In [1]:
```
#EDA--Google Play Store Project
import pandas as pd
import numpy as np
```

In [4]:
```
pd.set_option("display.max_columns",None)  #It will gives the Columns in a correct formate
```

In [5]:
```
df=pd.read_csv("C:\\Users\\SIVA MARISERLA\\Numpy Pratices\\Pandas CSV Files\\googleplaystore.csv")
print(df)
```

```
                                                     App             Category  \
0         Photo Editor & Candy Camera & Grid & ScrapBook       ART_AND_DESIGN
1                                    Coloring book moana       ART_AND_DESIGN
2      U Launcher Lite – FREE Live Cool Themes, Hide ...       ART_AND_DESIGN
3                                  Sketch - Draw & Paint       ART_AND_DESIGN
4                  Pixel Draw - Number Art Coloring Book       ART_AND_DESIGN
...                                                  ...                  ...
10836                                   Sya9a Maroc - FR               FAMILY
10837                   Fr. Mike Schmitz Audio Teachings               FAMILY
10838                             Parkinson Exercices FR              MEDICAL
10839                      The SCP Foundation DB fr nn5n  BOOKS_AND_REFERENCE
10840      iHoroscope - 2018 Daily Horoscope & Astrology            LIFESTYLE

       Rating Reviews                Size     Installs  Type Price  \
0         4.1     159                 19M      10,000+  Free     0
1         3.9     967                 14M     500,000+  Free     0
2         4.7   87510                8.7M   5,000,000+  Free     0
3         4.5  215644                 25M  50,000,000+  Free     0
4         4.3     967                2.8M     100,000+  Free     0
...       ...     ...                 ...          ...   ...   ...
10836     4.5      38                 53M       5,000+  Free     0
10837     5.0       4                3.6M         100+  Free     0
10838     NaN       3                9.5M       1,000+  Free     0
10839     4.5     114  Varies with device       1,000+  Free     0
10840     4.5  398307                 19M  10,000,000+  Free     0

      Content Rating                     Genres      Last Updated  \
0           Everyone               Art & Design   January 7, 2018
1           Everyone  Art & Design;Pretend Play  January 15, 2018
2           Everyone               Art & Design    August 1, 2018
3               Teen               Art & Design      June 8, 2018
4           Everyone    Art & Design;Creativity     June 20, 2018
...              ...                        ...               ...
10836       Everyone                  Education     July 25, 2017
10837       Everyone                  Education      July 6, 2018
10838       Everyone                    Medical  January 20, 2017
10839     Mature 17+          Books & Reference  January 19, 2015
10840       Everyone                  Lifestyle     July 25, 2018

              Current Ver         Android Ver
0                   1.0.0        4.0.3 and up
1                   2.0.0        4.0.3 and up
2                   1.2.4        4.0.3 and up
3      Varies with device          4.2 and up
4                     1.1          4.4 and up
...                   ...                 ...
10836                1.48          4.1 and up
10837                 1.0          4.1 and up
10838                 1.0          2.2 and up
10839  Varies with device  Varies with device
10840  Varies with device  Varies with device

[10841 rows x 13 columns]
```

In [9]:
```
#1. Find Total Number Apps in Google Play Store
df.shape
print("Total Number of Apps in Google Play Store=",df.shape[0])
```

```
Total Number of Apps in Google Play Store= 10841
```

In [ ]:

In [10]:
```
#2. Find the Total Number of Columns in Each app of Google Play Store
df.shape
print("Total Number of Columns in Google Play Store=",df.shape[1])
```

```
Total Number of Columns in Google Play Store= 13
```

In [ ]:

In [16]:
```
#3. Display Top 5 Rows of The Dataset
df.head() #By default it gives Top 5
```

