nflix-final

October 5, 2024

```python
#Importing the required libraries -- PANDAS,MATPLOTLIB,SEABORN

import pandas as pd

import matplotlib.pyplot as plt

import seaborn as sns

import numpy as np
```

Uploading the data file 'Netflix in CSV format.

```python
df = pd.read_csv('netflix.csv')
```

```python
df.head()
```

```
  show_id     type                 title          director  \
0      s1    Movie   Dick Johnson Is Dead  Kirsten Johnson
1      s2  TV Show          Blood & Water               NaN
2      s3  TV Show              Ganglands   Julien Leclercq
3      s4  TV Show    Jailbirds New Orleans             NaN
4      s5  TV Show            Kota Factory               NaN

                                                cast        country  \
0                                                NaN   United States
1  Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban…   South Africa
2  Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi…            NaN
3                                                NaN            NaN
4  Mayur More, Jitendra Kumar, Ranjan Raj, Alam K…          India

          date_added  release_year rating   duration  \
0  September 25, 2021          2020  PG-13     90 min
1  September 24, 2021          2021  TV-MA  2 Seasons
2  September 24, 2021          2021  TV-MA   1 Season
3  September 24, 2021          2021  TV-MA   1 Season
4  September 24, 2021          2021  TV-MA  2 Seasons

                              listed_in  \
```

```
0                                      Documentaries
1       International TV Shows, TV Dramas, TV Mysteries
2    Crime TV Shows, International TV Shows, TV Act…
3                                 Docuseries, Reality TV
4    International TV Shows, Romantic TV Shows, TV …

                                         description
0    As her father nears the end of his life, filmm…
1    After crossing paths at a party, a Cape Town t…
2    To protect his family from a powerful drug lor…
3    Feuds, flirtations and toilet talk go down amo…
4    In a city of coaching centers known to train I…
```

1.How has the number of movies released per year changed over last 20 -30 years.

```python
# Filtering the data only belonging to the Movies type.

dm  = df[df['type']=='Movie']
```

```python
dm.head()
```

```
     show_id   type                              title  \
0         s1  Movie                 Dick Johnson Is Dead
6         s7  Movie   My Little Pony: A New Generation
7         s8  Movie                            Sankofa
9        s10  Movie                        The Starling
12       s13  Movie                        Je Suis Karl

                         director  \
0                  Kirsten Johnson
6     Robert Cullen, José Luis Ucha
7                     Haile Gerima
9                    Theodore Melfi
12               Christian Schwochow

                                         cast  \
0                                           NaN
6     Vanessa Hudgens, Kimiko Glenn, James Marsden, …
7     Kofi Ghanaba, Oyafunmike Ogunlano, Alexandra D…
9     Melissa McCarthy, Chris O'Dowd, Kevin Kline, T…
12    Luna Wedler, Jannis Niewöhner, Milan Peschel, …

                                         country          date_added  \
0                                  United States  September 25, 2021
6                                            NaN  September 24, 2021
7     United States, Ghana, Burkina Faso, United Kin…  September 24, 2021
9                                  United States  September 24, 2021
```

```
12                    Germany, Czech Republic  September 23, 2021

    release_year rating duration  \
0           2020  PG-13   90 min
6           2021     PG   91 min
7           1993  TV-MA  125 min
9           2021  PG-13  104 min
12          2021  TV-MA  127 min


                                      listed_in  \
0                                  Documentaries
6                         Children & Family Movies
7    Dramas, Independent Movies, International Movies
9                                Comedies, Dramas
12                    Dramas, International Movies


                                     description
0    As her father nears the end of his life, filmm…
6    Equestria's divided. But a bright-eyed hero be…
7    On a photo shoot in Ghana, an American model s…
9    A woman adjusting to life after a loss contend…
12   After most of her family is murdered in a terr…
```

```python
# Cond1 and Cond2 represents the required for the question

cond1 = dm['release_year'] > 1990

cond2 = dm['release_year'] < 2022
```

```python
# Assigning the condition to mask variable


mask = (cond1) & (cond2)
```

```python
# assigning the mask to the dataframe['dm'] to get the required dataframe.

dm = dm[mask]
```

```python
dm.head()
```

```
    show_id   type                              title  \
0        s1  Movie                  Dick Johnson Is Dead
6        s7  Movie  My Little Pony: A New Generation
7        s8  Movie                            Sankofa
9       s10  Movie                       The Starling
12      s13  Movie                       Je Suis Karl
```

```
                            director  \
0                   Kirsten Johnson
6    Robert Cullen, José Luis Ucha
7                     Haile Gerima
9                   Theodore Melfi
12             Christian Schwochow

                                                 cast  \
0                                                 NaN
6    Vanessa Hudgens, Kimiko Glenn, James Marsden, …
7    Kofi Ghanaba, Oyafunmike Ogunlano, Alexandra D…
9    Melissa McCarthy, Chris O'Dowd, Kevin Kline, T…
12   Luna Wedler, Jannis Niewöhner, Milan Peschel, …

                                         country        date_added  \
0                                  United States   September 25, 2021
6                                            NaN   September 24, 2021
7    United States, Ghana, Burkina Faso, United Kin…  September 24, 2021
9                                  United States   September 24, 2021
12                       Germany, Czech Republic   September 23, 2021

     release_year rating duration  \
0            2020  PG-13    90 min
6            2021     PG    91 min
7            1993  TV-MA   125 min
9            2021  PG-13   104 min
12           2021  TV-MA   127 min

                                         listed_in  \
0                                    Documentaries
6                           Children & Family Movies
7    Dramas, Independent Movies, International Movies
9                                   Comedies, Dramas
12                      Dramas, International Movies

                                         description
0    As her father nears the end of his life, filmm…
6    Equestria's divided. But a bright-eyed hero be…
7    On a photo shoot in Ghana, an American model s…
9    A woman adjusting to life after a loss contend…
12   After most of her family is murdered in a terr…
```

```python
# Grouping by the release_year of the Movies to get the count of Movies each
↪years within in the farme of past 20 – 30 years of 2021-1991.
```

```
dmc = dm.groupby('release_year')[['release_year','title']].agg(title_count =␣
 ↪('title','count'))
```

```
[ ]: # Resetting the index to get the index numbers.

dmc.reset_index()
```

```
[ ]:     release_year  title_count
    0           1991           16
    1           1992           20
    2           1993           24
    3           1994           20
    4           1995           23
    5           1996           21
    6           1997           34
    7           1998           32
    8           1999           32
    9           2000           33
    10          2001           40
    11          2002           44
    12          2003           51
    13          2004           55
    14          2005           67
    15          2006           82
    16          2007           74
    17          2008          113
    18          2009          118
    19          2010          154
    20          2011          145
    21          2012          173
    22          2013          225
    23          2014          264
    24          2015          398
    25          2016          658
    26          2017          767
    27          2018          767
    28          2019          633
    29          2020          517
    30          2021          277
```

Now, we have got the required pf movie counts of past 20-30 years per each year.

– Next we will plot a graphical representation of our data.

```
[ ]: # Using the seaborn lineplot for the Graphical representation.

sns.lineplot(
    x = 'release_year',
```
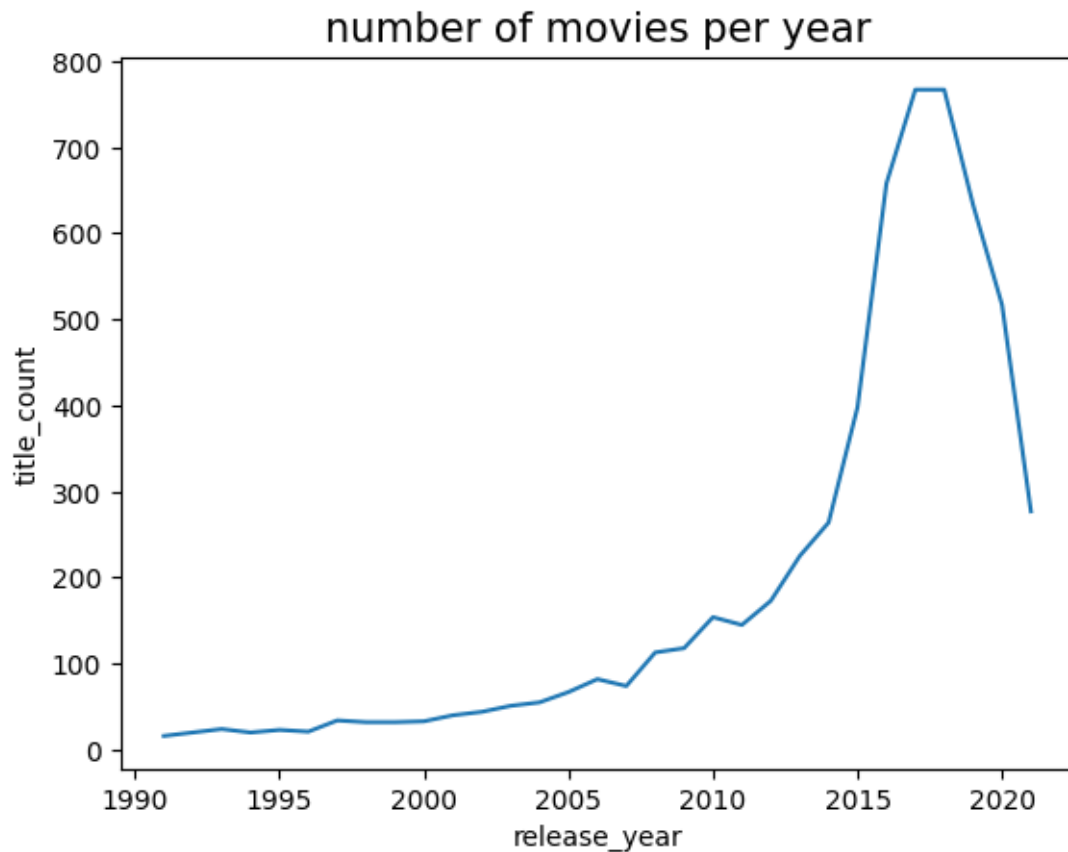
```
        y = 'title_count',
        data = dmc,

    )
plt.title('number of movies per year',fontsize = 15)
```

[ ]: Text(0.5, 1.0, 'number of movies per year')

From the above graphical representaion we can clearly get that number of movies released of given range.

– From the representation the Movie releases have been constanly raising from begining.

– from 2015 to 2019 the relases were high and reached the peak level in between these ranges.

– In 2021 the releses has been slightly decreased compared to previous 2-3 years.

[ ]: `df.head()`

[ ]:   show_id   type   title   director \
       0   s1   Movie   Dick Johnson Is Dead Kirsten Johnson

```
1       s2  TV Show          Blood & Water                NaN
2       s3  TV Show              Ganglands  Julien Leclercq
3       s4  TV Show  Jailbirds New Orleans                NaN
4       s5  TV Show           Kota Factory                NaN

                                              cast        country  \
0                                             NaN   United States
1  Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban…   South Africa
2  Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi…           NaN
3                                             NaN            NaN
4  Mayur More, Jitendra Kumar, Ranjan Raj, Alam K…          India

          date_added  release_year rating    duration  \
0  September 25, 2021          2020  PG-13      90 min
1  September 24, 2021          2021  TV-MA   2 Seasons
2  September 24, 2021          2021  TV-MA    1 Season
3  September 24, 2021          2021  TV-MA    1 Season
4  September 24, 2021          2021  TV-MA   2 Seasons

                                          listed_in  \
0                                     Documentaries
1    International TV Shows, TV Dramas, TV Mysteries
2  Crime TV Shows, International TV Shows, TV Act…
3                         Docuseries, Reality TV
4  International TV Shows, Romantic TV Shows, TV …

                                        description
0  As her father nears the end of his life, filmm…
1  After crossing paths at a party, a Cape Town t…
2  To protect his family from a powerful drug lor…
3  Feuds, flirtations and toilet talk go down amo…
4  In a city of coaching centers known to train I…
```

1   DATA CLEANING – UNNESTING THE DATA .

```
[ ]: # Assigning the data to new variable df1 for cleaning and unnesting of data.

df1 = df
```

```
[ ]: df1
```

```
[ ]:    show_id     type                  title            director  \
     0       s1    Movie    Dick Johnson Is Dead   Kirsten Johnson
     1       s2  TV Show           Blood & Water               NaN
     2       s3  TV Show               Ganglands   Julien Leclercq
     3       s4  TV Show  Jailbirds New Orleans               NaN
```

```
4         s5  TV Show          Kota Factory                 NaN
…          …        …                    …                   …
8802   s8803    Movie                  Zodiac   David Fincher
8803   s8804  TV Show            Zombie Dumb                 NaN
8804   s8805    Movie             Zombieland  Ruben Fleischer
8805   s8806    Movie                   Zoom     Peter Hewitt
8806   s8807    Movie                 Zubaan     Mozez Singh

                                               cast        country  \
0                                               NaN  United States
1      Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban…   South Africa
2      Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi…            NaN
3                                               NaN            NaN
4      Mayur More, Jitendra Kumar, Ranjan Raj, Alam K…          India
…                                                 …              …
8802   Mark Ruffalo, Jake Gyllenhaal, Robert Downey J…  United States
8803                                            NaN            NaN
8804   Jesse Eisenberg, Woody Harrelson, Emma Stone, …  United States
8805   Tim Allen, Courteney Cox, Chevy Chase, Kate Ma…  United States
8806   Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan…          India

                 date_added  release_year rating   duration  \
0      September 25, 2021            2020  PG-13     90 min
1      September 24, 2021            2021  TV-MA  2 Seasons
2      September 24, 2021            2021  TV-MA   1 Season
3      September 24, 2021            2021  TV-MA   1 Season
4      September 24, 2021            2021  TV-MA  2 Seasons
…                       …              …      …          …
8802    November 20, 2019            2007      R    158 min
8803         July 1, 2019            2018  TV-Y7  2 Seasons
8804     November 1, 2019            2009      R     88 min
8805     January 11, 2020            2006     PG     88 min
8806        March 2, 2019            2015  TV-14    111 min

                                               listed_in  \
0                                         Documentaries
1        International TV Shows, TV Dramas, TV Mysteries
2      Crime TV Shows, International TV Shows, TV Act…
3                               Docuseries, Reality TV
4      International TV Shows, Romantic TV Shows, TV …
…                                                     …
8802                        Cult Movies, Dramas, Thrillers
8803               Kids' TV, Korean TV Shows, TV Comedies
8804                              Comedies, Horror Movies
8805                     Children & Family Movies, Comedies
8806       Dramas, International Movies, Music & Musicals
```

```
                                              description
0         As her father nears the end of his life, filmm…
1         After crossing paths at a party, a Cape Town t…
2         To protect his family from a powerful drug lor…
3         Feuds, flirtations and toilet talk go down amo…
4         In a city of coaching centers known to train I…
…                                                       …
8802      A political cartoonist, a crime reporter and a…
8803      While living alone in a spooky town, a young g…
8804      Looking to survive in a world taken over by zo…
8805      Dragged from civilian life, a former superhero…
8806      A scrappy but poor boy worms his way into a ty…

[8807 rows x 12 columns]
```

```python
# Unnesting the list column 'cast'by splitting at ',':

df1['cast'] = df1['cast'].str.split(',')
```

```python
# Converting the str to row form of cast:

cast =  df1['cast'].explode()
```

```python
# Converting the list column 'Country' by splitting at ',':


df1['country'] = df1['country'].str.split(',')
```

```python
# Converting the str to row form of country:


Country = df1['country'].explode()
```

```python
# Converting the list column 'listed_in' by splitting at ',':


df1['listed_in']  = df1['listed_in'].str.split(',')
```

```python
# Converting the str to row  form of 'liste_in' renaming as 'Genre':


genre = df1['listed_in'].explode(',')
```

```python
# Merging the 'cast' column rename as 'Actors' to dataframe df1:


df1 = df1.merge(cast.rename('Actors'),left_index = True,right_index =True)
```

```python
# Merging the 'country' column as 'Country' to dataframe df1:

df1 = df1.merge(Country.rename('Country'),left_index = True,right_index =True)
```

```python
# Merging the 'Genre' column to dataframe df1

df1 = df1.merge(genre.rename('Genre'),left_index = True,right_index =True)
```

```python
# Dropping the unwanted columns from the dataframe df1:

df1.drop(['cast','listed_in','country'],axis = 1,inplace = True)
```

```python
# We have the required dataframe for analysis:

df1.head(20)
```

```
  show_id     type                 title           director         date_added  \
0      s1    Movie  Dick Johnson Is Dead  Kirsten Johnson  September 25, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021
1      s2  TV Show         Blood & Water              NaN  September 24, 2021

   release_year rating  duration  \
0          2020  PG-13    90 min
1          2021  TV-MA  2 Seasons
1          2021  TV-MA  2 Seasons
1          2021  TV-MA  2 Seasons
1          2021  TV-MA  2 Seasons
```

