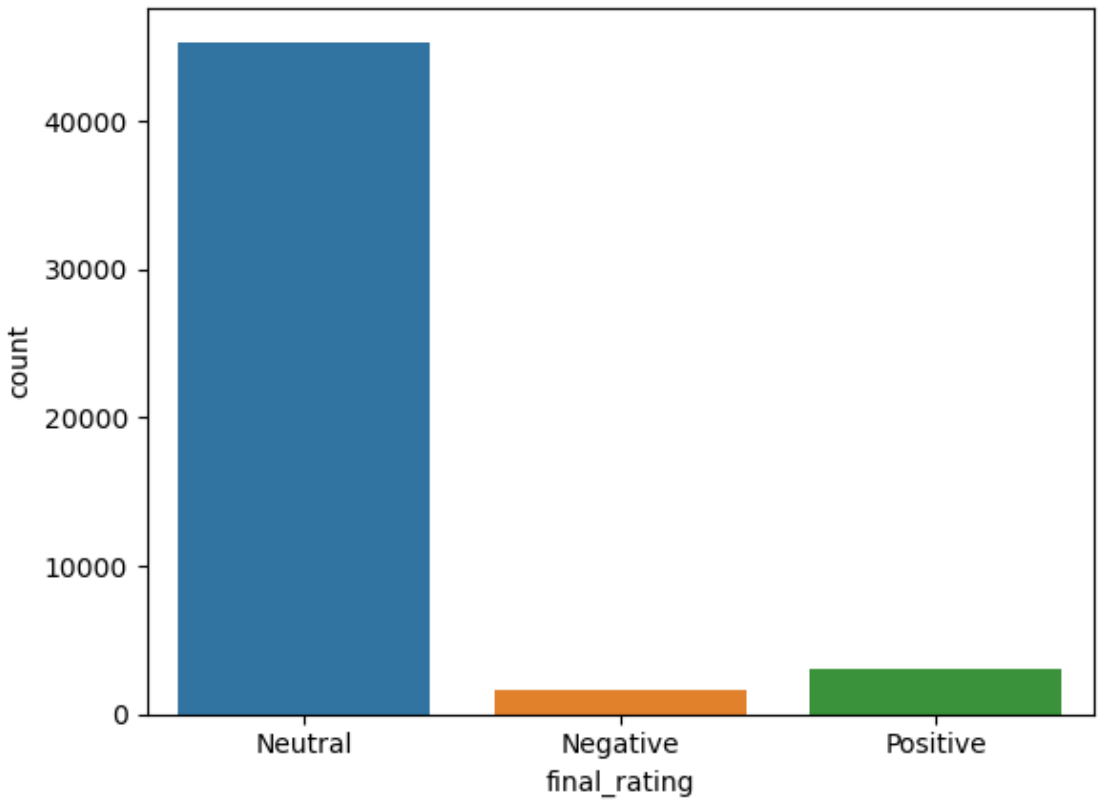
[24]:
```
                                    review_description  rating  \
49995  App is getting crash every time I watch insta …       1
49996  The lastest update wont let me see ANY picture…       1
49997  Really like instagram But recently the app has…       1
49998  I dont know why but a few days ago it just com…       3
49999  App has been shutting me out of one of my acco…       1

               review_date     score analysis rating_analysis final_rating
49995  2023-06-22 07:04:01  0.000000  Neutral        Negative      Neutral
49996  2019-10-25 03:05:16  0.377778  Neutral        Negative      Neutral
49997  2019-11-14 05:39:21  0.040000  Neutral        Negative      Neutral
49998  2022-06-29 18:06:12 -0.088889  Neutral        Negative      Neutral
49999  2022-08-13 19:06:43 -0.037727  Neutral        Negative      Neutral
```

[25]:
```
df['final_rating'].unique()
```

[25]:
```
array(['Neutral', 'Negative', 'Positive'], dtype=object)
```

[26]:
```
sns.countplot(x='final_rating',data =df)
```

[26]:
```
<Axes: xlabel='final_rating', ylabel='count'>
```



12 According to analysis, as per public reviews, their response on this app is neutral.

13 Thankyou !!!