Out[16]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
0	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND_DESIGN	4.1	159	19M	10,000+	Free	0	Everyone	Art & Design	January 7, 2018	1.0.0	4.0.3 and up
1	Coloring book moana	ART_AND_DESIGN	3.9	967	14M	500,000+	Free	0	Everyone	Art & Design;Pretend Play	January 15, 2018	2.0.0	4.0.3 and up
2	U Launcher Lite – FREE Live Cool Themes, Hide ...	ART_AND_DESIGN	4.7	87510	8.7M	5,000,000+	Free	0	Everyone	Art & Design	August 1, 2018	1.2.4	4.0.3 and up
3	Sketch - Draw & Paint	ART_AND_DESIGN	4.5	215644	25M	50,000,000+	Free	0	Teen	Art & Design	June 8, 2018	Varies with device	4.2 and up
4	Pixel Draw - Number Art Coloring Book	ART_AND_DESIGN	4.3	967	2.8M	100,000+	Free	0	Everyone	Art & Design;Creativity	June 20, 2018	1.1	4.4 and up

In [ ]:

In [17]:
```
#4. Check the Last 3 Rows of The Dataset
df.tail(3)
```

Out[17]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
10838	Parkinson Exercices FR	MEDICAL	NaN	3	9.5M	1,000+	Free	0	Everyone	Medical	January 20, 2017	1.0	2.2 and up
10839	The SCP Foundation DB fr nn5n	BOOKS_AND_REFERENCE	4.5	114	Varies with device	1,000+	Free	0	Mature 17+	Books & Reference	January 19, 2015	Varies with device	Varies with device
10840	iHoroscope - 2018 Daily Horoscope & Astrology	LIFESTYLE	4.5	398307	19M	10,000,000+	Free	0	Everyone	Lifestyle	July 25, 2018	Varies with device	Varies with device

In [ ]:

In [20]:
```
#5. Find Shape of Our Dataset (Number of Rows & Number of Columns)
print("Number of Rows & Number of Columns=",df.shape)
```

```
Number of Rows & Number of Columns= (10841, 13)
```

In [ ]:

In [21]:
```
#6. Get Information About Our Dataset Like Total Number Rows, Total Number of Columns,
      # Datatypes of Each Column  And  Memory Requirement
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10841 entries, 0 to 10840
Data columns (total 13 columns):
 #   Column          Non-Null Count  Dtype
---  ------          --------------  -----
 0   App             10841 non-null  object
 1   Category        10841 non-null  object
 2   Rating          9367 non-null   float64
 3   Reviews         10841 non-null  object
 4   Size            10841 non-null  object
 5   Installs        10841 non-null  object
 6   Type            10840 non-null  object
 7   Price           10841 non-null  object
 8   Content Rating  10840 non-null  object
 9   Genres          10841 non-null  object
 10  Last Updated    10841 non-null  object
 11  Current Ver     10833 non-null  object
 12  Android Ver     10838 non-null  object
dtypes: float64(1), object(12)
memory usage: 1.1+ MB
```

In [ ]:

In [24]:
```
#7. Get Overall Statistics About The Data frame
print("Statistics Details About The Data frame")
df.describe()
```

```
Statistics Details About The Data frame
```

Out[24]:

	Rating
count	9367.000000
mean	4.193338
std	0.537431
min	1.000000
25%	4.000000
50%	4.300000
75%	4.500000
max	19.000000

In [ ]:

In [28]:
```
#8. Total Number of App Titles Contain Astrology
#Step-1
df["App"].str.contains(" Astrology",case=False) #It gives Boolen array
```

Out[28]:
```
0        False
1        False
2        False
3        False
4        False
         ...
10836    False
10837    False
10838    False
10839    False
10840     True
Name: App, Length: 10841, dtype: bool
```

In [31]:
```
#Step-2
df[df["App"].str.contains(" Astrology",case=False)]["App"]
```

Out[31]:
```
1570     Horoscopes – Daily Zodiac Horoscope and Astrology
1592             ????? Astrology - Min Thein Kha BayDin
10840       iHoroscope - 2018 Daily Horoscope & Astrology
Name: App, dtype: object
```