10

```
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons
1        2021  TV-MA  2 Seasons

                                    description                 Actors  \
0  As her father nears the end of his life, filmm…                    NaN
1  After crossing paths at a party, a Cape Town t…            Ama Qamata
1  After crossing paths at a party, a Cape Town t…           Khosi Ngema
1  After crossing paths at a party, a Cape Town t…          Gail Mabalane
1  After crossing paths at a party, a Cape Town t…        Thabang Molaba
1  After crossing paths at a party, a Cape Town t…       Dillon Windvogel
1  After crossing paths at a party, a Cape Town t…       Natasha Thahane
1  After crossing paths at a party, a Cape Town t…            Arno Greeff
1  After crossing paths at a party, a Cape Town t…      Xolile Tshabalala
1  After crossing paths at a party, a Cape Town t…        Getmore Sithole
1  After crossing paths at a party, a Cape Town t…         Cindy Mahlangu
1  After crossing paths at a party, a Cape Town t…          Ryle De Morny
1  After crossing paths at a party, a Cape Town t…        Greteli Fincham
1  After crossing paths at a party, a Cape Town t…  Sello Maake Ka-Ncube
1  After crossing paths at a party, a Cape Town t…            Odwa Gwanya
1  After crossing paths at a party, a Cape Town t…        Mekaila Mathys
1  After crossing paths at a party, a Cape Town t…          Sandi Schultz
1  After crossing paths at a party, a Cape Town t…        Duane Williams
1  After crossing paths at a party, a Cape Town t…        Shamilla Miller
1  After crossing paths at a party, a Cape Town t…       Patrick Mofokeng

         Country                  Genre
0  United States          Documentaries
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
```

```
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
```

[ ]:

[ ]: ```python
Dropping the duplicates to avoid miscellaneous:

df1.drop_duplicates()
```

[ ]:
```
      show_id   type   title   director \
0   s1   Movie Dick Johnson Is Dead Kirsten Johnson
1   s2 TV Show   Blood & Water   NaN
1   s2 TV Show   Blood & Water   NaN
1   s2 TV Show   Blood & Water   NaN
1   s2 TV Show   Blood & Water   NaN
…   …   …   …   …
8806   s8807   Movie   Zubaan   Mozez Singh
8806   s8807   Movie   Zubaan   Mozez Singh
8806   s8807   Movie   Zubaan   Mozez Singh
8806   s8807   Movie   Zubaan   Mozez Singh
8806   s8807   Movie   Zubaan   Mozez Singh

              date_added release_year rating   duration \
0   September 25, 2021   2020 PG-13   90 min
1   September 24, 2021   2021 TV-MA 2 Seasons
1   September 24, 2021   2021 TV-MA 2 Seasons
1   September 24, 2021   2021 TV-MA 2 Seasons
1   September 24, 2021   2021 TV-MA 2 Seasons
…   …   …   …   …
8806   March 2, 2019   2015 TV-14   111 min
8806   March 2, 2019   2015 TV-14   111 min
8806   March 2, 2019   2015 TV-14   111 min
8806   March 2, 2019   2015 TV-14   111 min
8806   March 2, 2019   2015 TV-14   111 min

                                      description \
0   As her father nears the end of his life, filmm…
```

```
1       After crossing paths at a party, a Cape Town t…
1       After crossing paths at a party, a Cape Town t…
1       After crossing paths at a party, a Cape Town t…
1       After crossing paths at a party, a Cape Town t…
…                                                   …
8806    A scrappy but poor boy worms his way into a ty…
8806    A scrappy but poor boy worms his way into a ty…
8806    A scrappy but poor boy worms his way into a ty…
8806    A scrappy but poor boy worms his way into a ty…
8806    A scrappy but poor boy worms his way into a ty…

                        Actors         Country                      Genre
0                          NaN   United States             Documentaries
1                  Ama Qamata    South Africa   International TV Shows
1                  Khosi Ngema    South Africa   International TV Shows
1                 Gail Mabalane    South Africa   International TV Shows
1               Thabang Molaba    South Africa   International TV Shows
…                           …               …                         …
8806          Manish Chaudhary           India   International TV Shows
8806            Meghna Malik           India   International TV Shows
8806            Malkeet Rauni           India   International TV Shows
8806            Anita Shabdish           India   International TV Shows
8806     Chittaranjan Tripathy           India   International TV Shows

[81737 rows x 12 columns]
```

[ ]: df1.head()

[ ]:   show_id   type   title   director   date_added \
    0   s1   Movie   Dick Johnson Is Dead   Kirsten Johnson   September 25, 2021
    1   s2 TV Show   Blood & Water   NaN   September 24, 2021
    1   s2 TV Show   Blood & Water   NaN   September 24, 2021
    1   s2 TV Show   Blood & Water   NaN   September 24, 2021
    1   s2 TV Show   Blood & Water   NaN   September 24, 2021

       release_year rating   duration \
    0   2020 PG-13   90 min
    1   2021 TV-MA   2 Seasons
    1   2021 TV-MA   2 Seasons
    1   2021 TV-MA   2 Seasons
    1   2021 TV-MA   2 Seasons

                                      description   Actors \
    0 As her father nears the end of his life, filmm…   NaN
    1 After crossing paths at a party, a Cape Town t…   Ama Qamata
    1 After crossing paths at a party, a Cape Town t…   Khosi Ngema
    1 After crossing paths at a party, a Cape Town t…   Gail Mabalane

```
1  After crossing paths at a party, a Cape Town t…    Thabang Molaba
```

```
        Country                Genre
0   United States         Documentaries
1    South Africa  International TV Shows
1    South Africa  International TV Shows
1    South Africa  International TV Shows
1    South Africa  International TV Shows
```

```python
# Checking for the NAN values from df:

df1.isna().sum()
```

```
show_id           0
type              0
title             0
director      21937
date_added       69
release_year      0
rating           38
duration          3
description       0
Actors         1006
Country        5053
Genre             0
dtype: int64
```

```python
# Filling the NaN values in 'director' column as 'unknown_director':

df1['director'] = df1['director'].fillna('unknown_director')
```

```python
# Filling the NaN values in 'date_aded' column to mode() of the date:

df1['date_added'] = df1['date_added'].fillna(df1['date_added'].mode()[0])
```

```python
# Filling the NaN values in 'rating' column to mode() of the rating:

df1['rating'] = df1['rating'].fillna(df1['rating'].mode()[0])
```

```python
# Filling the NaN values in 'duration' column as 'unknown_duration':

df1['duration'] = df1['duration'].fillna('unknown_duration')
```

```python
# Filling the NaN values in 'Actors' column as 'unknown_dactors':

df1['Actors'] = df1['Actors'].fillna('unknown_actors')
```

```python
# Filling the NaN values in 'Country' column as 'unknown_country':

df1['Country'] = df1['Country'].fillna('unknown_country')
```

```python
# We got the required dataframe df1:

df1.head()
```

```
  show_id     type                 title           director  \
0      s1    Movie  Dick Johnson Is Dead    Kirsten Johnson
1      s2  TV Show         Blood & Water  unknown_director
1      s2  TV Show         Blood & Water  unknown_director
1      s2  TV Show         Blood & Water  unknown_director
1      s2  TV Show         Blood & Water  unknown_director

          date_added  release_year rating   duration  \
0  September 25, 2021          2020  PG-13     90 min
1  September 24, 2021          2021  TV-MA  2 Seasons
1  September 24, 2021          2021  TV-MA  2 Seasons
1  September 24, 2021          2021  TV-MA  2 Seasons
1  September 24, 2021          2021  TV-MA  2 Seasons

                                         description           Actors  \
0  As her father nears the end of his life, filmm…   unknown_actors
1  After crossing paths at a party, a Cape Town t…      Ama Qamata
1  After crossing paths at a party, a Cape Town t…     Khosi Ngema
1  After crossing paths at a party, a Cape Town t…   Gail Mabalane
1  After crossing paths at a party, a Cape Town t…  Thabang Molaba

        Country                  Genre
0  United States          Documentaries
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
1   South Africa  International TV Shows
```

2   2.Comparison of tv shows v/s movies

```python
# filtering the data of movies from the dataframe:

dm1 = df1[df1['type']=='Movie']
```

```python
dm1
```

```
  show_id   type                  title  \
0      s1  Movie  Dick Johnson Is Dead
```

```
6         s7  Movie   My Little Pony: A New Generation
6         s7  Movie   My Little Pony: A New Generation
6         s7  Movie   My Little Pony: A New Generation
6         s7  Movie   My Little Pony: A New Generation
…        …    …                                     …
8806   s8807  Movie                             Zubaan
8806   s8807  Movie                             Zubaan
8806   s8807  Movie                             Zubaan
8806   s8807  Movie                             Zubaan
8806   s8807  Movie                             Zubaan

                            director         date_added  release_year rating  \
0                     Kirsten Johnson  September 25, 2021          2020  PG-13
6       Robert Cullen, José Luis Ucha  September 24, 2021          2021     PG
6       Robert Cullen, José Luis Ucha  September 24, 2021          2021     PG
6       Robert Cullen, José Luis Ucha  September 24, 2021          2021     PG
6       Robert Cullen, José Luis Ucha  September 24, 2021          2021     PG
…                                  …                  …             …      …
8806                    Mozez Singh       March 2, 2019          2015  TV-14
8806                    Mozez Singh       March 2, 2019          2015  TV-14
8806                    Mozez Singh       March 2, 2019          2015  TV-14
8806                    Mozez Singh       March 2, 2019          2015  TV-14
8806                    Mozez Singh       March 2, 2019          2015  TV-14

      duration                                        description  \
0       90 min  As her father nears the end of his life, filmm…
6       91 min  Equestria's divided. But a bright-eyed hero be…
6       91 min  Equestria's divided. But a bright-eyed hero be…
6       91 min  Equestria's divided. But a bright-eyed hero be…
6       91 min  Equestria's divided. But a bright-eyed hero be…
…          …                                                    …
8806   111 min  A scrappy but poor boy worms his way into a ty…
8806   111 min  A scrappy but poor boy worms his way into a ty…
8806   111 min  A scrappy but poor boy worms his way into a ty…
8806   111 min  A scrappy but poor boy worms his way into a ty…
8806   111 min  A scrappy but poor boy worms his way into a ty…

                    Actors          Country                    Genre
0           unknown_actors    United States             Documentaries
6          Vanessa Hudgens  unknown_country     TV Action & Adventure
6            Kimiko Glenn  unknown_country     TV Action & Adventure
6            James Marsden  unknown_country     TV Action & Adventure
6            Sofia Carson  unknown_country     TV Action & Adventure
…                       …                …                         …
8806      Manish Chaudhary            India    International TV Shows
8806          Meghna Malik            India    International TV Shows
8806          Malkeet Rauni            India    International TV Shows
```

```
8806          Anita Shabdish          India   International TV Shows
8806   Chittaranjan Tripathy          India   International TV Shows

[58564 rows x 12 columns]
```

```
[ ]: # Filtering the data for TV Shows from the dataframe:

     dtv1 = df1[df1['type']=='TV Show']
```

```
[ ]: # Dropping the duplicates for TV Shows df:

     dtv1.drop_duplicates()
```

```
[ ]:      show_id     type                 title           director  \
     1          s2  TV Show        Blood & Water  unknown_director
     1          s2  TV Show        Blood & Water  unknown_director
     1          s2  TV Show        Blood & Water  unknown_director
     1          s2  TV Show        Blood & Water  unknown_director
     1          s2  TV Show        Blood & Water  unknown_director
     …         …        …                    …                  …
     8800    s8801  TV Show   Zindagi Gulzar Hai  unknown_director
     8800    s8801  TV Show   Zindagi Gulzar Hai  unknown_director
     8800    s8801  TV Show   Zindagi Gulzar Hai  unknown_director
     8800    s8801  TV Show   Zindagi Gulzar Hai  unknown_director
     8803    s8804  TV Show           Zombie Dumb  unknown_director

                   date_added   release_year rating   duration  \
     1      September 24, 2021          2021   TV-MA  2 Seasons
     1      September 24, 2021          2021   TV-MA  2 Seasons
     1      September 24, 2021          2021   TV-MA  2 Seasons
     1      September 24, 2021          2021   TV-MA  2 Seasons
     1      September 24, 2021          2021   TV-MA  2 Seasons
     …                   …             …       …          …
     8800    December 15, 2016          2012   TV-PG   1 Season
     8800    December 15, 2016          2012   TV-PG   1 Season
     8800    December 15, 2016          2012   TV-PG   1 Season
     8800    December 15, 2016          2012   TV-PG   1 Season
     8803          July 1, 2019          2018   TV-Y7  2 Seasons

                                          description           Actors  \
     1       After crossing paths at a party, a Cape Town t…      Ama Qamata
     1       After crossing paths at a party, a Cape Town t…     Khosi Ngema
     1       After crossing paths at a party, a Cape Town t…    Gail Mabalane
     1       After crossing paths at a party, a Cape Town t…   Thabang Molaba
     1       After crossing paths at a party, a Cape Town t…  Dillon Windvogel
     …                                              …                    …
     8800  Strong-willed, middle-class Kashaf and carefre…   Samina Peerzada
```

```
8800   Strong-willed, middle-class Kashaf and carefre…        Waseem Abbas
8800   Strong-willed, middle-class Kashaf and carefre…        Javed Sheikh
8800   Strong-willed, middle-class Kashaf and carefre…  Hina Khawaja Bayat
8803   While living alone in a spooky town, a young g…     unknown_actors


             Country                  Genre
1         South Africa  International TV Shows
1         South Africa  International TV Shows
1         South Africa  International TV Shows
1         South Africa  International TV Shows
1         South Africa  International TV Shows
...                ...                    ...
8800           Pakistan             Docuseries
8800           Pakistan             Docuseries
8800           Pakistan             Docuseries
8800           Pakistan             Docuseries
8803   unknown_country               Comedies

[23177 rows x 12 columns]
```

```python
# Dropping duplicate sfor the Movies dataframe:

dm1.drop_duplicates()
```

```
     show_id  type                            title  \
0         s1  Movie               Dick Johnson Is Dead
6         s7  Movie  My Little Pony: A New Generation
6         s7  Movie  My Little Pony: A New Generation
6         s7  Movie  My Little Pony: A New Generation
6         s7  Movie  My Little Pony: A New Generation
...      ...    ...                              ...
8806   s8807  Movie                            Zubaan
8806   s8807  Movie                            Zubaan
8806   s8807  Movie                            Zubaan
8806   s8807  Movie                            Zubaan
8806   s8807  Movie                            Zubaan


                          director          date_added  release_year rating  \
0                 Kirsten Johnson  September 25, 2021          2020  PG-13
6     Robert Cullen, José Luis Ucha  September 24, 2021          2021     PG
6     Robert Cullen, José Luis Ucha  September 24, 2021          2021     PG
6     Robert Cullen, José Luis Ucha  September 24, 2021          2021     PG
6     Robert Cullen, José Luis Ucha  September 24, 2021          2021     PG
...                            ...                 ...           ...    ...
8806              Mozez Singh       March 2, 2019          2015  TV-14
8806              Mozez Singh       March 2, 2019          2015  TV-14
8806              Mozez Singh       March 2, 2019          2015  TV-14
```

```
8806                      Mozez Singh        March 2, 2019      2015  TV-14
8806                      Mozez Singh        March 2, 2019      2015  TV-14

      duration                                      description  \
0      90 min   As her father nears the end of his life, filmm…
6      91 min   Equestria's divided. But a bright-eyed hero be…
6      91 min   Equestria's divided. But a bright-eyed hero be…
6      91 min   Equestria's divided. But a bright-eyed hero be…
6      91 min   Equestria's divided. But a bright-eyed hero be…
…         …                                                   …
8806  111 min   A scrappy but poor boy worms his way into a ty…
8806  111 min   A scrappy but poor boy worms his way into a ty…
8806  111 min   A scrappy but poor boy worms his way into a ty…
8806  111 min   A scrappy but poor boy worms his way into a ty…
8806  111 min   A scrappy but poor boy worms his way into a ty…

                        Actors          Country                    Genre
0              unknown_actors    United States            Documentaries
6             Vanessa Hudgens  unknown_country   TV Action & Adventure
6               Kimiko Glenn  unknown_country   TV Action & Adventure
6              James Marsden  unknown_country   TV Action & Adventure
6               Sofia Carson  unknown_country   TV Action & Adventure
…                         …                …                        …
8806        Manish Chaudhary            India   International TV Shows
8806             Meghna Malik            India   International TV Shows
8806            Malkeet Rauni            India   International TV Shows
8806            Anita Shabdish            India   International TV Shows
8806       Chittaranjan Tripathy          India   International TV Shows

[58560 rows x 12 columns]
```

```python
# Counting the Movies from the dataframe

df_movie_count = df[df['type']=='Movie']
```

```python
df_movie_count.head()
```

```
   show_id   type                          title  \
0       s1  Movie              Dick Johnson Is Dead
6       s7  Movie  My Little Pony: A New Generation
7       s8  Movie                           Sankofa
9      s10  Movie                       The Starling
12     s13  Movie                       Je Suis Karl


                        director  \
0                 Kirsten Johnson
6    Robert Cullen, José Luis Ucha
```

```
7                           Haile Gerima
9                          Theodore Melfi
12                    Christian Schwochow

                                                 cast  \
0                                                  NaN
6    [Vanessa Hudgens,  Kimiko Glenn,  James Marsde…
7    [Kofi Ghanaba,  Oyafunmike Ogunlano,  Alexandr…
9    [Melissa McCarthy,  Chris O'Dowd,  Kevin Kline…
12   [Luna Wedler,  Jannis Niewöhner,  Milan Pesche…

                                  country          date_added  \
0                          [United States]  September 25, 2021
6                                      NaN  September 24, 2021
7    [United States,  Ghana,  Burkina Faso,  United…  September 24, 2021
9                          [United States]  September 24, 2021
12              [Germany,  Czech Republic]  September 23, 2021

    release_year rating duration  \
0           2020  PG-13   90 min
6           2021     PG   91 min
7           1993  TV-MA  125 min
9           2021  PG-13  104 min
12          2021  TV-MA  127 min

                                    listed_in  \
0                            [Documentaries]
6                    [Children & Family Movies]
7    [Dramas,  Independent Movies,  International M…
9                        [Comedies,  Dramas]
12              [Dramas,  International Movies]

                                  description
0    As her father nears the end of his life, filmm…
6    Equestria's divided. But a bright-eyed hero be…
7    On a photo shoot in Ghana, an American model s…
9    A woman adjusting to life after a loss contend…
12   After most of her family is murdered in a terr…
```

```python
# Countig the TV Shows from the dataframe:

df_tv_count = df[df['type']=='TV Show']
```

```python
df_tv_count.head()
```

```
  show_id     type                 title            director  \
1      s2  TV Show        Blood & Water                 NaN
```

```
2    s3  TV Show              Ganglands  Julien Leclercq
3    s4  TV Show  Jailbirds New Orleans              NaN
4    s5  TV Show            Kota Factory              NaN
5    s6  TV Show            Midnight Mass    Mike Flanagan

                                 cast          country  \
1  [Ama Qamata,  Khosi Ngema,  Gail Mabalane,  Th…  [South Africa]
2  [Sami Bouajila,  Tracy Gotoas,  Samuel Jouy,  …             NaN
3                                              NaN             NaN
4  [Mayur More,  Jitendra Kumar,  Ranjan Raj,  Al…         [India]
5  [Kate Siegel,  Zach Gilford,  Hamish Linklater…             NaN

          date_added  release_year rating   duration  \
1  September 24, 2021          2021  TV-MA  2 Seasons
2  September 24, 2021          2021  TV-MA   1 Season
3  September 24, 2021          2021  TV-MA   1 Season
4  September 24, 2021          2021  TV-MA  2 Seasons
5  September 24, 2021          2021  TV-MA   1 Season

                               listed_in  \
1  [International TV Shows,  TV Dramas,  TV Myste…
2  [Crime TV Shows,  International TV Shows,  TV …
3                     [Docuseries,  Reality TV]
4  [International TV Shows,  Romantic TV Shows,  …
5            [TV Dramas,  TV Horror,  TV Mysteries]

                               description
1  After crossing paths at a party, a Cape Town t…
2  To protect his family from a powerful drug lor…
3  Feuds, flirtations and toilet talk go down amo…
4  In a city of coaching centers known to train I…
5  The arrival of a charismatic young priest brin…
```

```python
# Counting the movies grouped by year:

movie_count = df_movie_count.groupby('release_year')[['release_year','title']].
 ↪agg(title_count = ('title','count')
                                                                              ␣
  ↪    )
```

```python
# Resetting the index for the movies_count:

movie_count.reset_index()
```

```
   release_year  title_count
0          1942            2
1          1943            3
```

```
2           1944              3
3           1945              3
4           1946              1
..           ...             ...
68          2017            767
69          2018            767
70          2019            633
71          2020            517
72          2021            277

[73 rows x 2 columns]
```

[ ]: # Grpuping by release_year and counting th TV Shows:

```python
tv_count = df_tv_count.groupby('release_year')[['title','release_year']].
 ↪agg(title_count = ('title','count'))
```

[ ]: # Resetting the index for Tv_count :

```python
tv_count.reset_index()
```

[ ]:   release_year title_count
    0   1925   1
    1   1945   1
    2   1946   1
    3   1963   1
    4   1967   1
    5   1972   1
    6   1974   1
    7   1977   1
    8   1979   1
    9   1981   1
    10   1985   1
    11   1986   2
    12   1988   2
    13   1989   1
    14   1990   3
    15   1991   1
    16   1992   3
    17   1993   4
    18   1994   2
    19   1995   2
    20   1996   3
    21   1997   4
    22   1998   4
    23   1999   7
    24   2000   4
```

```
25         2001         5
26         2002         7
27         2003        10
28         2004         9
29         2005        13
30         2006        14
31         2007        14
32         2008        23
33         2009        34
34         2010        40
35         2011        40
36         2012        64
37         2013        63
38         2014        88
39         2015       162
40         2016       244
41         2017       265
42         2018       380
43         2019       397
44         2020       436
45         2021       315
```

–TV SHOWS VS MOVIES RELEASE YEAR COMPARISON BY GRAPHICAL REPRESENTATION

```python
[ ]: sns.lineplot(
         x ='release_year',
         y = 'title_count',
         data = movie_count,
         label = 'movies'
         )

     sns.lineplot(
         x = 'release_year',
         y = 'title_count',
         data = tv_count,
         label = 'tv_show'
     )
     plt.title('YEAR WISE MOVIES AND TV SHOW COUNT',fontsize = 15)
     plt.show()
```

YEAR WISE MOVIES AND TV SHOW COUNT
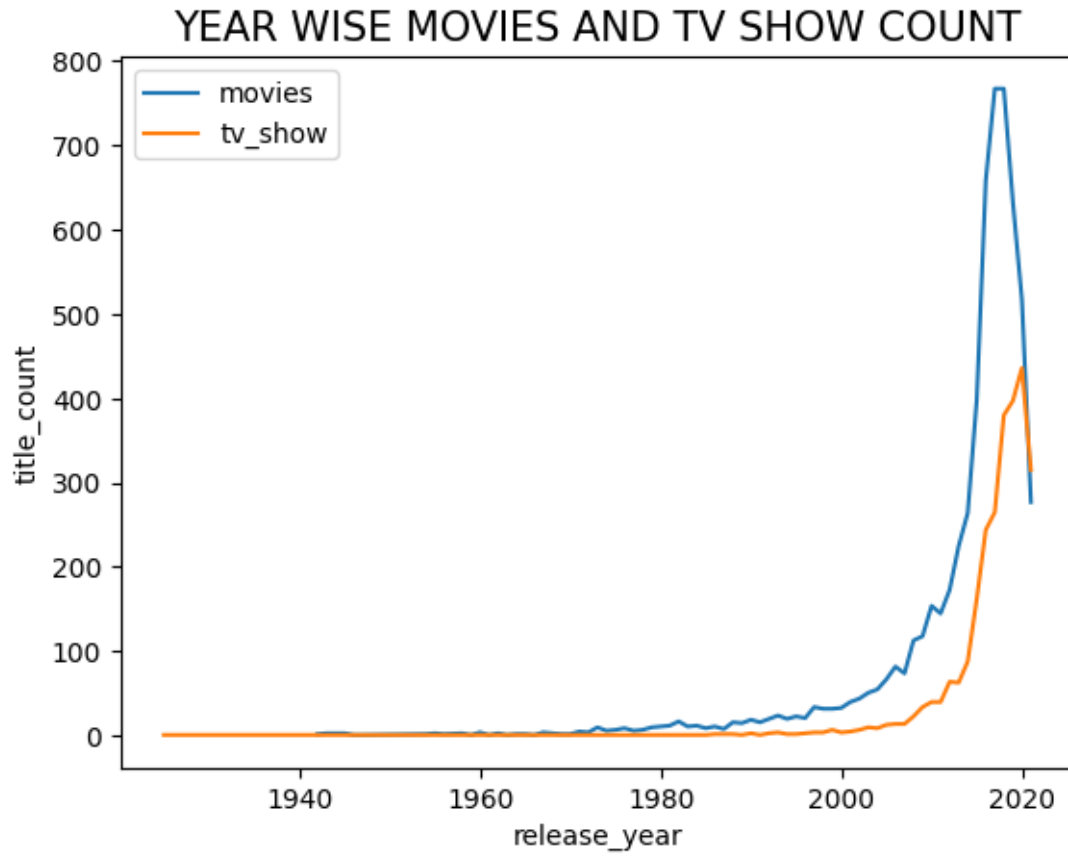
– We can see from the graphical representation that the movies are far ahead in terms of releases per year tha TV Shows.

COMPARISON BETWEEN TV SHOW AND MOVIES COUNTRY WISE IN NETFLIX PLAT-FROM

```
[ ]: dm1['Country'].value_counts().index[:20]
```

```
[ ]: Index(['United States', 'India', ' United States', 'unknown_country',
           'United Kingdom', 'Canada', ' France', ' United Kingdom', ' Canada',
           'France', 'Spain', ' Germany', 'Japan', 'Nigeria', 'Egypt', 'Indonesia',
           'Turkey', 'Philippines', ' Belgium', 'Hong Kong'],
          dtype='object')
```

```
[ ]: dtv1['Country'].value_counts().index[:20]
```

```
[ ]: Index(['United States', 'unknown_country', 'Japan', 'United Kingdom',
           'South Korea', ' United States', 'Canada', 'Mexico', 'Spain', 'Taiwan',
           'France', 'India', 'Australia', ' Canada', 'China', ' Japan', 'Turkey',
           'Colombia', 'Thailand', 'Brazil'],
          dtype='object')
```

```
# Top 20 movies per country:

top20_movie_country = dm1['Country'].value_counts()

top20_tv_country = dtv1['Country'].value_counts()
```

```
top20_movie_country = top20_movie_country[:20]
```

```
# top 20 TV Shows per Country:

top20_tv_country = top20_tv_country[:20]
```

```
top20_mv_ind = top20_movie_country.index[:20]
```

```
top20_tv_ind = top20_tv_country.index[:20]
```

```
top20_movie_country
```

```
United States      17536
India               7087
 United States      3206
unknown_country     2713
United Kingdom      2537
Canada              1349
 France             1338
 United Kingdom     1281
 Canada             1161
France              1097
Spain                985
 Germany             850
Japan                841
Nigeria              770
Egypt                722
Indonesia            680
Turkey               680
Philippines          663
 Belgium             593
Hong Kong            579
Name: Country, dtype: int64
```

```
top20_tv_country
```

```
United States      5905
unknown_country    2340
Japan              2031
United Kingdom     1448
South Korea        1246
```

```
  United States        823
Canada                 670
Mexico                 581
Spain                  543
Taiwan                 508
France                 461
India                  421
Australia              377
 Canada                370
China                  309
  Japan                302
Turkey                 291
Colombia               277
Thailand               272
Brazil                 250
Name: Country, dtype: int64
```

TOP 20 COUNTRIES COMPARISON BETWEEN TV SHOW AND MOVIES COUNTS.

```python
plt.figure(figsize=(20,10))
plt.subplot(1,2,1)
plt.bar(top20_mv_ind,top20_movie_country,color ='orange')
plt.xticks(rotation = 45,fontsize = 9)
plt.title(' TOP 10 COUNTRIES -- MOVIES',fontsize = 15)
plt.xlabel('Country',fontsize = 9)
plt.ylabel('movies count',fontsize = 9)

plt.subplot(1,2,2)
plt.bar(top20_tv_ind,top20_tv_country,width = 0.8,color = 'green')
plt.xticks(rotation = 45,fontsize = 9)
plt.title(' TOP 10 COUNTRIES -- TV SHOWS',fontsize = 15)
plt.xlabel('Country',fontsize = 9)
plt.ylabel('TV show count',fontsize = 9)
plt.show()
```
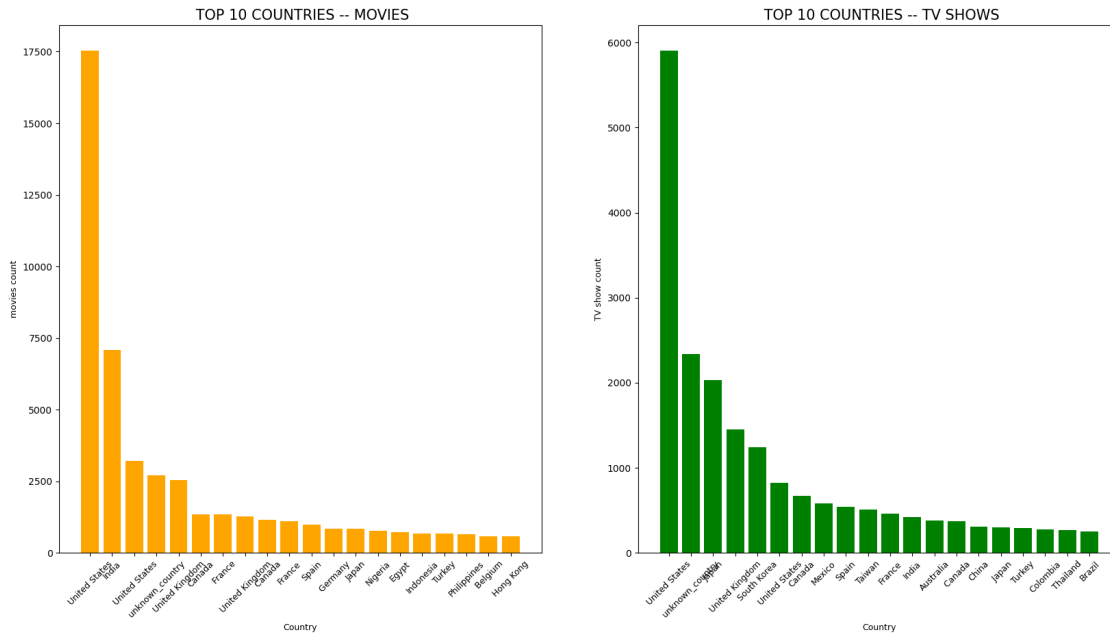
TOP 10 COUNTRIES -- MOVIES   TOP 10 COUNTRIES -- TV SHOWS

```
[ ]: df1
```

```
[ ]:        show_id     type                  title           director   \
       0          s1    Movie   Dick Johnson Is Dead     Kirsten Johnson
       1          s2  TV Show          Blood & Water   unknown_director
       1          s2  TV Show          Blood & Water   unknown_director
       1          s2  TV Show          Blood & Water   unknown_director
       1          s2  TV Show          Blood & Water   unknown_director
       ...       ...      ...                    ...                ...
       8806    s8807    Movie                 Zubaan        Mozez Singh
       8806    s8807    Movie                 Zubaan        Mozez Singh
       8806    s8807    Movie                 Zubaan        Mozez Singh
       8806    s8807    Movie                 Zubaan        Mozez Singh
       8806    s8807    Movie                 Zubaan        Mozez Singh

                     date_added  release_year rating   duration   \
       0     September 25, 2021          2020  PG-13     90 min
       1     September 24, 2021          2021  TV-MA   2 Seasons
       1     September 24, 2021          2021  TV-MA   2 Seasons
       1     September 24, 2021          2021  TV-MA   2 Seasons
       1     September 24, 2021          2021  TV-MA   2 Seasons
       ...                  ...           ...    ...         ...
       8806        March 2, 2019          2015  TV-14     111 min
       8806        March 2, 2019          2015  TV-14     111 min
       8806        March 2, 2019          2015  TV-14     111 min
       8806        March 2, 2019          2015  TV-14     111 min
```

27

```
8806          March 2, 2019          2015  TV-14     111 min

                                          description  \
0       As her father nears the end of his life, filmm…
1       After crossing paths at a party, a Cape Town t…
1       After crossing paths at a party, a Cape Town t…
1       After crossing paths at a party, a Cape Town t…
1       After crossing paths at a party, a Cape Town t…
…                                                    …
8806    A scrappy but poor boy worms his way into a ty…
8806    A scrappy but poor boy worms his way into a ty…
8806    A scrappy but poor boy worms his way into a ty…
8806    A scrappy but poor boy worms his way into a ty…
8806    A scrappy but poor boy worms his way into a ty…

                     Actors        Country                      Genre
0          unknown_actors  United States             Documentaries
1             Ama Qamata   South Africa   International TV Shows
1            Khosi Ngema   South Africa   International TV Shows
1          Gail Mabalane   South Africa   International TV Shows
1         Thabang Molaba   South Africa   International TV Shows
…                      …             …                          …
8806     Manish Chaudhary          India   International TV Shows
8806          Meghna Malik          India   International TV Shows
8806         Malkeet Rauni          India   International TV Shows
8806        Anita Shabdish          India   International TV Shows
8806   Chittaranjan Tripathy          India   International TV Shows

[81741 rows x 12 columns]
```

```python
top10genre = df1['Genre'].value_counts().index[:10]
```

```python
top10genre
```

```
Index([' International Movies', 'Dramas', 'Comedies', ' TV Dramas',
       'International TV Shows', 'Action & Adventure', ' Dramas',
       ' International TV Shows', ' Romantic Movies',
       'Children & Family Movies'],
      dtype='object')
```

```python
top10director = df1['director'].value_counts().index[1:11]
```

```python
top10data = df1.loc[(df1['Genre'].isin(top10genre)) &
                    (df1['director'].isin(top10director))]
```

```python
top10data
```

```
[ ]:       show_id   type                              title          director  \
      406     s407  Movie       Chhota Bheem - Neeli Pahaadi      Rajiv Chilaka
      406     s407  Movie       Chhota Bheem - Neeli Pahaadi      Rajiv Chilaka
      406     s407  Movie       Chhota Bheem - Neeli Pahaadi      Rajiv Chilaka
      406     s407  Movie       Chhota Bheem - Neeli Pahaadi      Rajiv Chilaka
      406     s407  Movie       Chhota Bheem - Neeli Pahaadi      Rajiv Chilaka
      …       …      …                                …                 …
     8735    s8736  Movie  Who's That Knocking at My Door?  Martin Scorsese
     8735    s8736  Movie  Who's That Knocking at My Door?  Martin Scorsese
     8735    s8736  Movie  Who's That Knocking at My Door?  Martin Scorsese
     8735    s8736  Movie  Who's That Knocking at My Door?  Martin Scorsese
     8735    s8736  Movie  Who's That Knocking at My Door?  Martin Scorsese

               date_added  release_year rating duration  \
      406   July 22, 2021          2013  TV-Y7   64 min
      406   July 22, 2021          2013  TV-Y7   64 min
      406   July 22, 2021          2013  TV-Y7   64 min
      406   July 22, 2021          2013  TV-Y7   64 min
      406   July 22, 2021          2013  TV-Y7   64 min
      …            …             …      …      …
     8735   July 1, 2019          1967      R   90 min
     8735   July 1, 2019          1967      R   90 min
     8735   July 1, 2019          1967      R   90 min
     8735   July 1, 2019          1967      R   90 min
     8735   July 1, 2019          1967      R   90 min

                                          description              Actors  \
      406   Things get spooky when Bheem and his buddies t…        Vatsal Dubey
      406   Things get spooky when Bheem and his buddies t…        Julie Tejwani
      406   Things get spooky when Bheem and his buddies t…        Rupa Bhimani
      406   Things get spooky when Bheem and his buddies t…      Jigna Bhardwaj
      406   Things get spooky when Bheem and his buddies t…        Rajesh Kava
      …                             …                                …
     8735   A woman's revelation that she was once raped s…       Michael Scala
     8735   A woman's revelation that she was once raped s…       Harry Northup
     8735   A woman's revelation that she was once raped s…        Susan Wood
     8735   A woman's revelation that she was once raped s…      Marissa Mathes
     8735   A woman's revelation that she was once raped s…   Catherine Scorsese

                Country                      Genre
      406   unknown_country  International TV Shows
      406   unknown_country  International TV Shows
      406   unknown_country  International TV Shows
      406   unknown_country  International TV Shows
      406   unknown_country  International TV Shows
      …             …                     …
     8735    United States                Comedies
```

```
8735    United States              Comedies
8735    United States              Comedies
8735    United States              Comedies
8735    United States              Comedies


[713 rows x 12 columns]
```
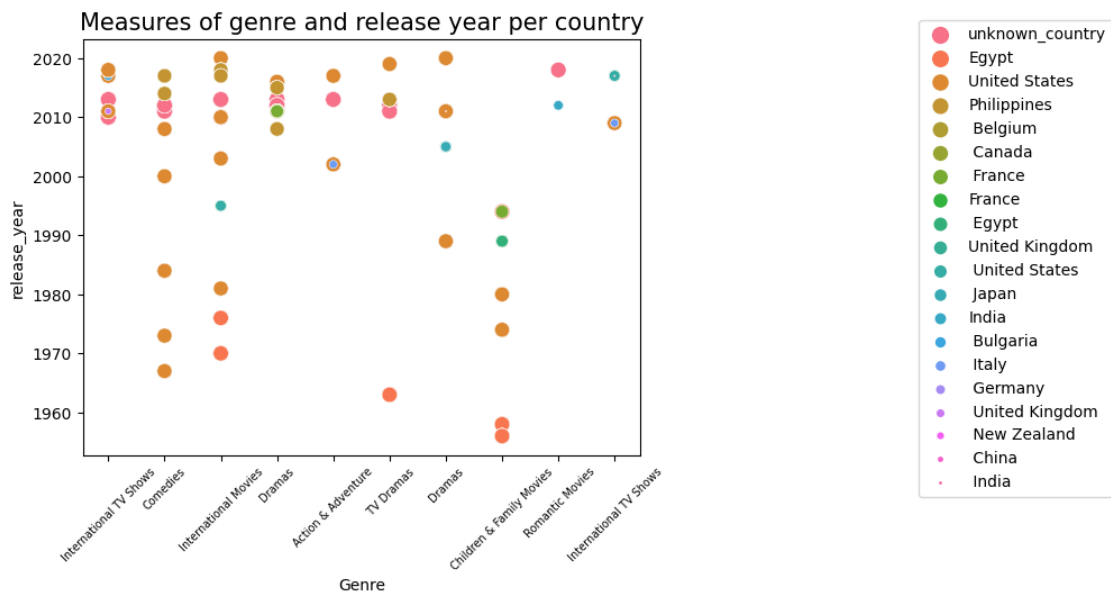
–YEAR WISE TOP 10 COUNTRIES THAT PRODUCED DIFFRENT GENRE OF MOVIES AND TV SHOWS

```python
sns.scatterplot(
    x = 'Genre',
    y = 'release_year',
    hue = "Country",
    sizes = (1,100),
    size = 'Country',
    data = top10data
)

plt.title('Measures of genre and release year per country',fontsize = 15)
plt.legend(loc = (1.5,-0.1))
plt.xticks(rotation = 45,fontsize = 7)
plt.show()
```

3 3. What is the best time to launch TV Show

```
[ ]: df1.head()
```

```
[ ]:    show_id    type                title            director  \
     0       s1    Movie  Dick Johnson Is Dead   Kirsten Johnson
     1       s2  TV Show        Blood & Water  unknown_director
     1       s2  TV Show        Blood & Water  unknown_director
     1       s2  TV Show        Blood & Water  unknown_director
     1       s2  TV Show        Blood & Water  unknown_director

              date_added  release_year rating   duration  \
     0  September 25, 2021          2020  PG-13     90 min
     1  September 24, 2021          2021  TV-MA  2 Seasons
     1  September 24, 2021          2021  TV-MA  2 Seasons
     1  September 24, 2021          2021  TV-MA  2 Seasons
     1  September 24, 2021          2021  TV-MA  2 Seasons

                                          description           Actors  \
     0  As her father nears the end of his life, filmm…   unknown_actors
     1  After crossing paths at a party, a Cape Town t…       Ama Qamata
     1  After crossing paths at a party, a Cape Town t…      Khosi Ngema
     1  After crossing paths at a party, a Cape Town t…    Gail Mabalane
     1  After crossing paths at a party, a Cape Town t…   Thabang Molaba

              Country                   Genre
     0  United States           Documentaries
     1   South Africa  International TV Shows
     1   South Africa  International TV Shows
     1   South Africa  International TV Shows
     1   South Africa  International TV Shows
```

```
[ ]: df_date = df1
```

```
[ ]: df_date.head()
```

```
[ ]:    show_id    type                title            director  \
     0       s1    Movie  Dick Johnson Is Dead   Kirsten Johnson
     1       s2  TV Show        Blood & Water  unknown_director
     1       s2  TV Show        Blood & Water  unknown_director
     1       s2  TV Show        Blood & Water  unknown_director
     1       s2  TV Show        Blood & Water  unknown_director

              date_added  release_year rating   duration  \
     0  September 25, 2021          2020  PG-13     90 min
     1  September 24, 2021          2021  TV-MA  2 Seasons
     1  September 24, 2021          2021  TV-MA  2 Seasons
```

```
1   September 24, 2021         2021  TV-MA  2 Seasons
1   September 24, 2021         2021  TV-MA  2 Seasons


                                    description          Actors  \
0   As her father nears the end of his life, filmm…   unknown_actors
1   After crossing paths at a party, a Cape Town t…       Ama Qamata
1   After crossing paths at a party, a Cape Town t…      Khosi Ngema
1   After crossing paths at a party, a Cape Town t…    Gail Mabalane
1   After crossing paths at a party, a Cape Town t…   Thabang Molaba


          Country                    Genre
0   United States            Documentaries
1    South Africa  International TV Shows
1    South Africa  International TV Shows
1    South Africa  International TV Shows
1    South Africa  International TV Shows
```

[ ]: *# Converting the datatype of date_addedfrom object to datetime:*

```
df_date['date_added'] = pd.to_datetime(df_date['date_added'])
```

[ ]: `df_date.head(5)`

[ ]:
```
  show_id      type                 title            director date_added  \
0      s1     Movie  Dick Johnson Is Dead   Kirsten Johnson 2021-09-25
1      s2   TV Show         Blood & Water  unknown_director 2021-09-24
1      s2   TV Show         Blood & Water  unknown_director 2021-09-24
1      s2   TV Show         Blood & Water  unknown_director 2021-09-24
1      s2   TV Show         Blood & Water  unknown_director 2021-09-24


   release_year rating   duration  \
0          2020  PG-13     90 min
1          2021  TV-MA  2 Seasons
1          2021  TV-MA  2 Seasons
1          2021  TV-MA  2 Seasons
1          2021  TV-MA  2 Seasons


                                    description          Actors  \
0   As her father nears the end of his life, filmm…   unknown_actors
1   After crossing paths at a party, a Cape Town t…       Ama Qamata
1   After crossing paths at a party, a Cape Town t…      Khosi Ngema
1   After crossing paths at a party, a Cape Town t…    Gail Mabalane
1   After crossing paths at a party, a Cape Town t…   Thabang Molaba


          Country                    Genre
0   United States            Documentaries
1    South Africa  International TV Shows
```

```
    1    South Africa   International TV Shows
    1    South Africa   International TV Shows
    1    South Africa   International TV Shows
```

