

In [ ]:

```
1 'MY FIRST PROJECT IS ABOUT APP STORE'
```

Out[2]:

```
'MY FIRST PROJECT IS ABOUT APP STORE'
```

In [3]:

```
1 'THE MAIN GOAL IS TO UNDERSTAND APP STORE BETTER'
```

Out[3]:

```
'THE MAIN GOAL IS TO UNDERSTAND APP STORE BETTER'
```

In [ ]:

```
1 #TASK-----1
2 from csv import reader
3 #ANDROID STORE
4 opened_file1=open('googleplaystore.csv')
5 read_file1=reader(opened_file1)
6 google_store=list(read_file1)
7 google_store_header=google_store[0]
8 google_store=google_store[1:]
9
10 #APPLE STORE
11 opened_file2=open('AppleStore.csv')
12 read_file2=reader(opened_file2)
13 apple_store=list(read_file2)
14 apple_store_header=apple_store[0]
15 apple_store=apple_store[1:]
```

In [ ]:

```
1 #TASK----- 2
2 def explore_data(dataset,start,end,rows_and_columns=False):
3     dataset_slice=dataset[start:end]
4     for row in dataset_slice:
5         print(row,'\n')
6     if rows_and_columns:
7         print('Number of rows:',len(dataset))
8         print('Number of columns:',len(dataset[0]))
9
10 print(google_store_header,'\n')
11 explore_data(google_store,0,3,True)
12
13 print('\n',apple_store_header,'\n')
14 explore_data(apple_store,0,3,True)
```

```
['App', 'Category', 'Rating', 'Reviews', 'Size', 'Installs', 'Type', 'Price', 'Content Rating', 'Genres', 'Last Updated', 'Current Ver', 'Android Version']
```

```
['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']
```

```
['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']
```

```
['U Launcher Lite – FREE Live Cool Themes, Hide Apps', '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']
```

Number of rows: 10841

Number of columns: 13

```
['id', 'track_name', 'size_bytes', 'currency', 'price', 'rating_count_tot', 'rating_count_ver', 'user_rating', 'user_rating_ver', 'ver', 'cont_rating', 'prime_genre', 'sup_devices.num', 'ipadSc_urls.num', 'lang.num', 'vpp_lic']
```

```
['284882215', 'Facebook', '389879808', 'USD', '0.0', '2974676', '212', '3.5', '3.5', '95.0', '4+', 'Social Networking', '37', '1', '29', '1']
```

```
['389801252', 'Instagram', '113954816', 'USD', '0.0', '2161558', '1289', '4.5', '4.0', '10.23', '12+', 'Photo & Video', '37', '0', '29', '1']
```

```
['529479190', 'Clash of Clans', '116476928', 'USD', '0.0', '2130805', '579', '4.5', '4.5', '9.24.12', '9+', 'Games', '38', '5', '18', '1']
```

Number of rows: 7197

Number of columns: 16

In [6]:

```
1 #TASK----- 3
2 print(google_store[10472])
3 print('Initial Length:',len(google_store))
4 del(google_store[10472])
5 print('Final Length:',len(google_store))
```

```
['Life Made WI-Fi Touchscreen Photo Frame', '1.9', '19', '3.0M', '1,000+',
'Free', '0', 'Everyone', '', 'February 11, 2018', '1.0.19', '4.0 and up']
Initial Length: 10841
Final Length: 10840
```

In [7]:

```
1 #TASK----- 4.
2 for app in google_store:
3     name=app[0]
4     if name=='Instagram':
5         print(app,'\n')
6
7 duplicate_apps=[]
8 unique_apps=[]
9 for app in google_store:
10     name=app[0]
11     if name in unique_apps:
12         duplicate_apps.append(name)
13     unique_apps.append(name)
14 print('Total Duplicate Apps:',len(duplicate_apps))
15 print(duplicate_apps[:3],'\n')
```

```
['Instagram', 'SOCIAL', '4.5', '66577313', 'Varies with device', '1,000,000,
000+', 'Free', '0', 'Teen', 'Social', 'July 31, 2018', 'Varies with device',
'Varies with device']
```

```
['Instagram', 'SOCIAL', '4.5', '66577446', 'Varies with device', '1,000,000,
000+', 'Free', '0', 'Teen', 'Social', 'July 31, 2018', 'Varies with device',
'Varies with device']
```

```
['Instagram', 'SOCIAL', '4.5', '66577313', 'Varies with device', '1,000,000,
000+', 'Free', '0', 'Teen', 'Social', 'July 31, 2018', 'Varies with device',
'Varies with device']
```

```
['Instagram', 'SOCIAL', '4.5', '66509917', 'Varies with device', '1,000,000,
000+', 'Free', '0', 'Teen', 'Social', 'July 31, 2018', 'Varies with device',
'Varies with device']
```

Total Duplicate Apps: 1181

```
['Quick PDF Scanner + OCR FREE', 'Box', 'Google My Business']
```

In [8]:

```
1 #TASK-----5
2 reviews_max={}
3 for app in google_store:
4     name=app[0]
5     n_reviews=float(app[3])
6     if name in reviews_max and reviews_max[name]<n_reviews:
7         reviews_max[name]=n_reviews
8     elif name not in reviews_max:
9         reviews_max[name]=n_reviews
10
11 print('Expected Length:',len(google_store)-1181)
12 print('Actual Length:',len(reviews_max),'\n')
13
14 android_clean=[]
15 already_added=[]
16 for app in google_store:
17     name=app[0]
18     n_reviews=float(app[3])
19     if n_reviews==reviews_max[name] and name not in already_added:
20         android_clean.append(app)
21         already_added.append(name)
22 print('Final Length:',len(android_clean),'\n')
23 explore_data(android_clean,0,3,True)
24
```

Expected Length: 9659

Actual Length: 9659

Final Length: 9659

['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']

['U Launcher Lite - FREE Live Cool Themes, Hide Apps', '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']

['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']

Number of rows: 9659

Number of columns: 13

In [9]:

```
1 #TASK-----6
2 print(apple_store[813][1])
3 print(apple_store[6731][1], '\n')
4
5 print(android_clean[4412][0])
6 print(android_clean[7940][0], '\n')
7
8 def is_english(string):
9     for character in string:
10         if ord(character)>127:
11             return(False)
12     return(True)
13
14 print(is_english('Instagram'))
15 print(is_english('爱奇艺PPS - 《欢乐颂2》电视剧热播'))
16 print(is_english('Docs To Go™ Free Office Suite'))
17 print(is_english('Instachat 😄'))
```

爱奇艺PPS - 《欢乐颂2》电视剧热播

【脱出ゲーム】絶対に最後までプレイしないで 〜謎解き&ブロックパズル〜

中国語 AQ!リスニング

لعبة تقدر تربح DZ

True

False

False

False

In [10]:

```
1 #TASK-----7
2 print('Order of ™:',ord('™'))
3 print('Order of 😄:',ord('😄'))
```

Order of ™: 8482

Order of 😄: 128540

In [11]:

```
1 #TASK-----8
2 def is_english(string):
3     ascii_code=0
4     for charcter in string:
5         if ord(charcter)>127:
6             ascii_code +=1
7
8     if(ascii_code<=3):
9         return(True)
10
11     if(ascii_code>3):
12         return(False)
13
14 print(is_english('Docs To Go™ Free Office Suite'))
15 print(is_english('爱奇艺PPS - 《欢乐颂2》电视剧热播'))
16 print(is_english('Instachat 🌐'))
17 print('\n')
18 android_english=[]
19 ios_english=[]
20 for app in android_clean:
21     name=app[0]
22     if is_english(name):
23         android_english.append(app)
24 for app in apple_store:
25     name=app[1]
26     if is_english(name):
27         ios_english.append(app)
28
29 explore_data(android_english, 0, 3, True)
30 print('\n')
31 explore_data(ios_english, 0, 3, True)
32
```

True

False

True

['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']

['U Launcher Lite - FREE Live Cool Themes, Hide Apps', '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']

['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']

Number of rows: 9614

Number of columns: 13

['284882215', 'Facebook', '389879808', 'USD', '0.0', '2974676', '212', '3.5', '3.5', '95.0', '4+', 'Social Networking', '37', '1', '29', '1']

['389801252', 'Instagram', '113954816', 'USD', '0.0', '2161558', '1289',

'4.5', '4.0', '10.23', '12+', 'Photo & Video', '37', '0', '29', '1']

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Number of rows: 6183

Number of columns: 16

In [12]:

```
1 #TASK -----9
2 android_free=[]
3 ios_free=[]
4 for app in android_english:
5     price=app[7]
6     if price=='0':
7         android_free.append(app)
8
9 for app in ios_english:
10     price=app[4]
11     if price=='0.0':
12         ios_free.append(app)
13
14 print(len(android_free))
15 print(len(ios_free))
```

8864

3222

In [13]:

```
1 #TASK -----10 PERCENTAGE
2 def freq_table(dataset,index):
3     table={}
4     total=0
5     for app in dataset:
6         total+=1
7         value=app[index]
8         if value in table:
9             table[value]+=1
10        if value not in table:
11            table[value]=1
12
13        percentage={}
14        for key in table:
15            percentage[key]=(table[key]/total)*100
16
17    return(percentage)
18
19 def display_table(dataset,index):
20     table=freq_table(dataset,index)
21     table_display=[]
22     for key in table:
23         key_val_as_tuple=(table[key], key)
24         table_display.append(key_val_as_tuple)
25     table_sorted=sorted(table_display,reverse=True)
26     for entry in table_sorted:
27         print(entry[1],':',entry[0])
28
29 display_table(ios_free,-5)
30 print('\n')
31 display_table(android_free, 1)
32 print('\n')
33 display_table(android_free, -4)
```

```
Games : 58.16263190564867
Entertainment : 7.883302296710118
Photo & Video : 4.9658597144630665
Education : 3.662321539416512
Social Networking : 3.2898820608317814
Shopping : 2.60707635009311
Utilities : 2.5139664804469275
Sports : 2.1415270018621975
Music : 2.0484171322160147
Health & Fitness : 2.0173805090006205
Productivity : 1.7380509000620732
Lifestyle : 1.5828677839851024
News : 1.3345747982619491
Travel : 1.2414649286157666
Finance : 1.1173184357541899
Weather : 0.8690254500310366
Food & Drink : 0.8069522036002483
Reference : 0.5586592178770949
Business : 0.5276225946617008
```



In [36]:

```
1 #TASK-----11 AVERAGE
2 genres_ios = freq_table(ios_free, -5)
3 for genre in genres_ios:
4     total = 0
5     len_genre = 0
6     for app in ios_free:
7         genre_app = app[-5]
8         if genre_app == genre:
9             n_ratings = float(app[5])
10            total += n_ratings
11            len_genre += 1
12    avg_n_ratings = total / len_genre
13    print(genre, ': ', avg_n_ratings)
14 print('\n')
15 for app in ios_free:
16     if app[-5] == 'Navigation':
17         print(app[1], ': ', app[5])
18 print('\n')
19 for app in ios_free:
20     if app[-5] == 'Reference':
21         print(app[1], ': ', app[5])
```

Utilities : 18684.456790123455  
Food & Drink : 33333.92307692308  
Lifestyle : 16485.764705882353  
Navigation : 86090.33333333333  
Catalogs : 4004.0  
Reference : 74942.11111111111  
Medical : 612.0  
Book : 39758.5  
Weather : 52279.892857142855  
Education : 7003.983050847458  
Travel : 28243.8  
Social Networking : 71548.34905660378  
Shopping : 26919.690476190477  
Health & Fitness : 23298.015384615384  
Entertainment : 14029.830708661417  
Games : 22788.6696905016  
Music : 57326.530303030304  
Photo & Video : 28441.54375  
Productivity : 21028.410714285714  
Business : 7491.117647058823  
Finance : 31467.944444444445  
Sports : 23008.898550724636  
News : 21248.023255813954

Waze - GPS Navigation, Maps & Real-time Traffic : 345046  
Google Maps - Navigation & Transit : 154911  
Geocaching® : 12811  
CoPilot GPS - Car Navigation & Offline Maps : 3582  
ImmobilienScout24: Real Estate Search in Germany : 187  
Railway Route Search : 5

Bible : 985920  
Dictionary.com Dictionary & Thesaurus : 200047  
Dictionary.com Dictionary & Thesaurus for iPad : 54175

Google Translate : 26786  
Muslim Pro: Ramadan 2017 Prayer Times, Azan, Quran : 18418  
New Furniture Mods - Pocket Wiki & Game Tools for Minecraft PC Edition : 17588  
Merriam-Webster Dictionary : 16849  
Night Sky : 12122  
City Maps for Minecraft PE - The Best Maps for Minecraft Pocket Edition (MCP E) : 8535  
LUCKY BLOCK MOD ™ for Minecraft PC Edition - The Best Pocket Wiki & Mods Installer Tools : 4693  
GUNS MODS for Minecraft PC Edition - Mods Tools : 1497  
Guides for Pokémon GO - Pokemon GO News and Cheats : 826  
WWDC : 762  
Horror Maps for Minecraft PE - Download The Scariest Maps for Minecraft Pocket Edition (MCPE) Free : 718  
VPN Express : 14  
Real Bike Traffic Rider Virtual Reality Glasses : 8  
教えて!goo : 0  
Jishokun-Japanese English Dictionary & Translator : 0

In [41]:

```
1 #TASK-----12
2 display_table(android_free, 5)
3 print('\n')
4 categories_android=freq_table(android_free, 1)
5 for category in categories_android:
6     total=0
7     len_category=0
8     for app in android_free:
9         category_app=app[1]
10        if category_app==category:
11            n_installs=app[5]
12            n_installs=n_installs.replace(',', '')
13            n_installs=n_installs.replace('+', '')
14            total += float(n_installs)
15            len_category += 1
16    avg_n_installs = total / len_category
17    print(category, ': ', avg_n_installs)
```

1,000,000+ : 15.726534296028879  
100,000+ : 11.552346570397113  
10,000,000+ : 10.548285198555957  
10,000+ : 10.198555956678701  
1,000+ : 8.393501805054152  
100+ : 6.915613718411552  
5,000,000+ : 6.825361010830325  
500,000+ : 5.561823104693141  
50,000+ : 4.7721119133574  
5,000+ : 4.512635379061372  
10+ : 3.5424187725631766  
500+ : 3.2490974729241873  
50,000,000+ : 2.3014440433213  
100,000,000+ : 2.1322202166064983  
50+ : 1.917870036101083  
5+ : 0.78971119133574  
1+ : 0.5076714801444043  
500,000,000+ : 0.2707581227436823  
1,000,000,000+ : 0.22563176895306858  
0+ : 0.04512635379061372  
0 : 0.01128158844765343

MEDICAL : 120550.61980830671  
PRODUCTIVITY : 16787331.344927534  
PARENTING : 542603.6206896552  
SOCIAL : 23253652.127118643  
COMICS : 817657.2727272727  
GAME : 15588015.603248259  
NEWS\_AND\_MAGAZINES : 9549178.467741935  
EDUCATION : 1833495.145631068  
SHOPPING : 7036877.311557789  
WEATHER : 5074486.197183099  
COMMUNICATION : 38456119.167247385  
SPORTS : 3638640.1428571427  
MAPS\_AND\_NAVIGATION : 4056941.7741935486  
DATING : 854028.8303030303  
BUSINESS : 1712290.1474201474  
TOOLS : 10801391.298666667  
HOUSE\_AND\_HOME : 1331540.5616438356  
BEAUTY : 513151.88679245283

LIBRARIES\_AND\_DEMO : 638503.734939759  
PHOTOGRAPHY : 17840110.40229885  
FAMILY : 3695641.8198090694  
BOOKS\_AND\_REFERENCE : 8767811.894736841  
FOOD\_AND\_DRINK : 1924897.7363636363  
AUTO\_AND\_VEHICLES : 647317.8170731707  
TRAVEL\_AND\_LOCAL : 13984077.710144928  
HEALTH\_AND\_FITNESS : 4188821.9853479853  
ART\_AND\_DESIGN : 1986335.0877192982  
EVENTS : 253542.222222222222  
LIFESTYLE : 1437816.2687861272  
VIDEO\_PLAYERS : 24727872.452830188  
ENTERTAINMENT : 11640705.88235294  
PERSONALIZATION : 5201482.6122448975  
FINANCE : 1387692.475609756

In [51]:

```
1 #TASK-----13
2 for app in android_free:
3     if app[1]=='COMMUNICATION' and (app[5]=='1,000,000,000+'or app[5]=='500,000,000+'or
4         print(app[0], ': ', app[5])
5 print('\n')
6
7 under_100_m = []
8 for app in android_free:
9     n_installs = app[5]
10    n_installs = n_installs.replace(',', '')
11    n_installs = n_installs.replace('+', '')
12    if float(n_installs) < 100000000:
13        under_100_m.append(float(n_installs))
14
15 print('No. of Apps:', sum(under_100_m) / len(under_100_m))
16
17 for app in android_free:
18     if app[1]=='BOOKS_AND_REFERENCE':
19         print(app[0], ': ', app[5])
20
21 print('\n')
22 for app in android_free:
23     if app[1]=='BOOKS_AND_REFERENCE' and (app[5]=='1,000,000,000+'or app[5]=='500,000,0
24         print(app[0], ': ', app[5])
25
26 print('\n')
27 for app in android_final:
28     if app[1]=='BOOKS_AND_REFERENCE' and (app[5]=='1,000,000+'or app[5] == '5,000,000+'
29         print(app[0], ': ', app[5])
```

WhatsApp Messenger : 1,000,000,000+  
imo beta free calls and text : 100,000,000+  
Android Messages : 100,000,000+  
Google Duo - High Quality Video Calls : 500,000,000+  
Messenger - Text and Video Chat for Free : 1,000,000,000+  
imo free video calls and chat : 500,000,000+  
Skype - free IM & video calls : 1,000,000,000+  
Who : 100,000,000+  
GO SMS Pro - Messenger, Free Themes, Emoji : 100,000,000+  
LINE: Free Calls & Messages : 500,000,000+  
Google Chrome: Fast & Secure : 1,000,000,000+  
Firefox Browser fast & private : 100,000,000+  
UC Browser - Fast Download Private & Secure : 500,000,000+  
Gmail : 1,000,000,000+  
Hangouts : 1,000,000,000+  
Messenger Lite: Free Calls & Messages : 100,000,000+  
Kik : 100,000,000+  
KakaoTalk: Free Calls & Text : 100,000,000+  
Opera Mini - fast web browser : 100,000,000+  
Opera - Fast & Secure : 100,000,000+

In [ ]:

1