In [ ]:

In [32]:
```
#9. Find Average App Rating
#Step-1: Get all the app rating
df["Rating"]
```

Out[32]:
```
0        4.1
1        3.9
2        4.7
3        4.5
4        4.3
        ...
10836    4.5
10837    5.0
10838    NaN
10839    4.5
10840    4.5
Name: Rating, Length: 10841, dtype: float64
```

In [33]:
```
#Step-2:  Find the mean() of Rating--Called Average App Rating
print(" Average App Rating=",df["Rating"].mean())
```

```
 Average App Rating= 4.193338315362443
```

In [ ]:

In [37]:
```
#10. Find Total Number of Unique Category
print("Total Number of Unique Category=",df["Category"].nunique())
```

```
Total Number of Unique Category= 34
```

In [ ]:

In [40]:
```
#11. Which Category Getting The Highest Average Rating?
#Step-1  Get the Rating of Every Category
df.groupby("Category")["Rating"].mean()
```

Out[40]:
```
Category
1.9                    19.000000
ART_AND_DESIGN          4.358065
AUTO_AND_VEHICLES       4.190411
BEAUTY                  4.278571
BOOKS_AND_REFERENCE     4.346067
BUSINESS                4.121452
COMICS                  4.155172
COMMUNICATION           4.158537
DATING                  3.970769
EDUCATION               4.389032
ENTERTAINMENT           4.126174
EVENTS                  4.435556
FAMILY                  4.192272
FINANCE                 4.131889
FOOD_AND_DRINK          4.166972
GAME                    4.286326
HEALTH_AND_FITNESS      4.277104
HOUSE_AND_HOME          4.197368
LIBRARIES_AND_DEMO      4.178462
LIFESTYLE               4.094904
MAPS_AND_NAVIGATION     4.051613
MEDICAL                 4.189143
NEWS_AND_MAGAZINES      4.132189
PARENTING               4.300000
PERSONALIZATION         4.335987
PHOTOGRAPHY             4.192114
PRODUCTIVITY            4.211396
SHOPPING                4.259664
SOCIAL                  4.255598
SPORTS                  4.223511
TOOLS                   4.047411
TRAVEL_AND_LOCAL        4.109292
VIDEO_PLAYERS           4.063750
WEATHER                 4.244000
Name: Rating, dtype: float64
```

In [42]:
```
#Step-2 Find the Highest Average Rating
df.groupby("Category")["Rating"].mean().sort_values(ascending=False)
```

Out[42]:
```
Category
1.9                    19.000000
EVENTS                  4.435556
EDUCATION               4.389032
ART_AND_DESIGN          4.358065
BOOKS_AND_REFERENCE     4.346067
PERSONALIZATION         4.335987
PARENTING               4.300000
GAME                    4.286326
BEAUTY                  4.278571
HEALTH_AND_FITNESS      4.277104
SHOPPING                4.259664
SOCIAL                  4.255598
WEATHER                 4.244000
SPORTS                  4.223511
PRODUCTIVITY            4.211396
HOUSE_AND_HOME          4.197368
FAMILY                  4.192272
PHOTOGRAPHY             4.192114
AUTO_AND_VEHICLES       4.190411
MEDICAL                 4.189143
LIBRARIES_AND_DEMO      4.178462
FOOD_AND_DRINK          4.166972
COMMUNICATION           4.158537
COMICS                  4.155172
NEWS_AND_MAGAZINES      4.132189
FINANCE                 4.131889
ENTERTAINMENT           4.126174
BUSINESS                4.121452
TRAVEL_AND_LOCAL        4.109292
LIFESTYLE               4.094904
VIDEO_PLAYERS           4.063750
MAPS_AND_NAVIGATION     4.051613
TOOLS                   4.047411
DATING                  3.970769
Name: Rating, dtype: float64
```

In [ ]:

In [47]:
```
#12. Find Total Number of App having 5 Star Rating
#Step-1 Get the App names by Passing the Boolean Values to DataFrame
df[df["Rating"]==5][["App","Rating"]]
```

Out[47]:

	App	Rating
329	Hojiboy Tojiboyev Life Hacks	5.0
612	American Girls Mobile Numbers	5.0
615	Awake Dating	5.0
633	Spine- The dating app	5.0
636	Girls Live Talk - Free Text and Video Chat	5.0
...	...	...
10721	Mad Dash Fo' Cash	5.0
10742	GKPB FP Online Church	5.0
10776	Monster Ride Pro	5.0
10820	Fr. Daoud Lamei	5.0
10837	Fr. Mike Schmitz Audio Teachings	5.0

274 rows × 2 columns

In [45]:
```
#Step-2 Get Total Number of App names having 5 star rating

 len(df[df["Rating"]==5])
```

Out[45]: 274

In [ ]:

In [54]:
```
#13. Find Average Value of Reviews
#Step-1
print(df["Reviews"].dtype)
```

```
object
```

In [56]:
```
#Step-2 : converting Object type into "int" or 'float'
#df["Reviews"].astype("float") # gives ValueError bcoz one col contains 3.0M
```

In [59]:
```
#Step-3 Finding that
df[df["Reviews"]=="3.0M"]
```

Out[59]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
10472	Life Made WI-Fi Touchscreen Photo Frame	1.9	19.0	3.0M	1,000+	Free	0	Everyone	NaN	February 11, 2018	1.0.19	4.0 and up	NaN

In [62]:
```
#Step-4  Replace 3.0M Value with 3.0 with replace() of DataFrame
df["Reviews"]=df["Reviews"].replace("3.0M",3.0)
```

In [64]:
```
df[df["Reviews"]==3.0] # it was replaced
```

Out[64]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
10472	Life Made WI-Fi Touchscreen Photo Frame	1.9	19.0	3.0	1,000+	Free	0	Everyone	NaN	February 11, 2018	1.0.19	4.0 and up	NaN

In [67]:
```
#Step-5 : converting Object type into "int" or 'float'
df["Reviews"]=df["Reviews"].astype("float")
```

In [72]:
```
#Step-6 : Now to get Average review, we apply mean()
print("Average Reviews=",df["Reviews"].mean())
```

```
Average Reviews= 444111.9265750392
```

In [ ]:

In [74]:
```
#14. Find Total Number of Free and Paid Apps
#Step-1
df["Type"]
```

Out[74]:
```
0        Free
1        Free
2        Free
3        Free
4        Free
         ...
10836    Free
10837    Free
10838    Free
10839    Free
10840    Free
Name: Type, Length: 10841, dtype: object
```

In [87]:
```
#Step-2 Finding the Free Type apps
df[df["Type"]=="Free"]
```

Out[87]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver
0	Photo Editor & Candy Camera & Grid & ScrapBook	ART_AND_DESIGN	4.1	159.0	19M	10,000+	Free	0	Everyone	Art & Design	January 7, 2018	1.0.0	4.0.3 and up
1	Coloring book moana	ART_AND_DESIGN	3.9	967.0	14M	500,000+	Free	0	Everyone	Art & Design;Pretend Play	January 15, 2018	2.0.0	4.0.3 and up
2	U Launcher Lite – FREE Live Cool Themes, Hide ...	ART_AND_DESIGN	4.7	87510.0	8.7M	5,000,000+	Free	0	Everyone	Art & Design	August 1, 2018	1.2.4	4.0.3 and up
3	Sketch - Draw & Paint	ART_AND_DESIGN	4.5	215644.0	25M	50,000,000+	Free	0	Teen	Art & Design	June 8, 2018	Varies with device	4.2 and up
4	Pixel Draw - Number Art Coloring Book	ART_AND_DESIGN	4.3	967.0	2.8M	100,000+	Free	0	Everyone	Art & Design;Creativity	June 20, 2018	1.1	4.4 and up
...	...	...	...	...	...	...	...	...	...	...	...	...	...
10836	Sya9a Maroc - FR	FAMILY	4.5	38.0	53M	5,000+	Free	0	Everyone	Education	July 25, 2017	1.48	4.1 and up
10837	Fr. Mike Schmitz Audio Teachings	FAMILY	5.0	4.0	3.6M	100+	Free	0	Everyone	Education	July 6, 2018	1.0	4.1 and up
10838	Parkinson Exercices FR	MEDICAL	NaN	3.0	9.5M	1,000+	Free	0	Everyone	Medical	January 20, 2017	1.0	2.2 and up
10839	The SCP Foundation DB fr nn5n	BOOKS_AND_REFERENCE	4.5	114.0	Varies with device	1,000+	Free	0	Mature 17+	Books & Reference	January 19, 2015	Varies with device	Varies with device
10840	iHoroscope - 2018 Daily Horoscope & Astrology	LIFESTYLE	4.5	398307.0	19M	10,000,000+	Free	0	Everyone	Lifestyle	July 25, 2018	Varies with device	Varies with device

10039 rows × 13 columns

In [89]:
```
#Step-3: Now the total number of Free and Paid Apps of Google Play store
df["Type"].value_counts()
```

Out[89]:
```
Type
Free    10039
Paid      800
0           1
Name: count, dtype: int64
```

In [2]:
```
import pandas as pd
df=pd.read_csv("C:\\Users\\SIVA MARISERLA\\Numpy Pratices\\Pandas CSV Files\\googleplaystore.csv")
print(df)
```


```
                                                     App             Category  \
0         Photo Editor & Candy Camera & Grid & ScrapBook       ART_AND_DESIGN
1                                    Coloring book moana       ART_AND_DESIGN
2      U Launcher Lite – FREE Live Cool Themes, Hide ...       ART_AND_DESIGN
3                                  Sketch - Draw & Paint       ART_AND_DESIGN
4                  Pixel Draw - Number Art Coloring Book       ART_AND_DESIGN
...                                                  ...                  ...
10836                                   Sya9a Maroc - FR               FAMILY
10837                   Fr. Mike Schmitz Audio Teachings               FAMILY
10838                             Parkinson Exercices FR              MEDICAL
10839                      The SCP Foundation DB fr nn5n  BOOKS_AND_REFERENCE
10840      iHoroscope - 2018 Daily Horoscope & Astrology            LIFESTYLE

       Rating Reviews                Size     Installs  Type Price  \
0         4.1     159                 19M      10,000+  Free     0
1         3.9     967                 14M     500,000+  Free     0
2         4.7   87510                8.7M   5,000,000+  Free     0
3         4.5  215644                 25M  50,000,000+  Free     0
4         4.3     967                2.8M     100,000+  Free     0
...       ...     ...                 ...          ...   ...   ...
10836     4.5      38                 53M       5,000+  Free     0
10837     5.0       4                3.6M         100+  Free     0
10838     NaN       3                9.5M       1,000+  Free     0
10839     4.5     114  Varies with device       1,000+  Free     0
10840     4.5  398307                 19M  10,000,000+  Free     0

      Content Rating                     Genres      Last Updated  \
0           Everyone               Art & Design   January 7, 2018
1           Everyone  Art & Design;Pretend Play  January 15, 2018
2           Everyone               Art & Design    August 1, 2018
3               Teen               Art & Design      June 8, 2018
4           Everyone    Art & Design;Creativity     June 20, 2018
...              ...                        ...               ...
10836       Everyone                  Education     July 25, 2017
10837       Everyone                  Education      July 6, 2018
10838       Everyone                    Medical  January 20, 2017
10839     Mature 17+          Books & Reference  January 19, 2015
10840       Everyone                  Lifestyle     July 25, 2018

              Current Ver         Android Ver
0                   1.0.0        4.0.3 and up
1                   2.0.0        4.0.3 and up
2                   1.2.4        4.0.3 and up
3      Varies with device          4.2 and up
4                     1.1          4.4 and up
...                   ...                 ...
10836                1.48          4.1 and up
10837                 1.0          4.1 and up
10838                 1.0          2.2 and up
10839  Varies with device  Varies with device
10840  Varies with device  Varies with device

[10841 rows x 13 columns]
```


In [ ]:

In [18]:
```
df['Type'].fillna(df['Type'].mode()[0])
```

Out[18]:
```
0        Free
1        Free
2        Free
3        Free
4        Free
         ...
10836    Free
10837    Free
10838    Free
10839    Free
10840    Free
Name: Type, Length: 10841, dtype: object
```

In [19]:
```
df["Type"].isna().sum()
```

Out[19]: 0

In [94]:
```
#15. which App Has Maximum Reviews?
#Step-1 Gets the complete app details in boolean form
df["Reviews"].max()==df["Reviews"]
```

Out[94]:
```
0        True
1        True
2        True
3        True
4        True
         ...
10836    True
10837    True
10838    True
10839    True
10840    True
Name: Reviews, Length: 10841, dtype: bool
```

In [108]:
```
#Step-2
a=df[df["Reviews"].max()==df["Reviews"]]["App"]
print(a)
```

```
0           Photo Editor & Candy Camera & Grid & ScrapBook
1                                      Coloring book moana
2        U Launcher Lite – FREE Live Cool Themes, Hide ...
3                                    Sketch - Draw & Paint
4                    Pixel Draw - Number Art Coloring Book
                               ...
10836                                     Sya9a Maroc - FR
10837                     Fr. Mike Schmitz Audio Teachings
10838                               Parkinson Exercices FR
10839                        The SCP Foundation DB fr nn5n
10840        iHoroscope - 2018 Daily Horoscope & Astrology
Name: App, Length: 10841, dtype: object
```

In [110]:
```
a.max()
```

Out[110]: '🔥 Football Wallpapers 4K | Full HD Backgrounds 😍'

In [ ]:

In [111]:
```
#16. Display Top 5 Apps Having Highest Reviews
#Step-1 Sorting the Reviews
df["Reviews"].sort_values(ascending=False)
```

Out[111]:
```
0        78158306.0
7231     78158306.0
7223     78158306.0
7224     78158306.0
7225     78158306.0
            ...
3615     78158306.0
3616     78158306.0
3617     78158306.0
3618     78158306.0
10840    78158306.0
Name: Reviews, Length: 10841, dtype: float64
```

In [113]:
```
#Step-2 Getting the Top 5 reviews
df["Reviews"].sort_values(ascending=False).head().index
```

Out[113]: Index([0, 7231, 7223, 7224, 7225], dtype='int64')

In [114]:
```
#Step-3  Store indices of 5 top app values
indices=df["Reviews"].sort_values(ascending=False).head().index
```

In [117]:
```
#Step-4 pass indices (column) to iloc[]
print(df.iloc[indices]["App"])
```

```
0       Photo Editor & Candy Camera & Grid & ScrapBook
7231                                       CE AR LOG
7223                     Terminal Emulator for Android
7224                                          Ceasa CE
7225                          CE Genius Nurses Edition
Name: App, dtype: object
```

In [ ]:

In [118]:
```
#17.Find Average Rating of Free and Paid Apps
#Step-1
df["Rating"]
```

Out[118]:
```
0        4.1
1        3.9
2        4.7
3        4.5
4        4.3
        ...
10836    4.5
10837    5.0
10838    NaN
10839    4.5
10840    4.5
Name: Rating, Length: 10841, dtype: float64
```

In [122]:
```
#Step-2  Find the  Rating  Mean values of Each Category / Group
df.groupby("Type")["Rating"].mean()
```