[ ]: `# Extracting the 'day' of week from the date_added column:`

`df_date['day'] = df_date['date_added'].dt.day_name()`

[ ]: `df_date.head(5)`

[ ]:
```
  show_id    type                title           director date_added  \
0      s1   Movie  Dick Johnson Is Dead   Kirsten Johnson 2021-09-25
1      s2  TV Show         Blood & Water  unknown_director 2021-09-24
1      s2  TV Show         Blood & Water  unknown_director 2021-09-24
1      s2  TV Show         Blood & Water  unknown_director 2021-09-24
1      s2  TV Show         Blood & Water  unknown_director 2021-09-24


    release_year rating    duration  \
0           2020  PG-13      90 min
1           2021  TV-MA   2 Seasons
1           2021  TV-MA   2 Seasons
1           2021  TV-MA   2 Seasons
1           2021  TV-MA   2 Seasons


                                      description          Actors  \
0  As her father nears the end of his life, filmm…   unknown_actors
1  After crossing paths at a party, a Cape Town t…      Ama Qamata
1  After crossing paths at a party, a Cape Town t…      Khosi Ngema
1  After crossing paths at a party, a Cape Town t…    Gail Mabalane
1  After crossing paths at a party, a Cape Town t…   Thabang Molaba


          Country                  Genre        day
0  United States          Documentaries   Saturday
1   South Africa  International TV Shows     Friday
1   South Africa  International TV Shows     Friday
1   South Africa  International TV Shows     Friday
1   South Africa  International TV Shows     Friday
```

[ ]: `# Extracting the 'month' from the date_added column:`

`df_date['month'] = df_date['date_added'].dt.month_name()`

[ ]: `df_date.head()`

[ ]:
```
  show_id    type                title           director date_added  \
0      s1   Movie  Dick Johnson Is Dead   Kirsten Johnson 2021-09-25
1      s2  TV Show         Blood & Water  unknown_director 2021-09-24
```

```
1       s2  TV Show         Blood & Water   unknown_director 2021-09-24
1       s2  TV Show         Blood & Water   unknown_director 2021-09-24
1       s2  TV Show         Blood & Water   unknown_director 2021-09-24


    release_year rating   duration  \
0           2020  PG-13     90 min
1           2021  TV-MA   2 Seasons
1           2021  TV-MA   2 Seasons
1           2021  TV-MA   2 Seasons
1           2021  TV-MA   2 Seasons


                                    description           Actors  \
0  As her father nears the end of his life, filmm…   unknown_actors
1  After crossing paths at a party, a Cape Town t…       Ama Qamata
1  After crossing paths at a party, a Cape Town t…      Khosi Ngema
1  After crossing paths at a party, a Cape Town t…    Gail Mabalane
1  After crossing paths at a party, a Cape Town t…   Thabang Molaba


          Country                      Genre       day      month
0  United States              Documentaries  Saturday  September
1   South Africa  International TV Shows       Friday  September
1   South Africa  International TV Shows       Friday  September
1   South Africa  International TV Shows       Friday  September
1   South Africa  International TV Shows       Friday  September
```

```python
# Filtering the required data of Tv show from the dataframe:

df_datetv = df_date[df_date['type']=='TV Show']
```

```python
df_datetv.head()
```

```
  show_id     type           title          director date_added  release_year  \
1      s2  TV Show  Blood & Water   unknown_director 2021-09-24          2021
1      s2  TV Show  Blood & Water   unknown_director 2021-09-24          2021
1      s2  TV Show  Blood & Water   unknown_director 2021-09-24          2021
1      s2  TV Show  Blood & Water   unknown_director 2021-09-24          2021
1      s2  TV Show  Blood & Water   unknown_director 2021-09-24          2021


   rating   duration                                    description  \
1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…


           Actors        Country                      Genre       day      month
1      Ama Qamata   South Africa  International TV Shows   Friday  September
```

```
1        Khosi Ngema    South Africa    International TV Shows    Friday    September
1       Gail Mabalane   South Africa    International TV Shows    Friday    September
1     Thabang Molaba    South Africa    International TV Shows    Friday    September
1   Dillon Windvogel    South Africa    International TV Shows    Friday    September
```

[ ]: ```python
Grouping the data by 'month' and counting the number of shows:

df_datetv_month = df_datetv.groupby('month')[['month','title']].agg(title_count␣
 ↪= ('title','count')).reset_index()
```

[ ]: ```python
# sorting values by number of shows highest:

df_datetv_month.sort_values(by = 'title_count',ascending = False)
```

[ ]: ```
        month title_count
4   January   2204
2   December   2185
5   July   2135
1   August   2072
11   September   2032
6   June   2009
9   November   1935
0   April   1828
7   March   1798
10   October   1731
8   May   1695
3   February   1553
```

[ ]: ```python
# grouping the data by day of week and counting the numbe of shows:

df_datetv_day = df_datetv.groupby('day')[['day','title']].agg(title_count =␣
 ↪('title','count')).reset_index()
```

[ ]: ```python
sorting values by number of shows highest:

df_datetv_day.sort_values(by = 'title_count',ascending = False)
```

[ ]: ```
        day  title_count
0     Friday         8709
4   Thursday         3272
5    Tuesday         2877
6  Wednesday         2752
2   Saturday         2347
1     Monday         1796
3     Sunday         1424
```

```
[ ]:  # plotting the two outputs of month and weekday :

      plt.figure(figsize = (30,8))

      plt.subplot(1,3,1)

      sns.barplot(
          x= 'day',
          y = 'title_count',
          data = df_datetv_day
      )
      plt.title('TV SHOW FOR DAYS',fontsize = 15)

      plt.subplot(1,3,2)
      sns.barplot(
          x = 'month',
          y = 'title_count',
          data = df_datetv_month
      )

      plt.xticks(rotation = 24,fontsize = 10)

      plt.title('TV SHOW FOR MONTH',fontsize =15)
      plt.show()
```
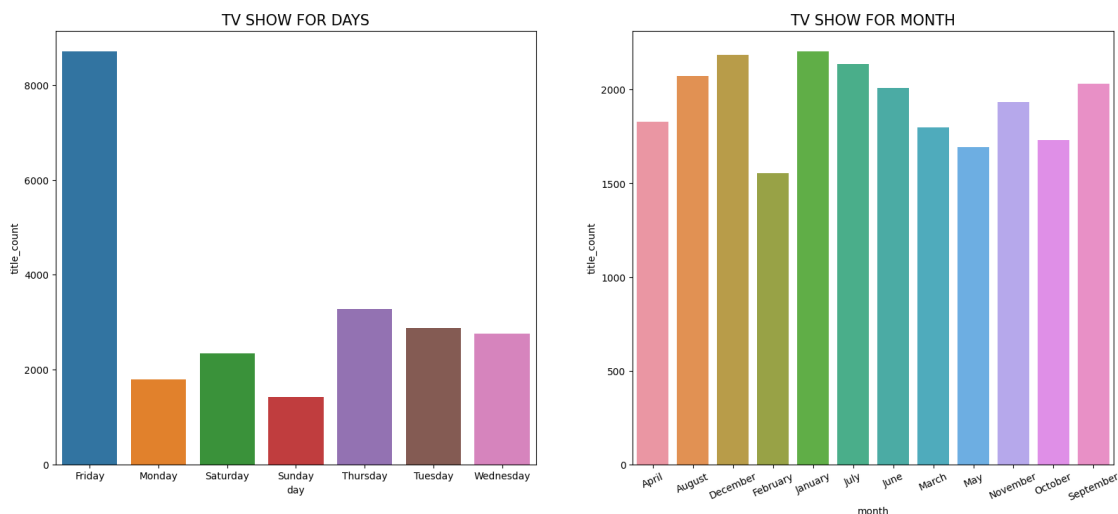

1.From the above plots we can clearly see that the friday has th ehigh number o tv Show releases on Netflix as it ist the weekend day for many of the audiance for diffrent age groups.

2.Followed by Thursday and othe days contribute almost same releases as they are working days.

3.Coming to the month to release a TV Show –"DECEMBER' and"JANUARY" stands top as more

releases were happende in these months for past 96 years('data set age').

4.Followed by "SEPTEMBER", "JULY","AUAGUST","JUNE" are also the months for the best possible release of the TV Shows.

CONCLUSION:

Almost all the months have the same success rate for the show relases but the day has been grabbed by 'FRIDAY' which is far more ahead than other days.

```
[ ]: df_datetv
```

```
[ ]:       show_id    type               title          director date_added  \
      1          s2  TV Show        Blood & Water  unknown_director 2021-09-24
      1          s2  TV Show        Blood & Water  unknown_director 2021-09-24
      1          s2  TV Show        Blood & Water  unknown_director 2021-09-24
      1          s2  TV Show        Blood & Water  unknown_director 2021-09-24
      1          s2  TV Show        Blood & Water  unknown_director 2021-09-24
      …         …       …                …                 …          …
      8800    s8801  TV Show  Zindagi Gulzar Hai  unknown_director 2016-12-15
      8800    s8801  TV Show  Zindagi Gulzar Hai  unknown_director 2016-12-15
      8800    s8801  TV Show  Zindagi Gulzar Hai  unknown_director 2016-12-15
      8800    s8801  TV Show  Zindagi Gulzar Hai  unknown_director 2016-12-15
      8803    s8804  TV Show          Zombie Dumb  unknown_director 2019-07-01


            release_year rating   duration  \
      1             2021  TV-MA   2 Seasons
      1             2021  TV-MA   2 Seasons
      1             2021  TV-MA   2 Seasons
      1             2021  TV-MA   2 Seasons
      1             2021  TV-MA   2 Seasons
      …              …     …         …
      8800          2012  TV-PG    1 Season
      8800          2012  TV-PG    1 Season
      8800          2012  TV-PG    1 Season
      8800          2012  TV-PG    1 Season
      8803          2018  TV-Y7   2 Seasons


                                           description             Actors  \
      1       After crossing paths at a party, a Cape Town t…        Ama Qamata
      1       After crossing paths at a party, a Cape Town t…       Khosi Ngema
      1       After crossing paths at a party, a Cape Town t…     Gail Mabalane
      1       After crossing paths at a party, a Cape Town t…    Thabang Molaba
      1       After crossing paths at a party, a Cape Town t…   Dillon Windvogel
      …                         …                                      …
      8800  Strong-willed, middle-class Kashaf and carefre…   Samina Peerzada
      8800  Strong-willed, middle-class Kashaf and carefre…      Waseem Abbas
      8800  Strong-willed, middle-class Kashaf and carefre…      Javed Sheikh
      8800  Strong-willed, middle-class Kashaf and carefre…  Hina Khawaja Bayat
```

```
8803   While living alone in a spooky town, a young g…        unknown_actors

                  Country                     Genre        day       month
1          South Africa   International TV Shows     Friday   September
1          South Africa   International TV Shows     Friday   September
1          South Africa   International TV Shows     Friday   September
1          South Africa   International TV Shows     Friday   September
1          South Africa   International TV Shows     Friday   September
…               …                    …          …          …
8800            Pakistan                Docuseries   Thursday    December
8800            Pakistan                Docuseries   Thursday    December
8800            Pakistan                Docuseries   Thursday    December
8800            Pakistan                Docuseries   Thursday    December
8803   unknown_country                  Comedies     Monday        July

[23177 rows x 14 columns]
```

4 4.   Analysis of actors/directors of different types od shows/movies

```
[ ]: df1.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 81741 entries, 0 to 8806
Data columns (total 14 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   show_id       81741 non-null  object
 1   type          81741 non-null  object
 2   title         81741 non-null  object
 3   director      81741 non-null  object
 4   date_added    81741 non-null  datetime64[ns]
 5   release_year  81741 non-null  int64
 6   rating        81741 non-null  object
 7   duration      81741 non-null  object
 8   description   81741 non-null  object
 9   Actors        81741 non-null  object
 10  Country       81741 non-null  object
 11  Genre         81741 non-null  object
 12  day           81741 non-null  object
 13  month         81741 non-null  object
dtypes: datetime64[ns](1), int64(1), object(12)
memory usage: 9.4+ MB
```

```
[ ]: df1
```

```
[ ]:      show_id     type                title           director date_added  \
     0        s1    Movie  Dick Johnson Is Dead     Kirsten Johnson 2021-09-25
     1        s2  TV Show         Blood & Water  unknown_director 2021-09-24
     1        s2  TV Show         Blood & Water  unknown_director 2021-09-24
     1        s2  TV Show         Blood & Water  unknown_director 2021-09-24
     1        s2  TV Show         Blood & Water  unknown_director 2021-09-24
     …        …       …                     …               …          …
     8806  s8807    Movie                Zubaan        Mozez Singh 2019-03-02
     8806  s8807    Movie                Zubaan        Mozez Singh 2019-03-02
     8806  s8807    Movie                Zubaan        Mozez Singh 2019-03-02
     8806  s8807    Movie                Zubaan        Mozez Singh 2019-03-02
     8806  s8807    Movie                Zubaan        Mozez Singh 2019-03-02


           release_year rating   duration  \
     0             2020  PG-13     90 min
     1             2021  TV-MA   2 Seasons
     1             2021  TV-MA   2 Seasons
     1             2021  TV-MA   2 Seasons
     1             2021  TV-MA   2 Seasons
     …              …      …         …
     8806          2015  TV-14     111 min
     8806          2015  TV-14     111 min
     8806          2015  TV-14     111 min
     8806          2015  TV-14     111 min
     8806          2015  TV-14     111 min


                                             description  \
     0     As her father nears the end of his life, filmm…
     1     After crossing paths at a party, a Cape Town t…
     1     After crossing paths at a party, a Cape Town t…
     1     After crossing paths at a party, a Cape Town t…
     1     After crossing paths at a party, a Cape Town t…
     …                                                   …
     8806  A scrappy but poor boy worms his way into a ty…
     8806  A scrappy but poor boy worms his way into a ty…
     8806  A scrappy but poor boy worms his way into a ty…
     8806  A scrappy but poor boy worms his way into a ty…
     8806  A scrappy but poor boy worms his way into a ty…


                     Actors          Country                     Genre  \
     0      unknown_actors    United States               Documentaries
     1          Ama Qamata     South Africa    International TV Shows
     1         Khosi Ngema     South Africa    International TV Shows
     1        Gail Mabalane     South Africa    International TV Shows
     1      Thabang Molaba     South Africa    International TV Shows
     …                    …                …                          …
     8806    Manish Chaudhary            India    International TV Shows
```

```
8806            Meghna Malik          India    International TV Shows
8806            Malkeet Rauni         India    International TV Shows
8806            Anita Shabdish        India    International TV Shows
8806    Chittaranjan Tripathy         India    International TV Shows

             day        month
0       Saturday   September
1         Friday   September
1         Friday   September
1         Friday   September
1         Friday   September
...          ...         ...
8806    Saturday       March
8806    Saturday       March
8806    Saturday       March
8806    Saturday       March
8806    Saturday       March

[81741 rows x 14 columns]
```

DIRECTOR ANALYSIS:

```
[ ]: data_dir = df1
```

```
[ ]: data_dir
```

```
[ ]:       show_id      type                   title             director date_added  \
      0          s1     Movie  Dick Johnson Is Dead     Kirsten Johnson 2021-09-25
      1          s2   TV Show          Blood & Water  unknown_director 2021-09-24
      1          s2   TV Show          Blood & Water  unknown_director 2021-09-24
      1          s2   TV Show          Blood & Water  unknown_director 2021-09-24
      1          s2   TV Show          Blood & Water  unknown_director 2021-09-24
      ...       ...       ...                    ...               ...        ...
      8806    s8807     Movie                 Zubaan       Mozez Singh 2019-03-02
      8806    s8807     Movie                 Zubaan       Mozez Singh 2019-03-02
      8806    s8807     Movie                 Zubaan       Mozez Singh 2019-03-02
      8806    s8807     Movie                 Zubaan       Mozez Singh 2019-03-02
      8806    s8807     Movie                 Zubaan       Mozez Singh 2019-03-02

            release_year rating   duration  \
      0             2020  PG-13     90 min
      1             2021  TV-MA  2 Seasons
      1             2021  TV-MA  2 Seasons
      1             2021  TV-MA  2 Seasons
      1             2021  TV-MA  2 Seasons
      ...            ...    ...        ...
      8806          2015  TV-14    111 min
```

```
8806           2015  TV-14     111 min
8806           2015  TV-14     111 min
8806           2015  TV-14     111 min
8806           2015  TV-14     111 min


                                            description  \
0      As her father nears the end of his life, filmm…
1      After crossing paths at a party, a Cape Town t…
1      After crossing paths at a party, a Cape Town t…
1      After crossing paths at a party, a Cape Town t…
1      After crossing paths at a party, a Cape Town t…
…                                                     …
8806   A scrappy but poor boy worms his way into a ty…
8806   A scrappy but poor boy worms his way into a ty…
8806   A scrappy but poor boy worms his way into a ty…
8806   A scrappy but poor boy worms his way into a ty…
8806   A scrappy but poor boy worms his way into a ty…


                    Actors          Country                    Genre  \
0          unknown_actors   United States             Documentaries
1              Ama Qamata    South Africa   International TV Shows
1             Khosi Ngema    South Africa   International TV Shows
1           Gail Mabalane    South Africa   International TV Shows
1          Thabang Molaba    South Africa   International TV Shows
…                       …               …                        …
8806      Manish Chaudhary           India   International TV Shows
8806         Meghna Malik           India   International TV Shows
8806         Malkeet Rauni           India   International TV Shows
8806        Anita Shabdish           India   International TV Shows
8806   Chittaranjan Tripathy          India   International TV Shows


            day       month
0      Saturday   September
1        Friday   September
1        Friday   September
1        Friday   September
1        Friday   September
…             …           …
8806   Saturday       March
8806   Saturday       March
8806   Saturday       March
8806   Saturday       March
8806   Saturday       March

[81741 rows x 14 columns]
```

```
# Grouping the data by director and counting the Number of movies,start␣
 ↪year,last year:

data_dir_group = data_dir.groupby(['director'])[['title','release_year']].
 ↪agg(title_count = ('title','count'),
                                                                            ␣
 ↪min_year = ('release_year','min'),
                                                                            ␣
 ↪max_year = ('release_year','max'))
```

```
data_dir_group.reset_index(inplace = True)
```

```
# Calculating the  years active column:

data_dir_group['years_active'] = data_dir_group['max_year'] -␣
 ↪data_dir_group['min_year']
```

```
data_dir_group
```

```
                   director  title_count  min_year  max_year  years_active
0                 A. L. Vijay           14      2016      2019             3
1              A. Raajdheep            5      2020      2020             0
2                   A. Salaam          10      1975      1975             0
3             A.R. Murugadoss          12      2017      2018             1
4             Aadish Keluskar           4      2018      2018             0
...                       ...          ...       ...       ...           ...
4524              Çagan Irmak          10      2005      2005             0
4525         Ísold Uggadóttir           9      2018      2018             0
4526   Óskar Thór Axelsson          10      2017      2017             0
4527        Ömer Faruk Sorak          18      2004      2011             7
4528           Şenol Sönmez          16      2015      2019             4

[4529 rows x 5 columns]
```

```
## Sorting the values by hihest number of movies:


data_dir_group.sort_values(by = 'title_count',ascending = False,inplace = True)
```

```
data_dir_group['years_active'] = data_dir_group['max_year'] -␣
 ↪data_dir_group['min_year']
```

```
data_dir_group['movies_per_year'] = data_dir_group['title_count']/
 ↪data_dir_group['years_active']
```

```
dir_counts = data_dir_group.head(11)
```

```
[ ]: dir_counts.drop(4516,axis = 0,inplace = True)
```

<ipython-input-941-60861069287e>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-
docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  dir_counts.drop(4516,axis = 0,inplace = True)

```
[ ]: dir_counts
```

```
[ ]:                    director  title_count  min_year  max_year  years_active  \
     2671        Martin Scorsese          217      1967      2019            52
     4020      Steven Spielberg          205      1975      2016            41
     2665        Martin Campbell          154      1995      2017            22
     3383           Raja Gosnell          154      2005      2018            13
     2749                    McG          150      2000      2020            20
     4480        Youssef Chahine          150      1954      1999            45
     1105       Don Michael Paul          132      2013      2020             7
     685    Cathy Garcia-Molina          125      2008      2019            11
     3617             Ron Howard          123      2000      2020            20
     3392           Rajiv Chilaka          121      2009      2018             9

            movies_per_year
     2671          4.173077
     4020          5.000000
     2665          7.000000
     3383         11.846154
     2749          7.500000
     4480          3.333333
     1105         18.857143
     685          11.363636
     3617          6.150000
     3392         13.444444
```

```
[ ]: # Plotting the graphs for directors:

     plt.figure(figsize = (20,7))

     plt.subplot(1,3,1)
     plt.title('Number of movies per Director',fontsize = 15)
     sns.lineplot(
         x  = 'director',
         y = 'title_count',
         data = dir_counts,
         label = 'title_count',
         color = 'yellow'
```

```
)
plt.xticks(rotation = 45,fontsize = 9)

plt.subplot(1,3,2)
plt.title('Number of years active Director',fontsize = 15)
sns.barplot(
    x = 'director',
    y ='years_active',
    data = dir_counts,
    label = 'years_active'
)
plt.xticks(rotation = 45,fontsize = 9)

plt.subplot(1,3,3)
plt.title('Number of movies per year',fontsize = 15)
sns.lineplot(
    x = 'director',
    y = 'movies_per_year',
    data = dir_counts,
    label = 'movies_per_year',
    color = 'blue'
)
plt.xticks(rotation = 45,fontsize = 9)
plt.show()
```
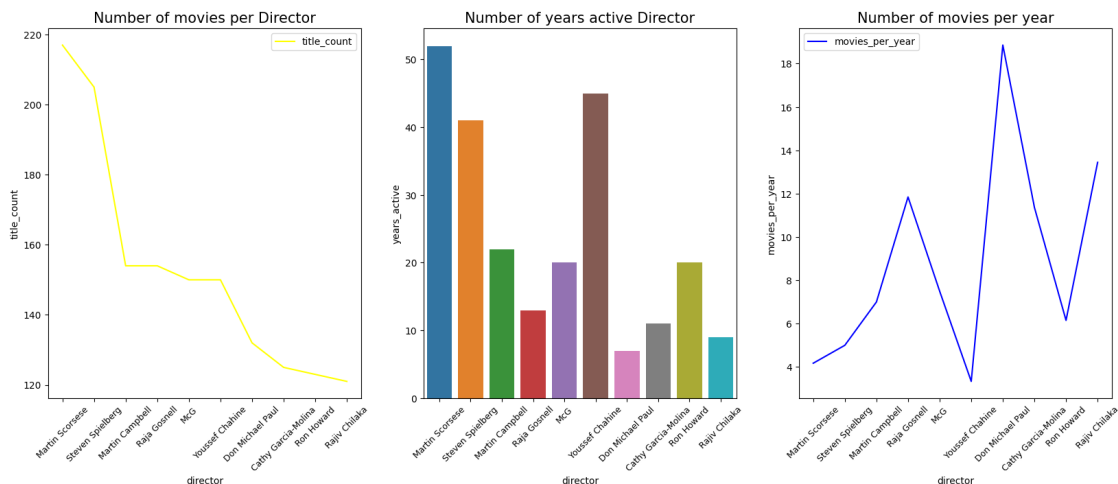

–ACTORS ANALYSIS:

```
[ ]: # Grouping the data by Actors and calculating the number of movies or␣
     ↪shows,first_year,last_year :
```

```python
data_actor_grp = data_dir.groupby(['Actors'])[['title','release_year']].
↪agg(title_count = ('title','count'),
                                                                         ␣
↪min_year = ('release_year','min'),
                                                                    ␣
↪max_year = ('release_year','max'))
```

```python
data_actor_grp.reset_index(inplace = True)
```

```python
# Calculating the years_active(duration) for actors:

data_actor_grp['years_active'] = data_actor_grp['max_year'] -␣
↪data_actor_grp['min_year']
```

```python
data_actor_grp
```

	Actors	title_count	min_year	max_year	years_active
0	Jr.	2	2017	2020	3
1	"Riley" Lakdhar Dridi	1	2019	2019	0
2	'Najite Dede	1	2016	2016	0
3	2 Chainz	1	2018	2018	0
4	2Mex	1	2008	2008	0
...	...	...	...	...	...
39292	İbrahim Büyükak	1	2016	2016	0
39293	İbrahim Çelikkol	1	2016	2016	0
39294	Şahin Irmak	1	2018	2018	0
39295	Şükrü Özyıldız	1	2014	2014	0
39296	Ṣọpẹ́ Dìrísù	1	2020	2020	0

[39297 rows x 5 columns]

```python
# Sorting the values by number of shows/movies highest:

data_actor_grp.sort_values(by = 'title_count',ascending = False,inplace = True)
```

```python
data_actor_grp
```

	Actors	title_count	min_year	max_year	years_active
39283	unknown_actors	1006	1925	2021	96
35083	David Attenborough	45	2001	2021	20
2612	Anupam Kher	42	1990	2018	28
32293	Vincent Tong	36	2011	2021	10
1905	Andrea Libman	36	2014	2021	7
...	...	...	...	...	...
8332	Dozie Onyiriuka	1	2017	2017	0
8333	Doğa Konakoğlu	1	2015	2015	0
22304	Nabiha Akkari	1	2021	2021	0

```
22303     Nabhaan Rizwan        1     2021     2021              0
39296      Ṣọpẹ́ Dìrísù         1     2020     2020              0

[39297 rows x 5 columns]
```

```
# Calculating the average movies per year of Actors:

data_actor_grp['movies_per_year'] = data_actor_grp['title_count']/
 ↪data_actor_grp['years_active']
```

```
data_actor_grp
```

```
                   Actors  title_count  min_year  max_year  years_active  \
39283      unknown_actors         1006      1925      2021            96
35083  David Attenborough           45      2001      2021            20
2612          Anupam Kher           42      1990      2018            28
32293        Vincent Tong           36      2011      2021            10
1905        Andrea Libman           36      2014      2021             7
...                   ...          ...       ...       ...           ...
8332       Dozie Onyiriuka            1      2017      2017             0
8333       Doğa Konakoğlu            1      2015      2015             0
22304        Nabiha Akkari            1      2021      2021             0
22303       Nabhaan Rizwan            1      2021      2021             0
39296         Ṣọpẹ́ Dìrísù           1      2020      2020             0

       movies_per_year
39283        10.479167
35083         2.250000
2612          1.500000
32293         3.600000
1905          5.142857
...                 ...
8332               inf
8333               inf
22304              inf
22303              inf
39296              inf

[39297 rows x 6 columns]
```

```

```

TOP 10 ACTORS ANALYSIS

```
act_counts = data_actor_grp.head(11)
```

```python
# Dropping the unknown elements:

act_counts.drop(39283,axis = 0,inplace = True)
```

```
<ipython-input-953-254dd6ecdf20>:3: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-
docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  act_counts.drop(39283,axis = 0,inplace = True)
```

```python
act_counts
```

```
                  Actors  title_count  min_year  max_year  years_active  \
35083  David Attenborough           45      2001      2021            20
2612          Anupam Kher           42      1990      2018            28
32293        Vincent Tong           36      2011      2021            10
1905        Andrea Libman           36      2014      2021             7
14589         John Cleese           35      1972      2021            49
1205        Alfred Molina           35      1981      2021            40
23624             Om Puri           32      1982      2017            35
26941        Rupa Bhimani           31      2009      2021            12
4335      Brendan Gleeson           31      2002      2019            17
30303     Takahiro Sakurai           30      2008      2021            13


       movies_per_year
35083         2.250000
2612          1.500000
32293         3.600000
1905          5.142857
14589         0.714286
1205          0.875000
23624         0.914286
26941         2.583333
4335          1.823529
30303         2.307692
```

```python
# Rounding the data for convineance:

act_counts['movies_per_year'] = np.round(act_counts['movies_per_year'],2)
```

```
<ipython-input-955-e4fb84ab6428>:3: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-
docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  act_counts['movies_per_year'] = np.round(act_counts['movies_per_year'],2)
```

```
[ ]: act_counts
```

```
[ ]:                    Actors  title_count  min_year  max_year  years_active  \
      35083  David Attenborough          45      2001      2021            20
      2612          Anupam Kher          42      1990      2018            28
      32293         Vincent Tong          36      2011      2021            10
      1905          Andrea Libman          36      2014      2021             7
      14589          John Cleese          35      1972      2021            49
      1205         Alfred Molina          35      1981      2021            40
      23624              Om Puri          32      1982      2017            35
      26941         Rupa Bhimani          31      2009      2021            12
      4335       Brendan Gleeson          31      2002      2019            17
      30303     Takahiro Sakurai          30      2008      2021            13

             movies_per_year
      35083             2.25
      2612              1.50
      32293             3.60
      1905              5.14
      14589             0.71
      1205              0.88
      23624             0.91
      26941             2.58
      4335              1.82
      30303             2.31
```

```
[ ]:
```

```
[ ]:
```

```
[ ]: # Plotting the graphs for directors and their respective measures:

     plt.figure(figsize = (20,7))

     plt.subplot(1,3,1)
     plt.title('Number of movies per Actor',fontsize = 15)
     sns.scatterplot(
         x  = 'Actors',
         y = 'title_count',
         data = act_counts,
         sizes = (200,300),
         size = 'title_count',
         color = 'blue'

     )
     plt.xticks(rotation = 45,fontsize = 9)
```

```
plt.subplot(1,3,2)
plt.title('Number of years active per Actor',fontsize = 15)
sns.lineplot(
    x = 'Actors',
    y ='years_active',
    data = act_counts,
    label = 'years_active',
    color = 'orange'
)
plt.xticks(rotation = 45,fontsize = 9)

plt.subplot(1,3,3)
plt.title('Average  movies per year-- Actor',fontsize = 15)
sns.barplot(
    x = 'Actors',
    y = 'movies_per_year',
    data = act_counts,
    label = 'movies_per_year',
    color = 'green'
)
plt.xticks(rotation = 45,fontsize = 9)
plt.show()
```


[ ]:
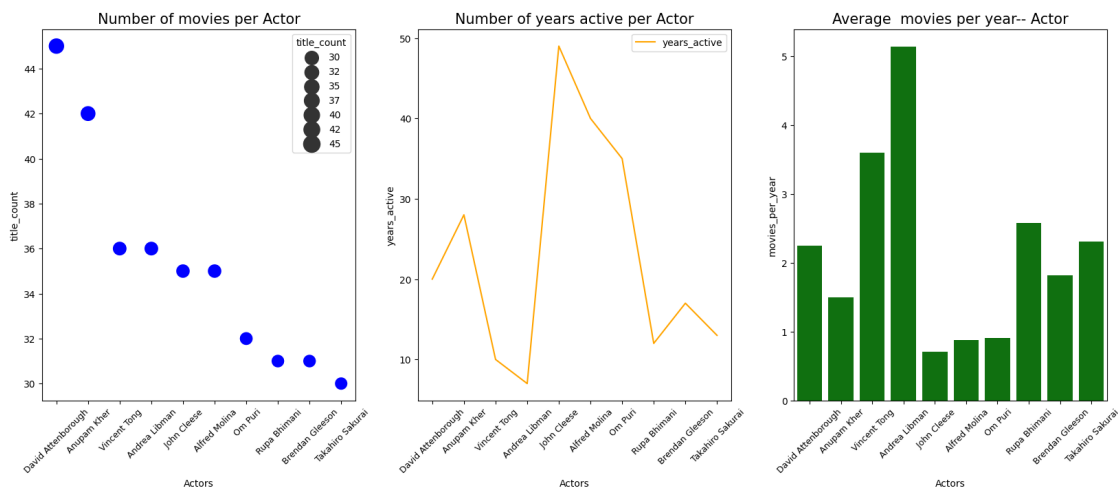
5. DOES NETFLIX HAS MORE FOCUS ON TV SHOWS THAN MOVIES IN RECENT YEARS

[ ]: `dtv1.head()`

```
[ ]:   show_id      type           title          director         date_added  \
     1      s2  TV Show  Blood & Water  unknown_director  September 24, 2021
     1      s2  TV Show  Blood & Water  unknown_director  September 24, 2021
     1      s2  TV Show  Blood & Water  unknown_director  September 24, 2021
     1      s2  TV Show  Blood & Water  unknown_director  September 24, 2021
     1      s2  TV Show  Blood & Water  unknown_director  September 24, 2021


       release_year rating   duration  \
     1         2021  TV-MA  2 Seasons
     1         2021  TV-MA  2 Seasons
     1         2021  TV-MA  2 Seasons
     1         2021  TV-MA  2 Seasons
     1         2021  TV-MA  2 Seasons


                                        description            Actors  \
     1  After crossing paths at a party, a Cape Town t…        Ama Qamata
     1  After crossing paths at a party, a Cape Town t…       Khosi Ngema
     1  After crossing paths at a party, a Cape Town t…     Gail Mabalane
     1  After crossing paths at a party, a Cape Town t…    Thabang Molaba
     1  After crossing paths at a party, a Cape Town t…  Dillon Windvogel


            Country                    Genre
     1  South Africa  International TV Shows
     1  South Africa  International TV Shows
     1  South Africa  International TV Shows
     1  South Africa  International TV Shows
     1  South Africa  International TV Shows
```

Analysis for the Movies:

```
[ ]: # Converting the date_added column datatype from object of datetime:

     dm1['date_added'] = pd.to_datetime(dm1['date_added'])
```

```
<ipython-input-959-e458ba95eeea>:3: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-
docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  dm1['date_added'] = pd.to_datetime(dm1['date_added'])
```

```
[ ]: dm1.head()
```

```
[ ]:   show_id   type                             title  \
     0      s1  Movie              Dick Johnson Is Dead
     6      s7  Movie  My Little Pony: A New Generation
     6      s7  Movie  My Little Pony: A New Generation
```

```
6       s7  Movie  My Little Pony: A New Generation
6       s7  Movie  My Little Pony: A New Generation


                          director date_added  release_year rating duration  \
0             Kirsten Johnson 2021-09-25          2020  PG-13   90 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min

                                      description           Actors  \
0  As her father nears the end of his life, filmm…    unknown_actors
6  Equestria's divided. But a bright-eyed hero be…  Vanessa Hudgens
6  Equestria's divided. But a bright-eyed hero be…     Kimiko Glenn
6  Equestria's divided. But a bright-eyed hero be…    James Marsden
6  Equestria's divided. But a bright-eyed hero be…     Sofia Carson

            Country                    Genre
0     United States            Documentaries
6  unknown_country   TV Action & Adventure
6  unknown_country   TV Action & Adventure
6  unknown_country   TV Action & Adventure
6  unknown_country   TV Action & Adventure
```

[ ]: `df_5_mv = dm1`

[ ]: `df_5_mv.head()`

[ ]:
```
  show_id   type                          title  \
0      s1  Movie            Dick Johnson Is Dead
6      s7  Movie  My Little Pony: A New Generation
6      s7  Movie  My Little Pony: A New Generation
6      s7  Movie  My Little Pony: A New Generation
6      s7  Movie  My Little Pony: A New Generation


                          director date_added  release_year rating duration  \
0             Kirsten Johnson 2021-09-25          2020  PG-13   90 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min

                                      description           Actors  \
0  As her father nears the end of his life, filmm…    unknown_actors
6  Equestria's divided. But a bright-eyed hero be…  Vanessa Hudgens
6  Equestria's divided. But a bright-eyed hero be…     Kimiko Glenn
6  Equestria's divided. But a bright-eyed hero be…    James Marsden
```

```
6  Equestria's divided. But a bright-eyed hero be…      Sofia Carson


              Country                   Genre
0      United States            Documentaries
6  unknown_country    TV Action & Adventure
6  unknown_country    TV Action & Adventure
6  unknown_country    TV Action & Adventure
6  unknown_country    TV Action & Adventure
```

[ ]: ```python
Extracting the date_added column year of datetime:

df_5_mv['added_year'] = dm1['date_added'].dt.strftime('%Y')
```

```
<ipython-input-963-b5b498aa2d89>:3: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-
docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  df_5_mv['added_year'] = dm1['date_added'].dt.strftime('%Y')
```

[ ]: ```python
df_5_mv.head()
```

[ ]: ```
   show_id   type   title \
0   s1 Movie   Dick Johnson Is Dead
6   s7 Movie My Little Pony: A New Generation
6   s7 Movie My Little Pony: A New Generation
6   s7 Movie My Little Pony: A New Generation
6   s7 Movie My Little Pony: A New Generation

                    director date_added release_year rating duration \
0   Kirsten Johnson 2021-09-25   2020 PG-13   90 min
6 Robert Cullen, José Luis Ucha 2021-09-24   2021   PG   91 min
6 Robert Cullen, José Luis Ucha 2021-09-24   2021   PG   91 min
6 Robert Cullen, José Luis Ucha 2021-09-24   2021   PG   91 min
6 Robert Cullen, José Luis Ucha 2021-09-24   2021   PG   91 min

                                description   Actors \
0 As her father nears the end of his life, filmm…   unknown_actors
6 Equestria's divided. But a bright-eyed hero be… Vanessa Hudgens
6 Equestria's divided. But a bright-eyed hero be…   Kimiko Glenn
6 Equestria's divided. But a bright-eyed hero be…   James Marsden
6 Equestria's divided. But a bright-eyed hero be…   Sofia Carson

              Country   Genre added_year
0   United States   Documentaries   2021
6 unknown_country   TV Action & Adventure   2021
```

```
6  unknown_country    TV Action & Adventure        2021
6  unknown_country    TV Action & Adventure        2021
6  unknown_country    TV Action & Adventure        2021
```

```
[ ]: # Grouping by 'added_year' and counting the movies:

     last_5_mv  = df_5_mv.groupby('added_year',)[['title','added_year']].
      ↪agg(title_count = ('title','count'))
```

```
[ ]: # Resetting the index:

     last_5_mv.reset_index(inplace = True)
```

```
[ ]: # Sorting the values by Movies highest:

     last_5_mv.sort_values(by = 'added_year',ascending = False,inplace = True)
```

```
[ ]: last_5_mv1 = last_5_mv.head(6)
```

```
[ ]: last_5_mv1
```

```
[ ]:     added_year  title_count
     13        2021        10851
     12        2020        13662
     11        2019        13664
     10        2018        10867
     9         2017         6841
     8         2016         1855
```

Analysis for Tv Shows

```
[ ]: # Converting the date_added column datatype from object of datetime:

     dtv1['date_added'] =pd.to_datetime(dtv1['date_added'])
```

```
<ipython-input-970-27333ff20ae3>:3: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-
docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  dtv1['date_added'] =pd.to_datetime(dtv1['date_added'])
```

```
[ ]: df_5_tv = dtv1
```

```
[ ]: df_5_tv.head()
```

```
[ ]:    show_id    type        title          director date_added  release_year  \
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021

       rating   duration                                    description  \
    1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
    1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
    1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
    1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
    1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…

                  Actors       Country                   Genre
    1        Ama Qamata  South Africa  International TV Shows
    1       Khosi Ngema  South Africa  International TV Shows
    1     Gail Mabalane  South Africa  International TV Shows
    1    Thabang Molaba  South Africa  International TV Shows
    1  Dillon Windvogel  South Africa  International TV Shows
```

```
[ ]:
```

```
[ ]:  # Extracting the date_added column year of  datetime:

      df_5_tv['added_year'] = dtv1['date_added'].dt.strftime('%Y')
```

```
<ipython-input-973-15ac320455a8>:3: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-
docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  df_5_tv['added_year'] = dtv1['date_added'].dt.strftime('%Y')
```

```
[ ]:  df_5_tv.head()
```

```
[ ]:    show_id    type        title          director date_added  release_year  \
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
    1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021

       rating   duration                                    description  \
    1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
    1  TV-MA   2 Seasons  After crossing paths at a party, a Cape Town t…
```

```
1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…

            Actors       Country                    Genre added_year
1      Ama Qamata  South Africa  International TV Shows       2021
1     Khosi Ngema  South Africa  International TV Shows       2021
1    Gail Mabalane  South Africa  International TV Shows       2021
1   Thabang Molaba  South Africa  International TV Shows       2021
1  Dillon Windvogel  South Africa  International TV Shows       2021
```

```python
# Grouping by 'added_year' and counting the movies:

last_5_tv = df_5_tv.groupby('added_year')[['title','added_year']].
 ↪agg(title_count = ('title','count'))
```

```python
# Resetting the index:

last_5_tv.reset_index(inplace = True)
```

```python
# sorting the values by highest

last_5_tv.sort_values(by = 'added_year',ascending = False,inplace = True)
```

```python
last_5_tv1 = last_5_tv.head(6)
```

```python
last_5_tv1
```

```
   added_year  title_count
9        2021         4368
8        2020         5480
7        2019         4973
6        2018         3342
5        2017         2870
4        2016         1791
```

```python
# Plotting the graphs for both Movies and Tv Shows with respect to their
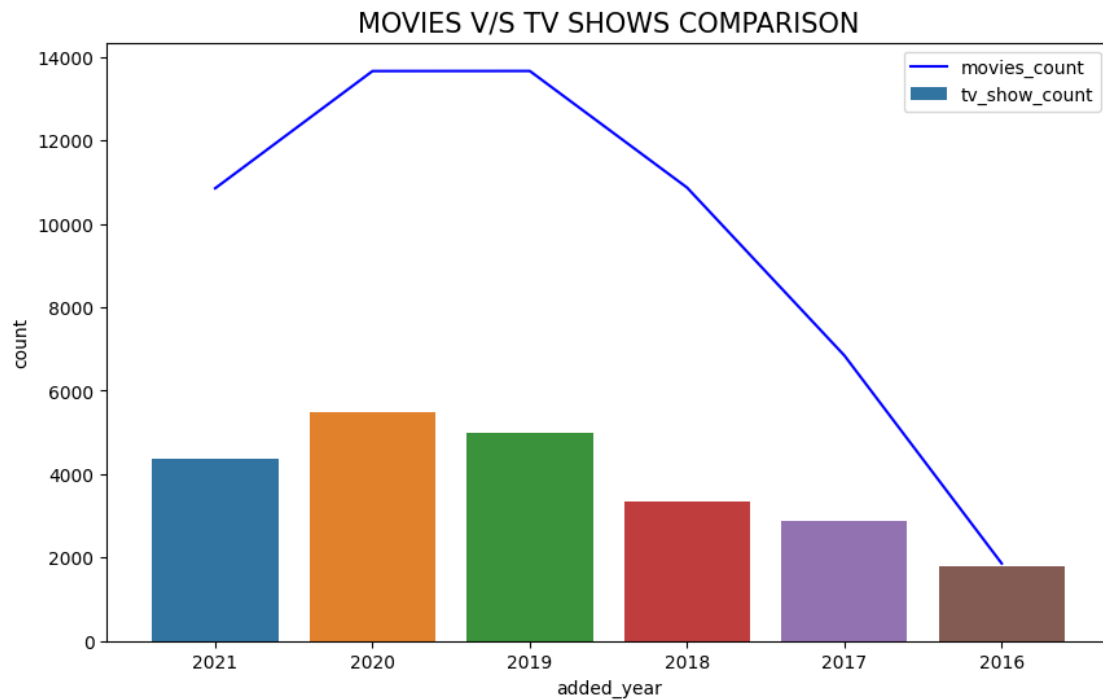 ↪measures:

plt.figure(figsize = (10,6))
plt.title('MOVIES V/S TV SHOWS COMPARISON',fontsize= 15,color = 'black' )
sns.barplot(
    x = 'added_year',
    y = 'title_count',
    data = last_5_tv1,
    label = 'tv_show_count'
)
```

```
sns.lineplot(
    x = 'added_year',
    y = 'title_count',
    data = last_5_mv1,
    label = 'movies_count',
    color = 'blue'
)
plt.ylabel('count')
plt.show()
```


- clearly from the above plot the movies rae dominating in the netflix

- we the data for past 6 years and Movies are always ahead of TV shows.

```
[ ]: df1.head()
```

```
[ ]:   show_id     type                     title           director date_added  \
     0      s1    Movie   Dick Johnson Is Dead    Kirsten Johnson 2021-09-25
     1      s2  TV Show           Blood & Water  unknown_director 2021-09-24
     1      s2  TV Show           Blood & Water  unknown_director 2021-09-24
     1      s2  TV Show           Blood & Water  unknown_director 2021-09-24
     1      s2  TV Show           Blood & Water  unknown_director 2021-09-24

       release_year rating   duration  \
     0          2020  PG-13     90 min
```

```
1          2021   TV-MA   2 Seasons
1          2021   TV-MA   2 Seasons
1          2021   TV-MA   2 Seasons
1          2021   TV-MA   2 Seasons


                                  description             Actors  \
0  As her father nears the end of his life, filmm…    unknown_actors
1  After crossing paths at a party, a Cape Town t…       Ama Qamata
1  After crossing paths at a party, a Cape Town t…      Khosi Ngema
1  After crossing paths at a party, a Cape Town t…     Gail Mabalane
1  After crossing paths at a party, a Cape Town t…    Thabang Molaba


          Country                      Genre        day       month
0   United States              Documentaries   Saturday  September
1    South Africa  International TV Shows      Friday    September
1    South Africa  International TV Shows      Friday    September
1    South Africa  International TV Shows      Friday    September
1    South Africa  International TV Shows      Friday    September
```

6. UNDERSTANDING THE CONTENT AVAILABLE IN DIFFERENT COUNTRIES

```
[ ]:  df1.head()
```

```
[ ]:   show_id     type                 title           director date_added  \
       0       s1    Movie  Dick Johnson Is Dead  Kirsten Johnson 2021-09-25
       1       s2  TV Show        Blood & Water  unknown_director 2021-09-24
       1       s2  TV Show        Blood & Water  unknown_director 2021-09-24
       1       s2  TV Show        Blood & Water  unknown_director 2021-09-24
       1       s2  TV Show        Blood & Water  unknown_director 2021-09-24


          release_year rating   duration  \
       0          2020  PG-13     90 min
       1          2021  TV-MA   2 Seasons
       1          2021  TV-MA   2 Seasons
       1          2021  TV-MA   2 Seasons
       1          2021  TV-MA   2 Seasons


                                         description             Actors  \
       0  As her father nears the end of his life, filmm…    unknown_actors
       1  After crossing paths at a party, a Cape Town t…       Ama Qamata
       1  After crossing paths at a party, a Cape Town t…      Khosi Ngema
       1  After crossing paths at a party, a Cape Town t…     Gail Mabalane
       1  After crossing paths at a party, a Cape Town t…    Thabang Molaba


                 Country                      Genre        day       month
       0   United States              Documentaries   Saturday  September
       1    South Africa  International TV Shows      Friday    September
```

```
1    South Africa   International TV Shows     Friday   September
1    South Africa   International TV Shows     Friday   September
1    South Africa   International TV Shows     Friday   September
```

```python
df_6 = df1
```

```python
# grouping by the Country column and counting the actors counts,ratings␣
 ↪count,genre count,directors count:



df_6_grp = df_6.
 ↪groupby('Country')[['Actors','release_year','rating','Genre','director']].
 ↪agg(actors_count = ('Actors','count'),
                                                                              ␣
 ↪          rating_count = ('rating','count'),
                                                                              ␣
 ↪          genre_count = ('Genre','count'),
                                                                              ␣
 ↪          director_count = ('director','count'),
                                                                              ␣
 ↪          )
```

```python
# Resetting the index

df_6_grp.head().reset_index(inplace = True)
```

```python
# Sorting the values by highest first:

df_6_grp.sort_values(by = 'actors_count',ascending = False,inplace = True)
```

```python
df_6_grp.reset_index(inplace = True)
```

```python
# Dropping the unwanted unknown columns:

df_6_grp.drop(2,axis = 0,inplace = True)
```

```python
df_6_grp1 = df_6_grp.head(10)
```

```python
df_6_grp1
```

```
         Country  actors_count  rating_count  genre_count  director_count
0    United States         23441         23441        23441           23441
1            India          7508          7508         7508            7508
3    United States          4029          4029         4029            4029
4   United Kingdom          3985          3985         3985            3985
5            Japan          2872          2872         2872            2872
```

```
6        Canada      2019    2019    2019    2019
7    South Korea     1609    1609    1609    1609
8        France      1576    1576    1576    1576
9        France      1558    1558    1558    1558
10       Canada      1531    1531    1531    1531
```

[ ]: # Plotting the Country garphs withbtheir respected measures:


```python
plt.figure(figsize = (13,7))
plt.title('Country wise measures of Actors,directors & genres',fontsize = 15)
sns.lineplot(
    x = 'Country',
    y = 'actors_count',
    data = df_6_grp1,
    color = 'black'
)
sns.barplot(
    x = 'Country',
    y = 'director_count',
    data = df_6_grp1
)
sns.scatterplot(
    x = 'Country',
    y = 'genre_count',
    sizes = (50,300),
    size = 'genre_count',
    data = df_6_grp1,
    color = 'blue'
)
plt.show()
```

Country wise measures of Actors, directors & genres

```
[ ]: dm1.head()
```

```
[ ]:   show_id   type                            title  \
      0      s1  Movie          Dick Johnson Is Dead
      6      s7  Movie  My Little Pony: A New Generation
      6      s7  Movie  My Little Pony: A New Generation
      6      s7  Movie  My Little Pony: A New Generation
      6      s7  Movie  My Little Pony: A New Generation


                          director date_added  release_year rating duration  \
      0           Kirsten Johnson 2021-09-25          2020  PG-13   90 min
      6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
      6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
      6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
      6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min


                              description           Actors  \
      0  As her father nears the end of his life, filmm…   unknown_actors
      6  Equestria's divided. But a bright-eyed hero be…  Vanessa Hudgens
      6  Equestria's divided. But a bright-eyed hero be…    Kimiko Glenn
      6  Equestria's divided. But a bright-eyed hero be…    James Marsden
      6  Equestria's divided. But a bright-eyed hero be…    Sofia Carson


               Country                 Genre added_year
      0   United States          Documentaries       2021
      6  unknown_country   TV Action & Adventure       2021
```

```
6  unknown_country    TV Action & Adventure       2021
6  unknown_country    TV Action & Adventure       2021
6  unknown_country    TV Action & Adventure       2021
```

[ ]: `df_6_mv = dm1`

[ ]: `df_6_mv.head()`

[ ]:
```
   show_id    type                               title  \
0       s1   Movie              Dick Johnson Is Dead
6       s7   Movie   My Little Pony: A New Generation
6       s7   Movie   My Little Pony: A New Generation
6       s7   Movie   My Little Pony: A New Generation
6       s7   Movie   My Little Pony: A New Generation

                   director date_added  release_year rating duration  \
0          Kirsten Johnson 2021-09-25          2020  PG-13   90 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min
6  Robert Cullen, José Luis Ucha 2021-09-24          2021     PG   91 min

                                         description            Actors  \
0  As her father nears the end of his life, filmm…   unknown_actors
6  Equestria's divided. But a bright-eyed hero be…  Vanessa Hudgens
6  Equestria's divided. But a bright-eyed hero be…     Kimiko Glenn
6  Equestria's divided. But a bright-eyed hero be…    James Marsden
6  Equestria's divided. But a bright-eyed hero be…     Sofia Carson

           Country                  Genre added_year
0    United States          Documentaries       2021
6  unknown_country  TV Action & Adventure       2021
6  unknown_country  TV Action & Adventure       2021
6  unknown_country  TV Action & Adventure       2021
6  unknown_country  TV Action & Adventure       2021
```

[ ]:
```
# grouping the data by country and getting the required measures:

df_6_mv_grp = df_6_mv.
 ↪groupby('Country')[['type','Actors','Genre','release_year','director']].
 ↪agg(movie_count = ('type','count'),

                                              actors_count =␣
 ↪('Actors','count'),

                                              director_count =␣
 ↪('director','count'),

                                              genre_count =␣
 ↪('Genre','count'),
```

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```
                                                            min_year =
  ↳('release_year','min'),
                                                            max_year =
  ↳('release_year','max'))
```

```
[ ]: # Calculating years_active column

     df_6_mv_grp['years_active'] = df_6_mv_grp['max_year'] - df_6_mv_grp['min_year']
```

```
[ ]: # reset index:

     df_6_mv_grp.reset_index(inplace = True)
```

```
[ ]: # CAlculating average movies per year:

     df_6_mv_grp['movies_per_year'] = df_6_mv_grp['movie_count']/
       ↳df_6_mv_grp['years_active']
```

```
[ ]: df_6_mv_grp.sort_values(by = 'movie_count',ascending = False,inplace = True)
```

```
[ ]: df_6_mv_grp.drop(187,axis = 0,inplace = True)
```

```
[ ]: df_6_mv_grp1 = df_6_mv_grp.head(10)
```

```
[ ]: df_6_mv_grp1
```

```
[ ]:             Country  movie_count  actors_count  director_count  genre_count  \
     181   United States        17536         17536           17536         17536
     136           India         7087          7087            7087          7087
     103   United States         3206          3206            3206          3206
     180  United Kingdom         2537          2537            2537          2537
     118          Canada         1349          1349            1349          1349
     32           France         1338          1338            1338          1338
     102  United Kingdom         1281          1281            1281          1281
     18           Canada         1161          1161            1161          1161
     127          France         1097          1097            1097          1097
     172           Spain          985           985             985           985

          min_year  max_year  years_active  movies_per_year
     181      1942      2021            79       221.974684
     136      1959      2021            62       114.306452
     103      1961      2021            60        53.433333
     180      1961      2021            60        42.283333
     118      1997      2021            24        56.208333
     32       1955      2021            66        20.272727
     102      1944      2021            77        16.636364
     18       1979      2021            42        27.642857
```

```
127      1974      2021          47        23.340426
172      2004      2021          17        57.941176
```

```
[ ]: df_6_tv = dtv1
```

```
[ ]: df_6_tv.head(9)
```

```
[ ]:    show_id     type          title      director date_added  release_year  \
     1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
     1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
     1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
     1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
     1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
     1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
     1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
     1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021
     1       s2  TV Show  Blood & Water  unknown_director 2021-09-24          2021

       rating   duration                                    description  \
     1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
     1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
     1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
     1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
     1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
     1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
     1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
     1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…
     1  TV-MA  2 Seasons  After crossing paths at a party, a Cape Town t…

                    Actors       Country                   Genre  added_year
     1        Ama Qamata  South Africa  International TV Shows        2021
     1       Khosi Ngema  South Africa  International TV Shows        2021
     1     Gail Mabalane  South Africa  International TV Shows        2021
     1    Thabang Molaba  South Africa  International TV Shows        2021
     1  Dillon Windvogel  South Africa  International TV Shows        2021
     1   Natasha Thahane  South Africa  International TV Shows        2021
     1       Arno Greeff  South Africa  International TV Shows        2021
     1  Xolile Tshabalala  South Africa  International TV Shows        2021
     1  Getmore Sithole  South Africa  International TV Shows        2021
```

```
[ ]: #grouping data by country for directors dataset:

     df_6_tv_grp = df_6_tv.
      ↪groupby('Country')[['type','Actors','Genre','release_year','director']].
      ↪agg(tv_count = ('type','count'),
                                            actors_count =␣
      ↪('Actors','count'),
```

```
                                                               director_count =␣
  ↪('director','count'),

                                                               genre_count =␣
  ↪('Genre','count'),

                                                               min_year =␣
  ↪('release_year','min'),

                                                               max_year =␣
  ↪('release_year','max')

                                                                            ␣
  ↪                    )
```

```
[ ]: # Calculating the years_active column:

     df_6_tv_grp['years_active'] = df_6_tv_grp['max_year'] - df_6_tv_grp['min_year']
```

```
[ ]: # Calculating average movies per directors in each country:

     df_6_tv_grp['movies_per_year'] = df_6_tv_grp['tv_count']/
       ↪df_6_tv_grp['years_active']
```

```
[ ]: df_6_tv_grp.reset_index(inplace = True)
```

```
[ ]: # Sorting values:

     df_6_tv_grp.sort_values(by = 'tv_count',ascending = False,inplace  = True)
```

```
[ ]: # resetting index:

     df_6_tv_grp.drop(102,axis = 0,inplace = True)
```

```
[ ]: df_6_tv_grp1 = df_6_tv_grp.head(10)
```

```
[ ]: df_6_tv_grp1
```

```
[ ]:            Country  tv_count  actors_count  director_count  genre_count  \
     100   United States      5905          5905            5905         5905
     69            Japan      2031          2031            2031         2031
     99   United Kingdom      1448          1448            1448         1448
     90      South Korea      1246          1246            1246         1246
     42   United States       823           823             823          823
     50           Canada       670           670             670          670
     76           Mexico       581           581             581          581
     91            Spain       543           543             543          543
     94           Taiwan       508           508             508          508
     60           France       461           461             461          461
```

```
       min_year   max_year   years_active   movies_per_year
100        1945       2021             76          77.697368
69         1981       2021             40          50.775000
99         1972       2021             49          29.551020
90         2009       2021             12         103.833333
42         1986       2021             35          23.514286
50         1997       2021             24          27.916667
76         1979       2021             42          13.833333
91         2013       2021              8          67.875000
94         2002       2020             18          28.222222
60         2000       2021             21          21.952381
```

```python
# Plotting garphs for the measures :

plt.figure(figsize = (30,9))

plt.subplot(1,3,1)
sns.lineplot(
    x = 'Country',
    y = 'movies_per_year',
    data = df_6_tv_grp1
)
plt.title('Tv shows per year in each Country',fontsize = 15)
plt.xticks(rotation = 45,fontsize = 9)

plt.subplot(1,3,2)
sns.barplot(
    y = 'movies_per_year',
    x = 'Country',
    data = df_6_mv_grp1
)
plt.title('Movies per year in each country',fontsize = 15)
plt.xticks(rotation = 45,fontsize = 9)


plt.show()
```
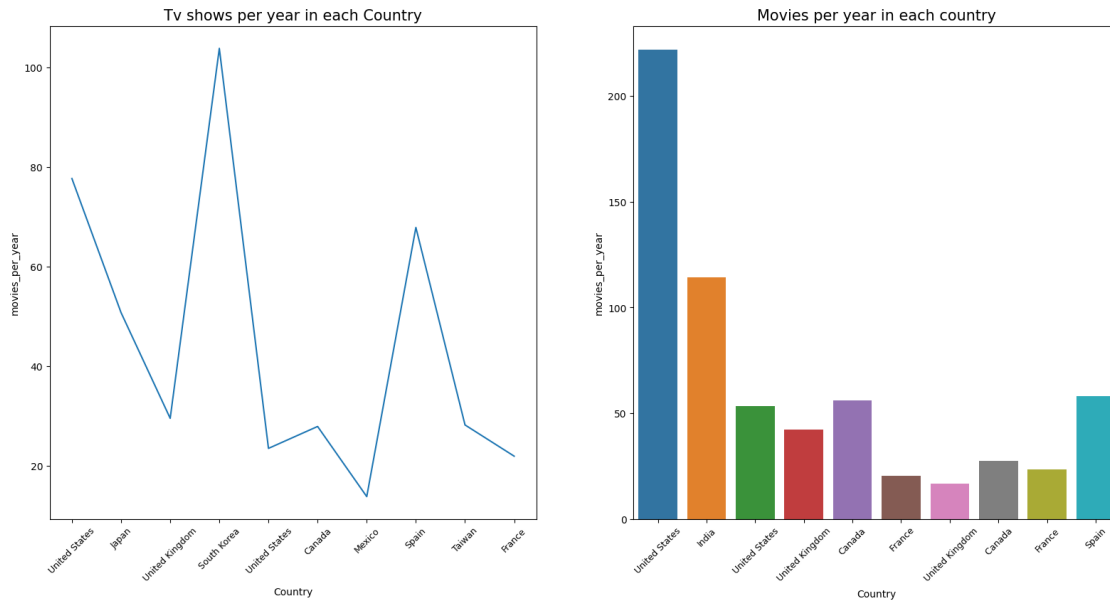
As from the above plots we can conclude the measures of different categories like actors, directors,Genre and their counts has been represented graphically.

[ ]:

5 CONCLUSION:

1. The given Data of 'Netflix' ha sthe data of movies and TV shows for the year ranges of nearly 90 yerars (1931-2021).

2. The Netflix has been the Market leader of OTT for most of the years and will be by adding some of my insights:

3. The Tv shows became so popular now-a-days the netflix series are so popular increasing the content and numbe of series makes the audiance more tied to Netflix.

4. The Movies has been slightly decreasing pattern in year 2021, Focusing on TV Shows is the good way but Movies are also stress busters for many of audiance.

5.Focusing on the age groups,countries and the screening time may yeild the best possible results for the platform.

[ ]: