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Code JupyterLab Python (P

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

```
df = pd.read_csv('C:\\Users\\narasimha\\Downloads\\disney_titles.csv');
```

```
df.head(3)
```

]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	descriptio
0	s1	Movie	Duck the Halls: A Mickey Mouse Christmas Special	Alonso Ramirez Ramos, Dave Wasson	Chris Diamantopoulos, Tony Anselmo, Tress MacN...	NaN	November 26, 2021	2016	TV-G	23 min	Animation, Family	Join Mickey ar the gang as the duck the hall
1	s2	Movie	Ernest Saves Christmas	John Cherry	Jim Varney, Noelle Parker, Douglas Seale	NaN	November 26, 2021	1988	PG	91 min	Comedy	Santa Claus passe his magic bag to new St.
2	s3	Movie	Ice Age: A Mammoth Christmas	Karen Disher	Raymond Albert Romano, John Leguizamo, Denis L...	United States	November 26, 2021	2011	TV-G	23 min	Animation, Comedy, Family	Sid the Sloth is c Santa's naugh lis

]:
```
df.shape
```

```
df.shape
```

```
(1450, 12)
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1450 entries, 0 to 1449
Data columns (total 12 columns):
 #   Column        Non-Null Count  Dtype 
---  ------        --------------  ----- 
 0   show_id       1450 non-null   object
 1   type          1450 non-null   object
 2   title         1450 non-null   object
 3   director      977 non-null    object
 4   cast          1260 non-null   object
 5   country       1231 non-null   object
 6   date_added    1447 non-null   object
 7   release_year  1450 non-null   int64 
 8   rating        1447 non-null   object
 9   duration      1450 non-null   object
 10  listed_in     1450 non-null   object
 11  description   1450 non-null   object
dtypes: int64(1), object(11)
memory usage: 136.1+ KB
```

Data Transformation

```
# Creating new columns from existing column
df[['g1','g2','g3']] = df['listed_in'].str.split(',', expand = True)
```

Data Reduction

```
# Removing unnecessary columns
df.drop(['show_id', 'description', 'listed_in'], axis = 1 ,inplace = True)
```

Data Cleaning

```
# Checking for null values
df.isnull().sum()
```

```
show_id         0
type            0
title           0
director      473
cast          190
country       219
date_added      3
release_year    0
rating          3
duration        0
listed_in       0
description     0
```

```
# Filling null values
df['director'] = df['director'].fillna('without director reference')
df['director'].isnull().sum()
```

```
np.int64(0)
```

```
df['cast'] = df['cast'].fillna('without cast reference')
df['cast'].isnull().sum()
```

```
np.int64(0)
```

```
df['country'] = df['country'].fillna('without country reference')
df['country'].isnull().sum()
```

```
np.int64(0)
```

```
df['rating'] = df['rating'].fillna('without rating')
df['rating'].isnull().sum()
```

```
np.int64(0)
```

```
# Filling null values
df.fillna(0, inplace = True)
df.isnull().sum()
```

```
show_id         0
```

```
df.fillna(0, inplace = True)
df.isnull().sum()
```

```
show_id         0
type            0
title           0
director        0
cast            0
country         0
date_added      0
release_year    0
rating          0
duration        0
listed_in       0
description     0
g1              0
g2              0
g3              0
dtype: int64
```

```
# Checking for duplicated values
df.duplicated().sum()
```

```
np.int64(0)
```

```
# Checking for duplicated values
df.duplicated().sum()
```

```
np.int64(0)
```

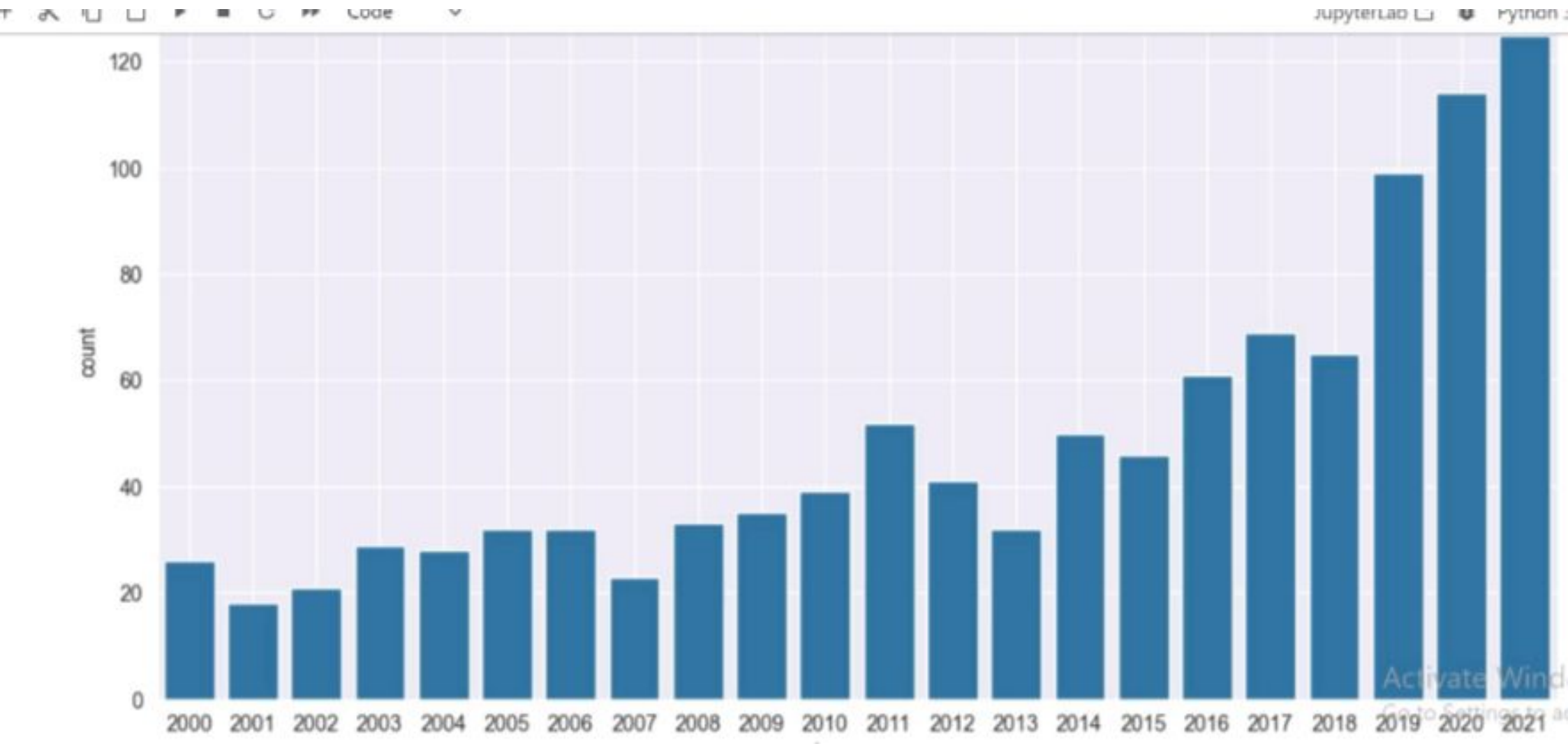
Data Visualization

Questions to be answered-

1. Which year of 20s released more numbers of Movies/TV Shows?
2. Show the difference in Movies released and TV Shows released of top 3 year of 20s having the most released.
3. What are the total number of movies and tv shows released?
4. Which year of 20s has released the most Action-Adventure movies/tv shows?
5. Which category of rating has the most number of releases?

Que 1. Which year of 20s released more numbers of Movies/TV Shows?

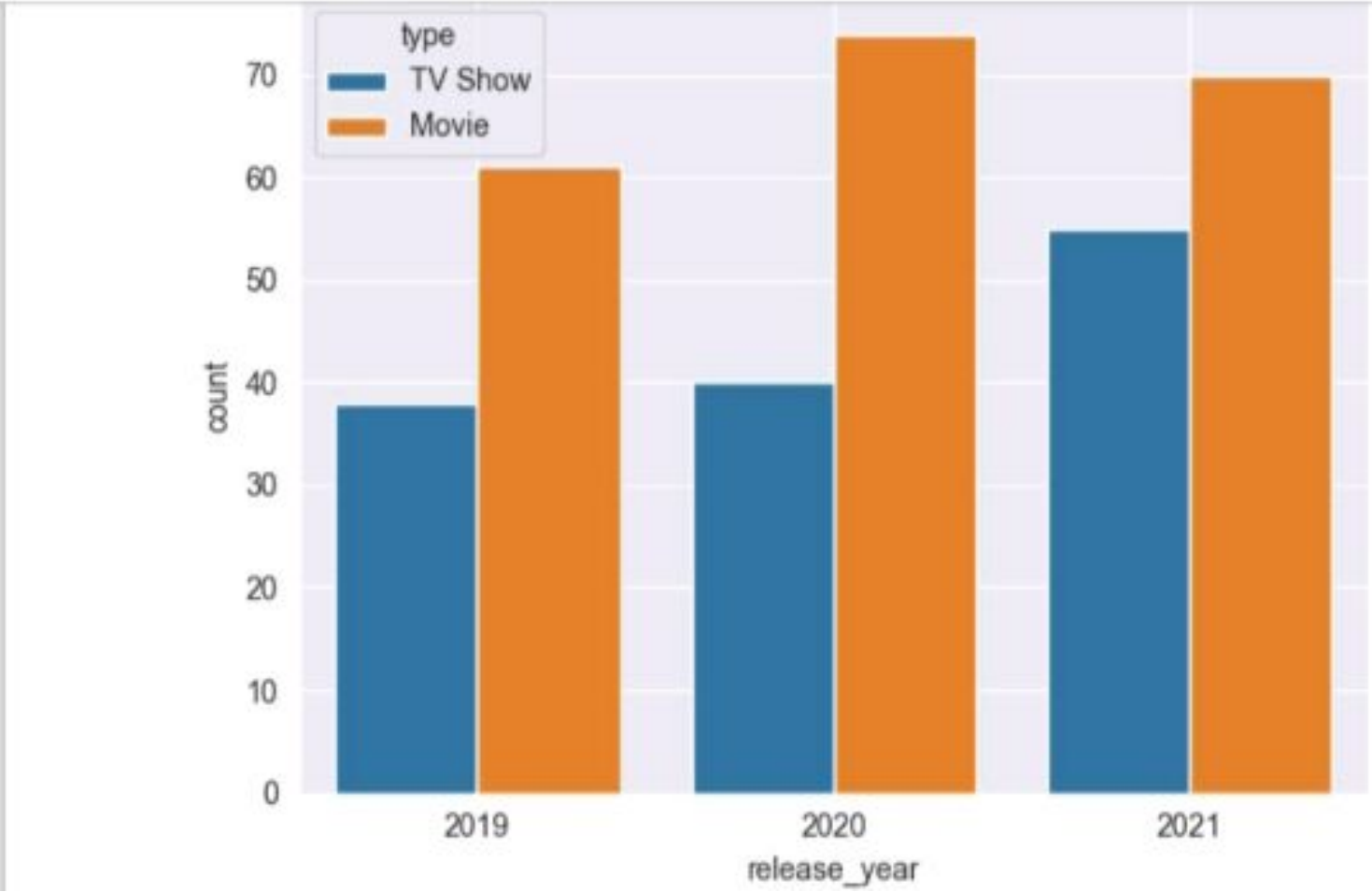
```
ans1 = df.query('release_year >= 2000')
plt.figure(figsize = (12,6))
sns.set_style('dark')
sns.countplot(ans1, x = 'release_year')
plt.grid(True)
plt.show()
```


Code
JupyterLab
Python
count
0
20
40
60
80
100
120
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021

2020 from 20s released the hightest number of shows.

Que 2. Show the difference in Movies released and TV Shows released of top 3 year of 20s having the most released.

```
ans2 = df.query('release_year == [2020,2021,2019]')
sns.countplot(ans2, x = 'release_year', hue = 'type')
plt.grid(True)
plt.show()
```


type
TV Show
Movie
70
60
50
40
30
20
10
0
count
2019
2020
2021
release_year

Showing the difference between Movies released and TV Shows released of 2019, 2020 and 2021.

Que 3. What are the total number of movies and tv shows released?

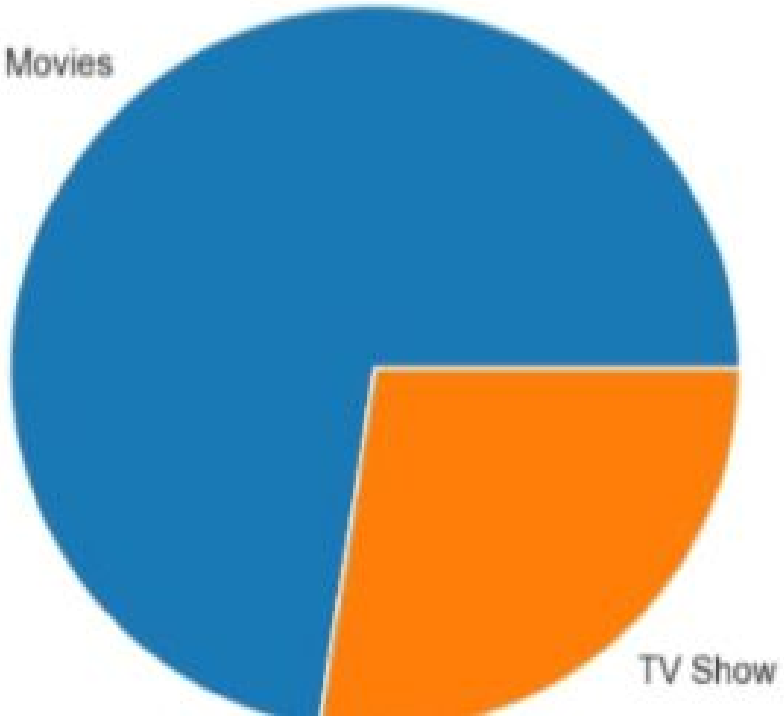
```
]: ans3 = df['type'].value_counts()
   ans3
```

```
]: type
   Movie      1052
   TV Show     398
   Name: count, dtype: int64
```

```
]: plt.pie(ans3, labels = ['Movies', 'TV Show'])
   plt.show()
```

```
TV Show     398
Name: count, dtype: int64
```

```
plt.pie(ans3, labels = ['Movies', 'TV Show'])
plt.show()
```



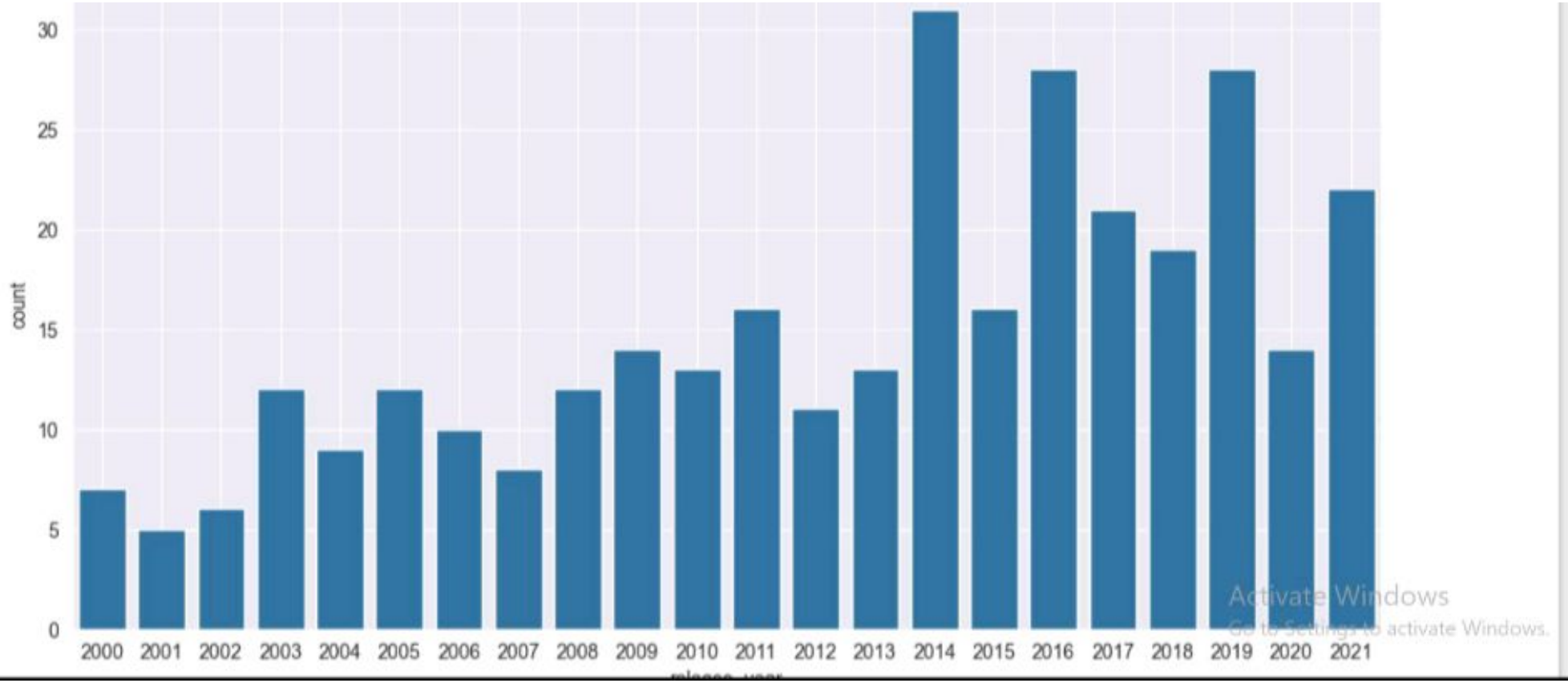
Answer-

Total number of Movie released is 991

Total number of TV Shows released is 377

Que 4. Which year of 20s has released the most Action-Adventure movies/tv shows?

```
]: acad = df.query("release_year >= 2000 and g1 == 'Action-Adventure'  or g2 == 'Action-Adventure' or g3 == 'Action-Adventure'")
plt.figure(figsize = (12,6))
sns.countplot(acad, x = 'release_year')
plt.grid(True)
plt.show()
```



Answer-

2014 from 20s has released the most number of Action-Adventure movies/shows.

Que 5. Which category of rating has the most number of releases?

```
ans5 = df['rating'].value_counts()
ans5
```

```
rating
TV-G              318
TV-PG             301
G                 253
PG                236
TV-Y7             131
TV-14              79
PG-13              66
TV-Y               50
TV-Y7-FV           13
without rating      3
Name: count, dtype: int64
```

```
plt.figure(figsize = (6,6))
plt.pie(ans5, labels = ['TV-G', 'TV-PG', 'G', 'PG', 'TV-Y7', 'TV-14', 'PG-13', 'TV-Y', 'TV-Y7-FV', 'without rating'])
plt.show()
```

```
plt.pie(ans5, labels = ['TV-G', 'TV-PG', 'G', 'PG', 'TV-Y7', 'TV-14', 'PG-13', 'TV-Y', 'TV-Y7-FV', 'without rating'])
plt.show()
```