Out[122]:
```
Type
0       19.000000
Free     4.186203
Paid     4.266615
Name: Rating, dtype: float64
```

In [ ]:

In [124]:
```
#18.  Find Top 5 Apps Having Maximum Installs
df["Installs"]
```

Out[124]:
```
0             10,000+
1            500,000+
2          5,000,000+
3         50,000,000+
4            100,000+
             ...
10836          5,000+
10837            100+
10838          1,000+
10839          1,000+
10840     10,000,000+
Name: Installs, Length: 10841, dtype: object
```

In [125]:
```
#Step-1 Find the data type of Installs column
df["Installs"].dtype # gives dtype(o)
```

Out[125]: dtype('O')

In [145]:
```
#Step-3 Replace "+" with empty String
df["Installs"].str.replace("+","") #and Place them in new Column
df["Installs_1"]=df["Installs"].str.replace("+","")
```

In [146]:
```
df["Installs_1"]
```

Out[146]:
```
0            10,000
1           500,000
2         5,000,000
3        50,000,000
4           100,000
            ...
10836         5,000
10837           100
10838         1,000
10839         1,000
10840    10,000,000
Name: Installs_1, Length: 10841, dtype: object
```

In [147]:
```
#Step-3 Replace "," with empty string
df["Installs_1"].str.replace(",","") #and Place them in new Column
df["Installs_1"]=df["Installs_1"].str.replace(",","")
```

In [148]:
```
df["Installs_1"]
```

Out[148]:
```
0           10000
1          500000
2         5000000
3        50000000
4          100000
           ...
10836        5000
10837         100
10838        1000
10839        1000
10840    10000000
Name: Installs_1, Length: 10841, dtype: object
```

In [149]:
```
#Step-4 Finally check the dtype values of Installs
df["Installs_1"].dtype
```

Out[149]: dtype('O')

In [151]:
```
#Step-5 Converting the object into Float or int
#df["Installs_1"].astype("int") #Getting error one Free is there
```

In [153]:
```
#Step-6 To Check The name of the apps with "Free" Installs
df[df["Installs_1"]=="Free"] # generates Bool type Values
```

Out[153]:

	App	Category	Rating	Reviews	Size	Installs	Type	Price	Content Rating	Genres	Last Updated	Current Ver	Android Ver	Installs_1
10472	Life Made WI-Fi Touchscreen Photo Frame	1.9	19.0	78158306.0	1,000+	Free	0	Everyone	NaN	February 11, 2018	1.0.19	4.0 and up	NaN	Free

In [155]:
```
#Step-7 Replacing the "free " into "zero"
df["Installs_1"]=df["Installs_1"].str.replace("Free","0")
```

In [157]:
```
#Step-8------------------
#Step-5 Converting the object into Float or int
df["Installs_1"].astype("int")
```

Out[157]:
```
0           10000
1          500000
2         5000000
3        50000000
4          100000
           ...
10836        5000
10837         100
10838        1000
10839        1000
10840    10000000
Name: Installs_1, Length: 10841, dtype: int32
```

In [160]:
```
#Step-9 Now get  top 5 Apps Having Maximum Installs
df["Installs_1"].sort_values(ascending=False).head()
```

Out[160]:
```
7536    500000000
474     500000000
5596    500000000
371     500000000
3767    500000000
Name: Installs_1, dtype: object
```

In [166]:
```
#Store indices of  top 5 Apps Having Maximum Installs and pass iloc[]
indices=df["Installs_1"].sort_values(ascending=False).head().index
print(df.iloc[indices][["App","Installs_1"]])
```

```
                                            App Installs_1
7536  Security Master - Antivirus, VPN, AppLock, Boo...  500000000
474                   LINE: Free Calls & Messages  500000000
5596                               Samsung Health  500000000
371            Google Duo - High Quality Video Calls  500000000
3767                 Flipboard: News For Our Time  500000000
```

In [ ]:

In [ ]: