Netflix Business Case

In [164…
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from wordcloud import WordCloud
```

In [82]:
```
df=pd.read_csv('netflix.csv')
```

In [83]:
```
df.head()
```

Out[83]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train I...

In [84]:
```
df.dtypes
```

Out[84]:
```
show_id         object
type            object
title           object
director        object
cast            object
country         object
date_added      object
release_year     int64
rating          object
duration        object
listed_in       object
description     object
dtype: object
```

In [85]:
```
df.describe()
```

Out[85]:

	release_year
count	8807.000000
mean	2014.180198
std	8.819312
min	1925.000000
25%	2013.000000
50%	2017.000000
75%	2019.000000
max	2021.000000

In [86]:
```
df.size
```

Out[86]:
```
105684
```

In [87]:
```
df.ndim
```

Out[87]:
```
2
```

In [88]:
```
df.shape
```

Out[88]: (8807, 12)

Unnesting values

In [89]:
```
df['director']=df['director'].str.split(',')
```

In [90]:
```
df1=df.explode('director')
```

In [91]:
```
df1.head()
```

Out[91]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train I...

In [92]:
```
df1.shape
```

Out[92]: (9612, 12)

for cast

In [93]:
```
df1['cast']=df1['cast'].str.split(',')
```

In [94]:
```
df2=df1.explode('cast')
```

In [95]:
```
df2.head()
```

Out[95]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Khosi Ngema	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Gail Mabalane	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Thabang Molaba	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...

In [96]:
```
df2.shape
```

Out[96]:
```
(70812, 12)
```

for country

In [97]:
```
df2['country']=df['country'].str.split(',')
```

In [98]:
```
df3=df2.explode('country')
```

In [99]:
```
df3.head()
```

Out[99]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Khosi Ngema	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Gail Mabalane	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Thabang Molaba	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...

In [100…
```
df3.shape
```

Out[100]:
```
(89415, 12)
```

for listed_in

In [101…
```
df3['listed_in']=df3['listed_in'].str.split(',')
```

In [102…
```
final=df3.explode('listed_in')
```

In [103…
```
final.head()
```

Out[103]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	TV Dramas	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	TV Mysteries	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Khosi Ngema	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows	After crossing paths at a party, a Cape Town t...

In [104…
```
final.shape
```

Out[104]:
```
(202065, 12)
```

spliting duration

In [105…
```
final['duration']=final['duration'].str.split().str[0]
```

In [106…
```
final.head()
```

Out[106]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2	International TV Shows	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2	TV Dramas	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2	TV Mysteries	After crossing paths at a party, a Cape Town t...
1	s2	TV Show	Blood & Water	NaN	Khosi Ngema	South Africa	September 24, 2021	2021	TV-MA	2	International TV Shows	After crossing paths at a party, a Cape Town t...

In [107…
```
final.drop(['description'],axis=1,inplace=True)
```

In [108…
```
final.head()
```

Out[108]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90	Documentaries
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2	International TV Shows
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2	TV Dramas
1	s2	TV Show	Blood & Water	NaN	Ama Qamata	South Africa	September 24, 2021	2021	TV-MA	2	TV Mysteries
1	s2	TV Show	Blood & Water	NaN	Khosi Ngema	South Africa	September 24, 2021	2021	TV-MA	2	International TV Shows

In [109…
```
# filling nan
```

In [110…
```
final.isnull().sum()
```

Out[110]:
```
show_id            0
type               0
title              0
director       50643
cast            2149
country        11897
date_added       158
release_year       0
rating            67
duration           3
listed_in          0
dtype: int64
```

In [111…
```
final.head(1)
```

Out[111]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90	Documentaries

In [112…
```
final['director'].fillna('Unknown director',inplace=True)
final['cast'].fillna('Unknown cast',inplace=True)
final['country'].fillna('Unknown country',inplace=True)
final['rating'].fillna('Unknown rating',inplace=True)
final['duration'].fillna('Unknown duration',inplace=True)
```

In [113…
```
final.isna().sum()
```

Out[113]:
```
show_id           0
type              0
title             0
director          0
cast              0
country           0
date_added      158
release_year      0
rating            0
duration          0
listed_in         0
dtype: int64
```

In [114…
```
final['date_added']=pd.to_datetime(df['date_added'],format='mixed')
```

In [115…
```
f=final['date_added'].mode()
```

In [116…
```
f
```

Out[116]:
```
0   2020-01-01
Name: date_added, dtype: datetime64[ns]
```

In [117…
```
final['date_added'].fillna('2020-01-01',inplace=True)
```

In [118…
```
final.isna().sum()
```

Out[118]:
```
show_id         0
type            0
title           0
director        0
cast            0
country         0
date_added      0
release_year    0
rating          0
duration        0
listed_in       0
dtype: int64
```

In [ ]:
```

```

In [119…
```
final.head()
```

Out[119]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	Unknown cast	United States	2021-09-25	2020	PG-13	90	Documentaries
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	International TV Shows
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	TV Dramas
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	TV Mysteries
1	s2	TV Show	Blood & Water	Unknown director	Khosi Ngema	South Africa	2021-09-24	2021	TV-MA	2	International TV Shows

In [120…
```
final['date_added'].fillna('2020-01-01',inplace=True)
```

In [121…
```
final['added_year']=pd.to_datetime(final['date_added']).dt.year
```

In [122…
```
final['week']=pd.to_datetime(final['date_added']).dt.isocalendar().week
final.head()
```

Out[122]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	added_year	week
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	Unknown cast	United States	2021-09-25	2020	PG-13	90	Documentaries	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	International TV Shows	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	TV Dramas	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	TV Mysteries	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Khosi Ngema	South Africa	2021-09-24	2021	TV-MA	2	International TV Shows	2021	38

Final csv

In [123…
```
final.head()
```

Out[123]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	added_year	week
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	Unknown cast	United States	2021-09-25	2020	PG-13	90	Documentaries	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	International TV Shows	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	TV Dramas	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	TV Mysteries	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Khosi Ngema	South Africa	2021-09-24	2021	TV-MA	2	International TV Shows	2021	38

In [124…
```
final.shape
```

Out[124]:
```
(202065, 13)
```

In [125…
```
final.describe()
```

Out[125]:

	date_added	release_year	added_year	week
count	202065	202065.000000	202065.000000	202065.0
mean	2019-06-19 16:51:44.268428800	2013.448950	2018.966248	26.678217
min	2008-01-01 00:00:00	1925.000000	2008.000000	1.0
25%	2018-06-26 00:00:00	2012.000000	2018.000000	14.0
50%	2019-09-06 00:00:00	2016.000000	2019.000000	27.0
75%	2020-09-10 00:00:00	2019.000000	2020.000000	39.0
max	2021-09-25 00:00:00	2021.000000	2021.000000	53.0
std	NaN	9.013616	1.551317	15.062558

In [126…

```
final.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Index: 202065 entries, 0 to 8806
Data columns (total 13 columns):
 #   Column        Non-Null Count   Dtype
---  ------        --------------   -----
 0   show_id       202065 non-null  object
 1   type          202065 non-null  object
 2   title         202065 non-null  object
 3   director      202065 non-null  object
 4   cast          202065 non-null  object
 5   country       202065 non-null  object
 6   date_added    202065 non-null  datetime64[ns]
 7   release_year  202065 non-null  int64
 8   rating        202065 non-null  object
 9   duration      202065 non-null  object
 10  listed_in     202065 non-null  object
 11  added_year    202065 non-null  int32
 12  week          202065 non-null  UInt32
dtypes: UInt32(1), datetime64[ns](1), int32(1), int64(1), object(9)
memory usage: 20.2+ MB
```

In [127…

```
final.dtypes
```

Out[127]:
```
show_id                 object
type                    object
title                   object
director                object
cast                    object
country                 object
date_added      datetime64[ns]
release_year             int64
rating                  object
duration                object
listed_in               object
added_year               int32
week                    UInt32
dtype: object
```

In [128…
```
final.head()
```

Out[128]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	added_year	week
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	Unknown cast	United States	2021-09-25	2020	PG-13	90	Documentaries	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	International TV Shows	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	TV Dramas	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata	South Africa	2021-09-24	2021	TV-MA	2	TV Mysteries	2021	38
1	s2	TV Show	Blood & Water	Unknown director	Khosi Ngema	South Africa	2021-09-24	2021	TV-MA	2	International TV Shows	2021	38

Q1. Find the counts of each categorical variable both using graphical and non graphical analysis.

a. For Non-graphical Analysis:

In [129…
```
# for type
final['type'].unique()
```

Out[129]:
```
array(['Movie', 'TV Show'], dtype=object)
```

In [130…
```
# for title
final['title'].nunique()
```

Out[130]:
```
8807
```

In [131…
```
# for director
final['director'].nunique()
```

Out[131]:
```
5121
```

In [132…
```
# fro caster:
final['cast'].nunique()
```

Out[132]:
```
39297
```

In [133…
```
# for country
```

In [134…
```
final['country'].nunique()
```

Out[134]:
```
198
```

In [135…
```
# for date
final['date_added'].max(),final['date_added'].min()
```

Out[135]:
```
(Timestamp('2021-09-25 00:00:00'), Timestamp('2008-01-01 00:00:00'))
```

In [136…
```
# for rating
final['rating'].nunique()
```

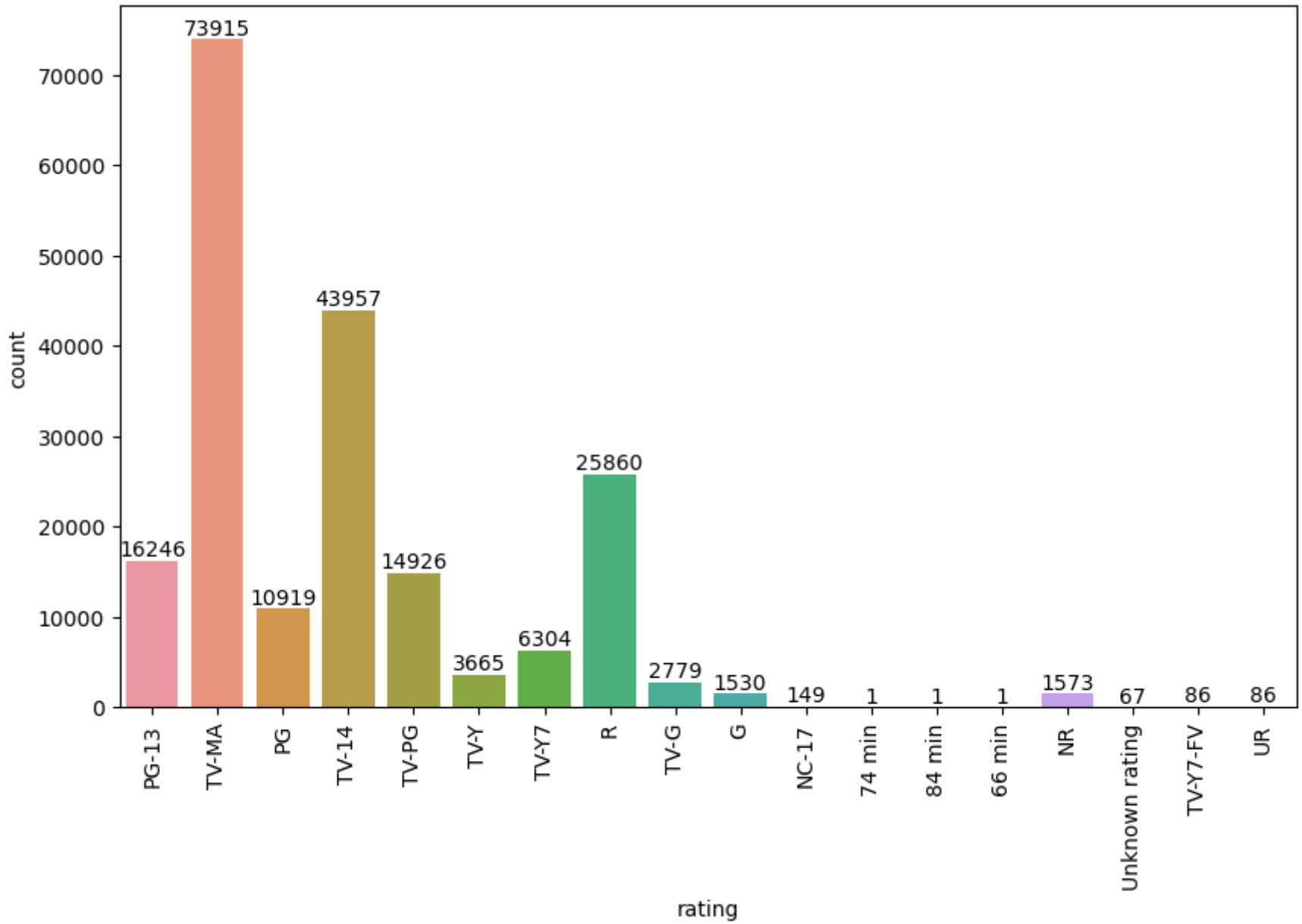
Out[136]:
```
18
```

In [187…
```
# for listed_in
final['listed_in'].unique()
final['listed_in'].nunique()
```

Out[187]:
```
73
```

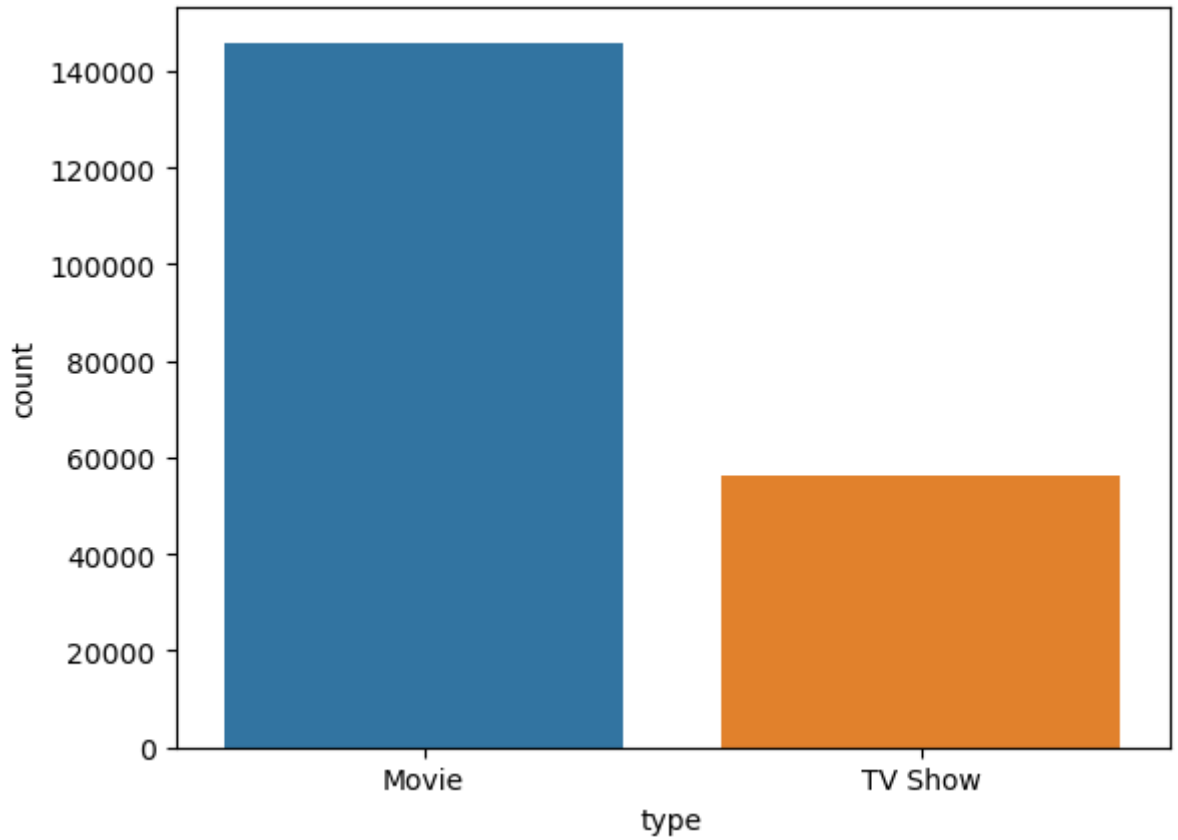
In [219…

```
# for rating
plt.figure(figsize=(10,6))
sns.countplot(data=final,x='rating')
plt.xticks(rotation=90)
ax=plt.gca()
for bars in ax.containers:
    ax.bar_label(bars)
plt.show()
```



In [220…

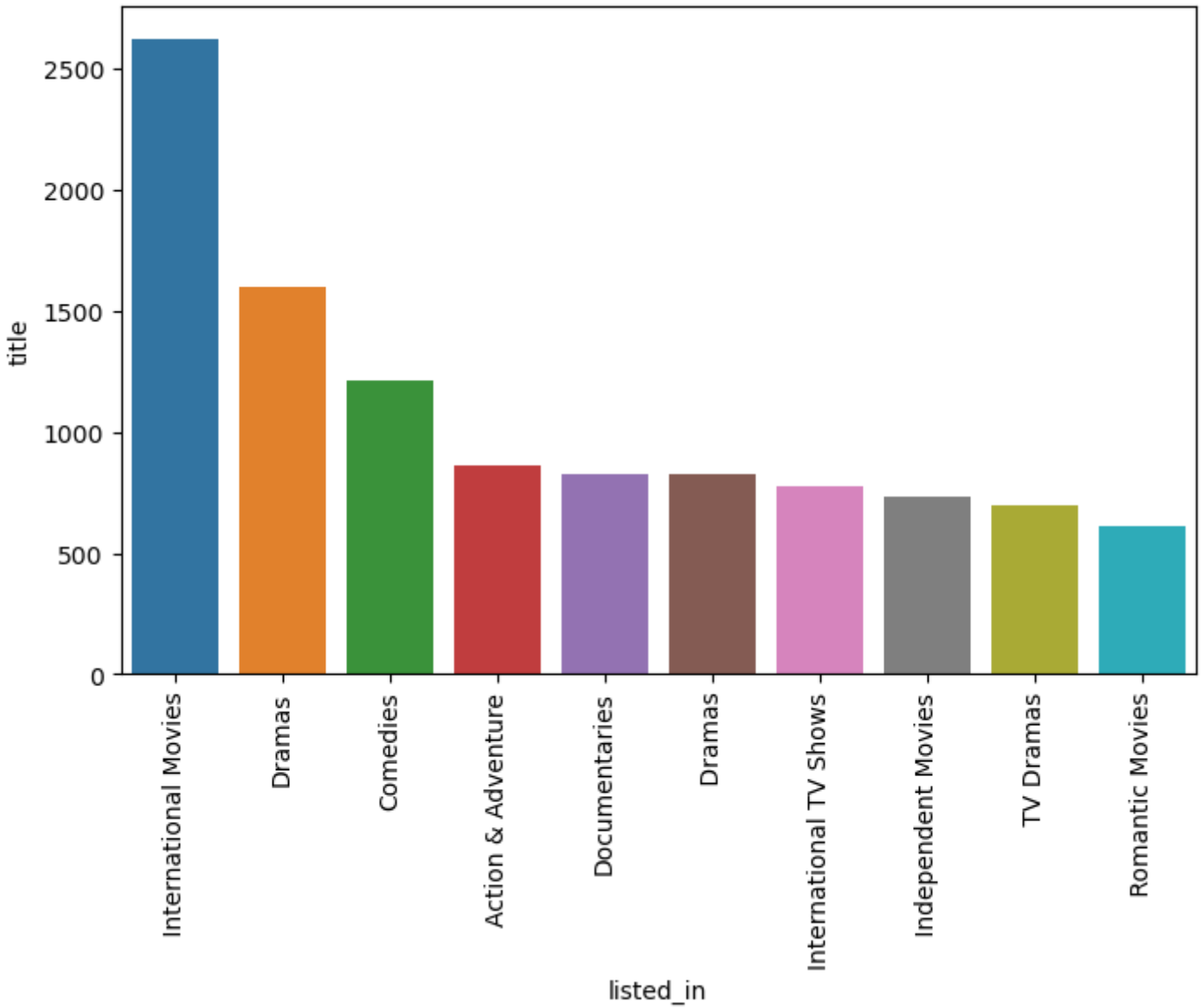
```
# for type
sns.countplot(data=final,x='type')
plt.show()
```



Here the netflix lauched movies more than TV show

In [234…

```
# for genre
top10_cat = final.groupby('listed_in')['title'].nunique().sort_values(ascending = False).reset_index().head(10)
plt.figure(figsize = (8,5))
sns.barplot(data = top10_cat, x = 'listed_in', y = 'title')
plt.xticks(rotation = 90)
plt.show()
```



Q2: Comparison of tv shows vs. movies.

a. Find the number of movies produced in each country and pick the top 10 countries.

In [140…

```
# These are for both type that is movie and TV show
final.groupby('country')['title'].nunique().nlargest(10)
```

Out[140]:

```
country
United States      3211
India              1008
Unknown country     831
United Kingdom      628
 United States      479
Canada              271
Japan               259
France              212
South Korea         211
 France             181
Name: title, dtype: int64
```

In [235…

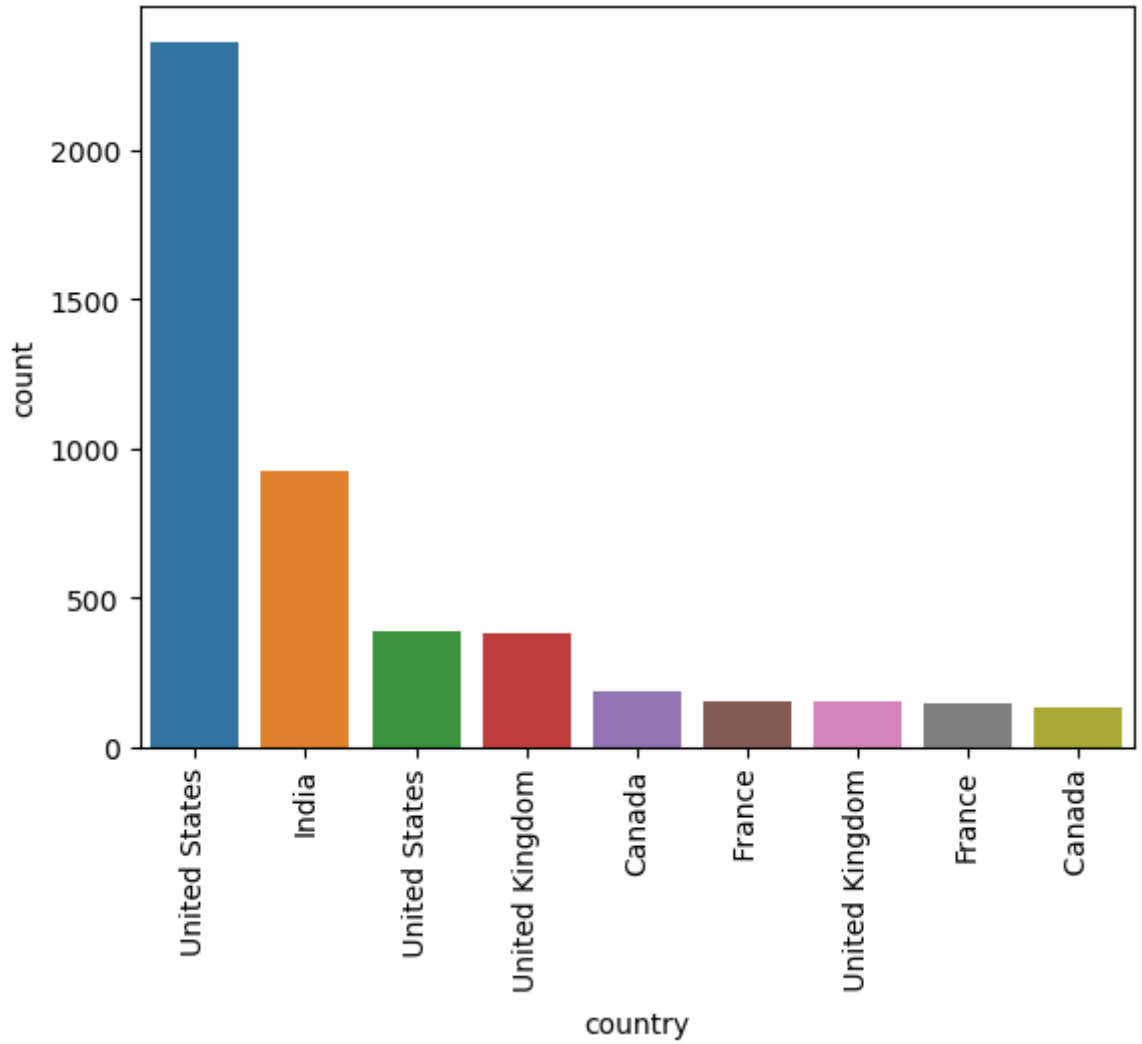
```
# For movie
t1=final[final['type']=='Movie']
f=t1.groupby('country')['title'].nunique().reset_index()
top10_movies=f.sort_values(by='title',ascending=False).head(10)
top10_movies=top10_movies[top10_movies['country']!='Unknown country']
top10_movies=top10_movies.rename(columns={'title':'count'})
top10_movies
```

Out[235]:

	country	count
181	United States	2364
136	India	927
103	United States	388
180	United Kingdom	382
118	Canada	187
32	France	155
102	United Kingdom	152
127	France	148
18	Canada	132

In [236…

```
sns.barplot(data=top10_movies,x='country',y='count')
plt.xticks(rotation=90)
plt.show()
```



Here we can see that netflix lanched more movies in United States and India rather than other country, They aslo launch more movies other country also

b. Find the number of Tv-Shows produced in each country and pick the top 10 countries.

In [238…

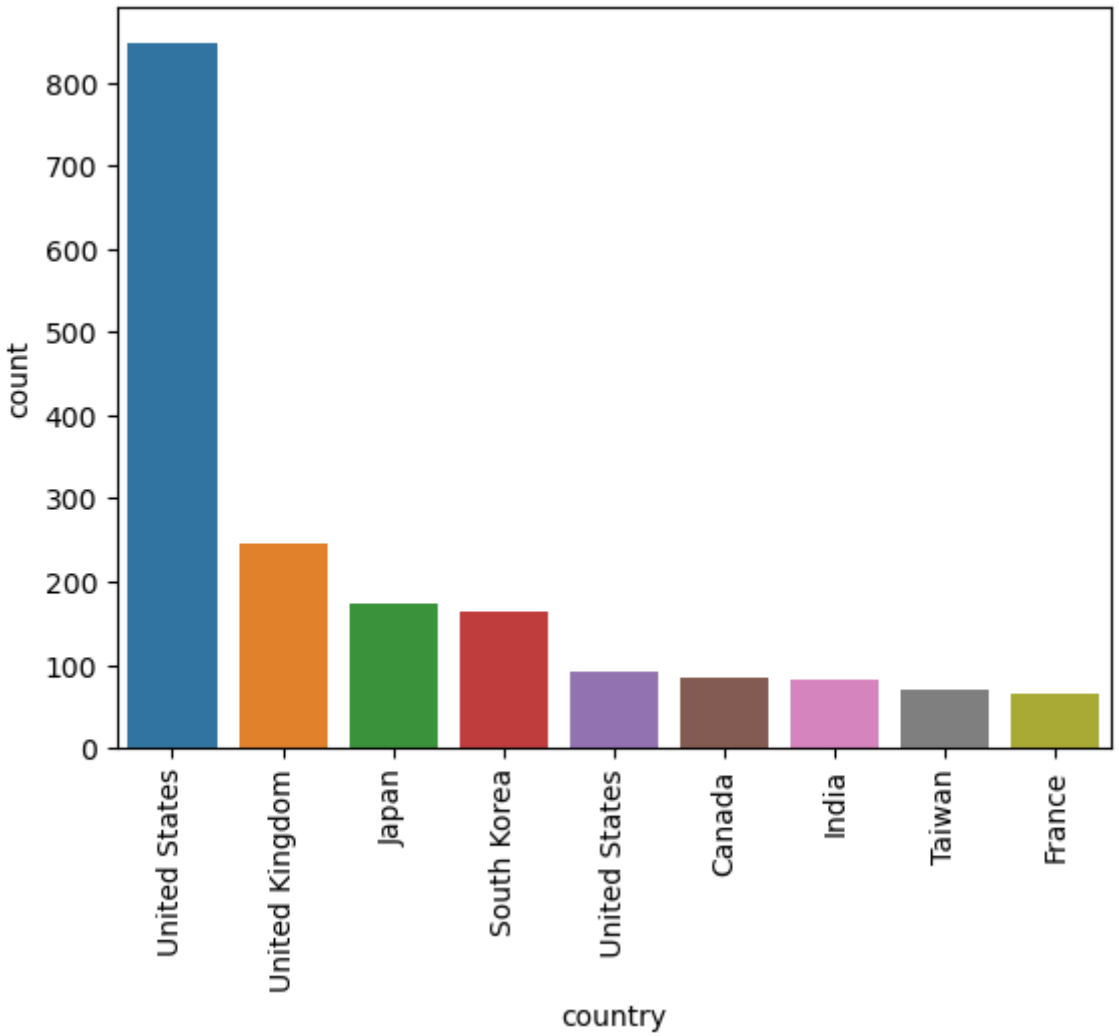
```
# for TV show
t1=final[final['type']=='TV Show']
f=t1.groupby('country')['title'].nunique().reset_index()
top10_tv=f.sort_values(by='title',ascending=False).head(10)
top10_tv=top10_tv[top10_tv['country']!='Unknown country']
top10_tv=top10_tv.rename(columns={'title':'count'})

top10_tv
```

Out[238]:

	country	count
100	United States	847
99	United Kingdom	246
69	Japan	174
90	South Korea	164
42	United States	91
50	Canada	84
64	India	81
94	Taiwan	70
60	France	64

In [239…

```
sns.barplot(data=top10_tv,x='country',y='count')
plt.xticks(rotation=90)
plt.show()
```

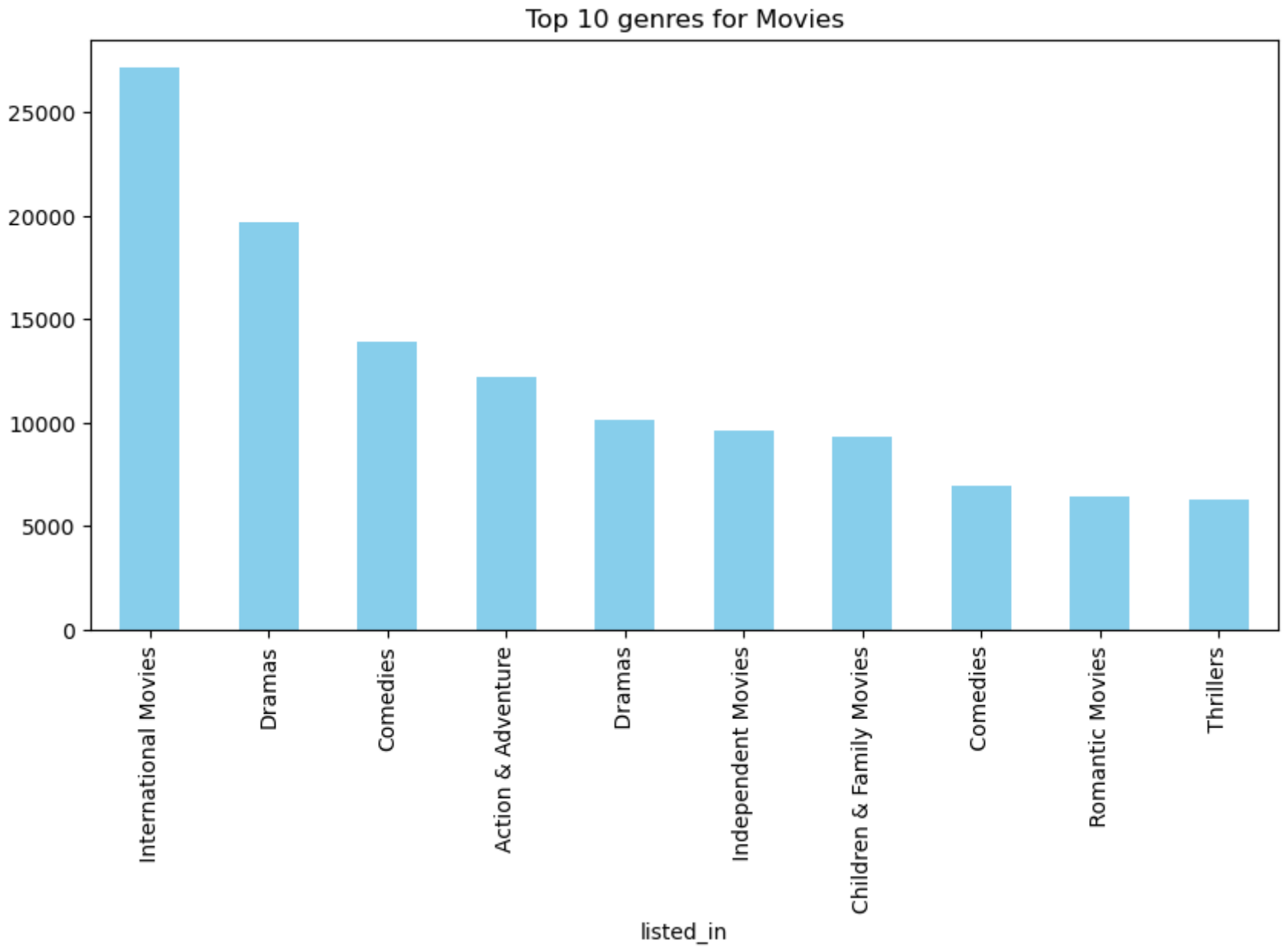


In TV show aslo United state are in lead position .

Q3: What are the most common genres on Netflix (top 10)

In [145…

```
# for movies
plt.figure(figsize=(10,5))
final[final['type']=='Movie'].listed_in.value_counts().nlargest(10).plot(kind='bar',color='skyblue')
plt.title('Top 10 genres for Movies')
plt.show()
```

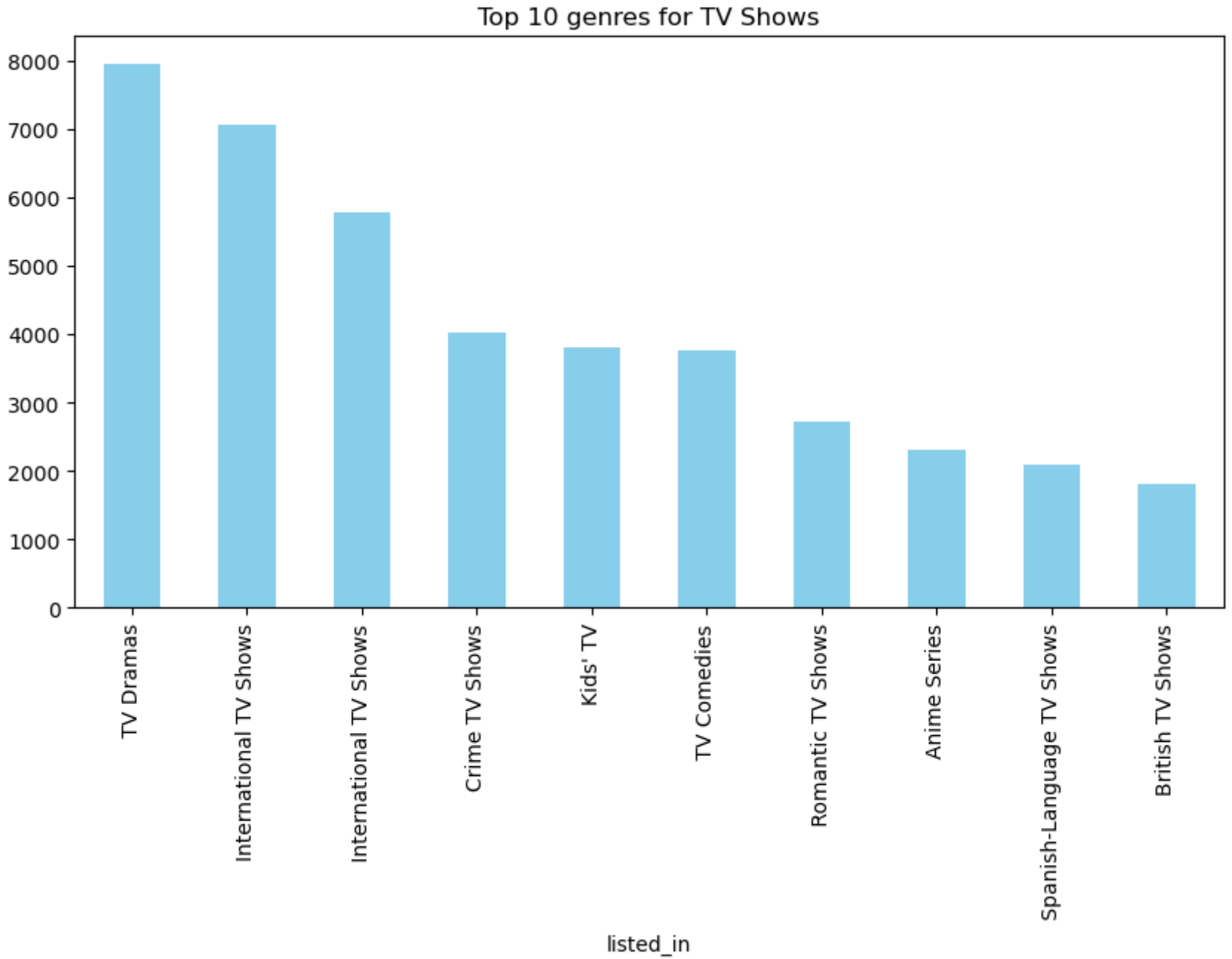


We can clearly see that common genre's are Internation movies, Dramas, Comedies are more popualar

In [146…

```
# for TV shows

plt.figure(figsize=(10,5))
```

```
final[final['type']=='TV Show'].listed_in.value_counts().nlargest(10).plot(kind='bar',color='skyblue')
plt.title('Top 10 genres for TV Shows')
plt.show()
```

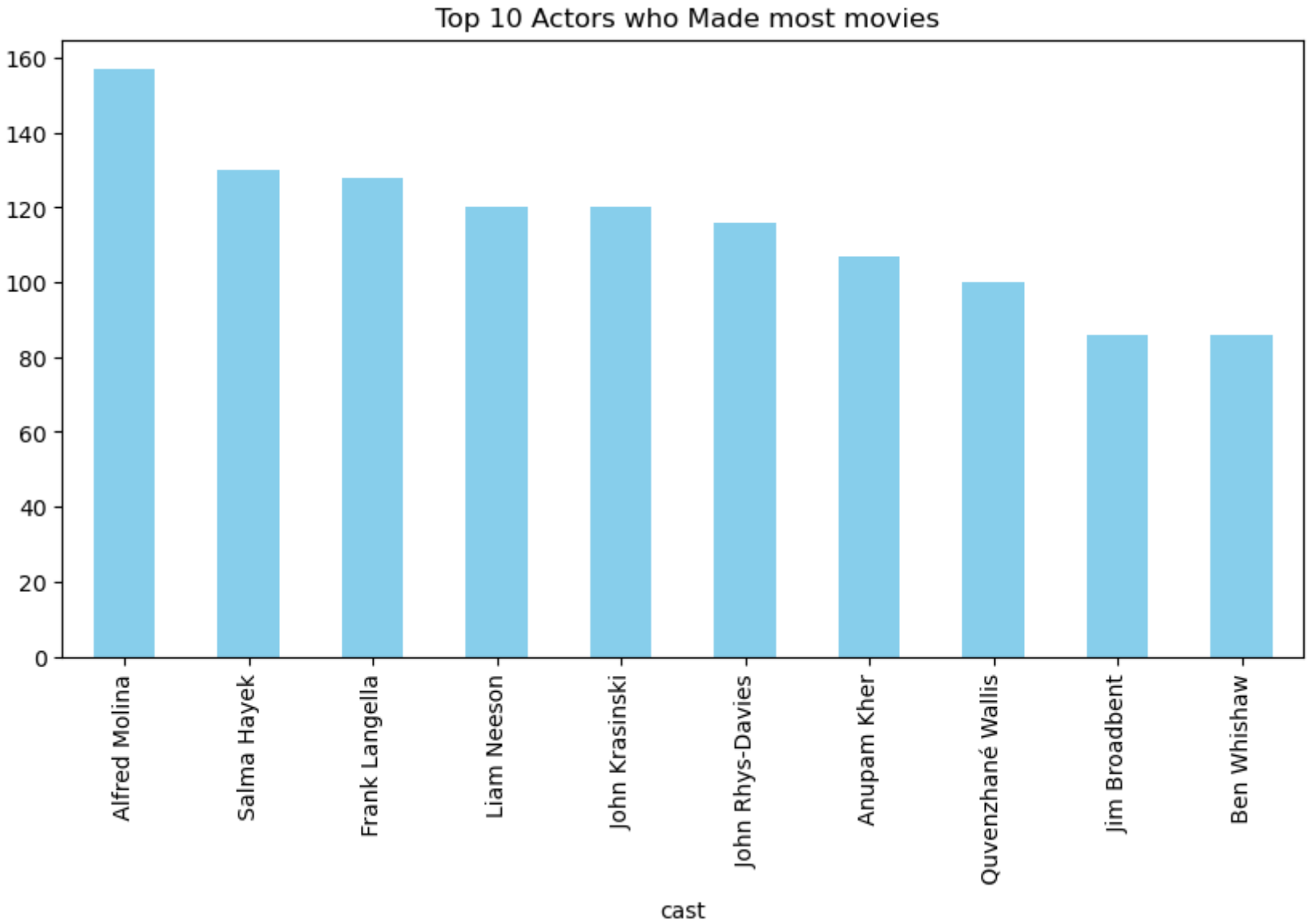


In TV Show, TV dramas, International are more popular

Q4: Who are the top 10 actors in movies as well as in TV show

In [147…

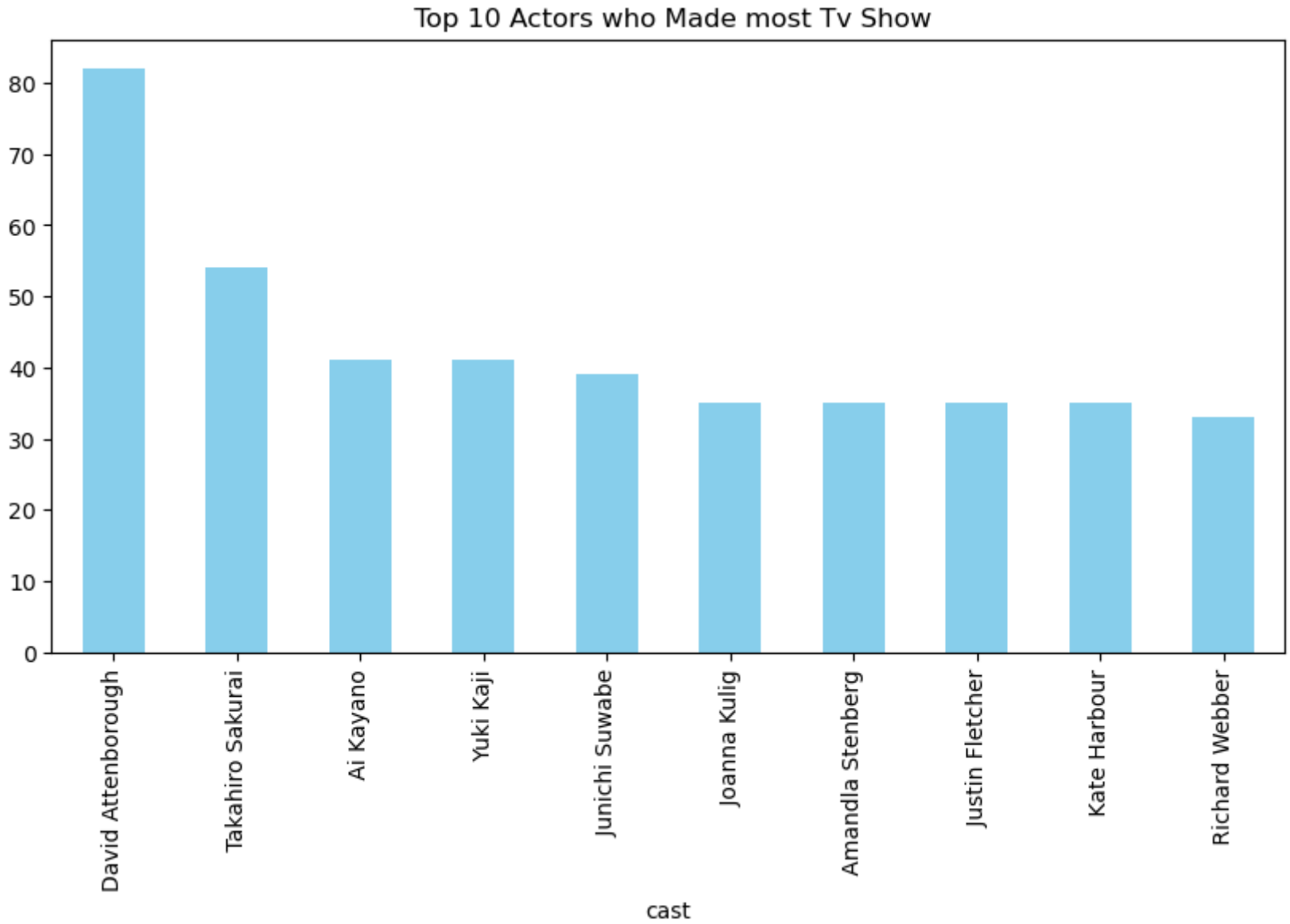
```
# Top actors for movies
plt.figure(figsize=(10,5))
final[(final['cast']!='Unknown cast') & (final['type']=='Movie')].cast.value_counts().nlargest(10).plot(kind='bar',color='skyblue
plt.title(' Top 10 Actors who Made most movies')
plt.show()
```



Above are the top actors who made most movies, Alfred Molina has occured in more than 160 movies

In [148…

```
# Top actors for TV Show
plt.figure(figsize=(10,5))
final[(final['cast']!='Unknown cast') & (final['type']=='TV Show')].cast.value_counts().nlargest(10).plot(kind='bar',color='skybl
plt.title(' Top 10 Actors who Made most Tv Show')
plt.show()
```



Above are the top actors who made most TV shows, David Attenborough has occured in more than 160 Tv shows

Q5 What is the best time to launch a TV show?

a. Find which is the best week to release the Tv-show or the movie. Do the analysis separately for Tv-shows and Movies

In [186…
```
best_month = final[['date_added', 'type', 'title']]
best_month = best_month[best_month['type'] == 'Movie']
best_month = best_month.groupby(best_month['date_added'].dt.isocalendar().week)['title'].nunique().reset_index()
best_month.rename(columns = {'date_added' : 'Week', 'title': 'Number of movie released' }).sort_values(by = 'Number of movie rele
```

Out[186]:

	week	Number of movie released
0	1	316
43	44	243
39	40	215
8	9	207
25	26	195
34	35	189
30	31	185
12	13	174
17	18	173
26	27	154
21	22	146
47	48	139

Acording to Above table, ! week that is January's 1'st week is the best week to release the Tv-show or the movie.

b. Find which is the best month to release the Tv-show or the movie. Do the analysis separately for Tv-shows and Movies

In [200…
```
# for movies
t1=final[final['type']=='Movie']
month_movie=t1.groupby(pd.to_datetime(t1['date_added']).dt.month_name())['title'].nunique().reset_index()
```

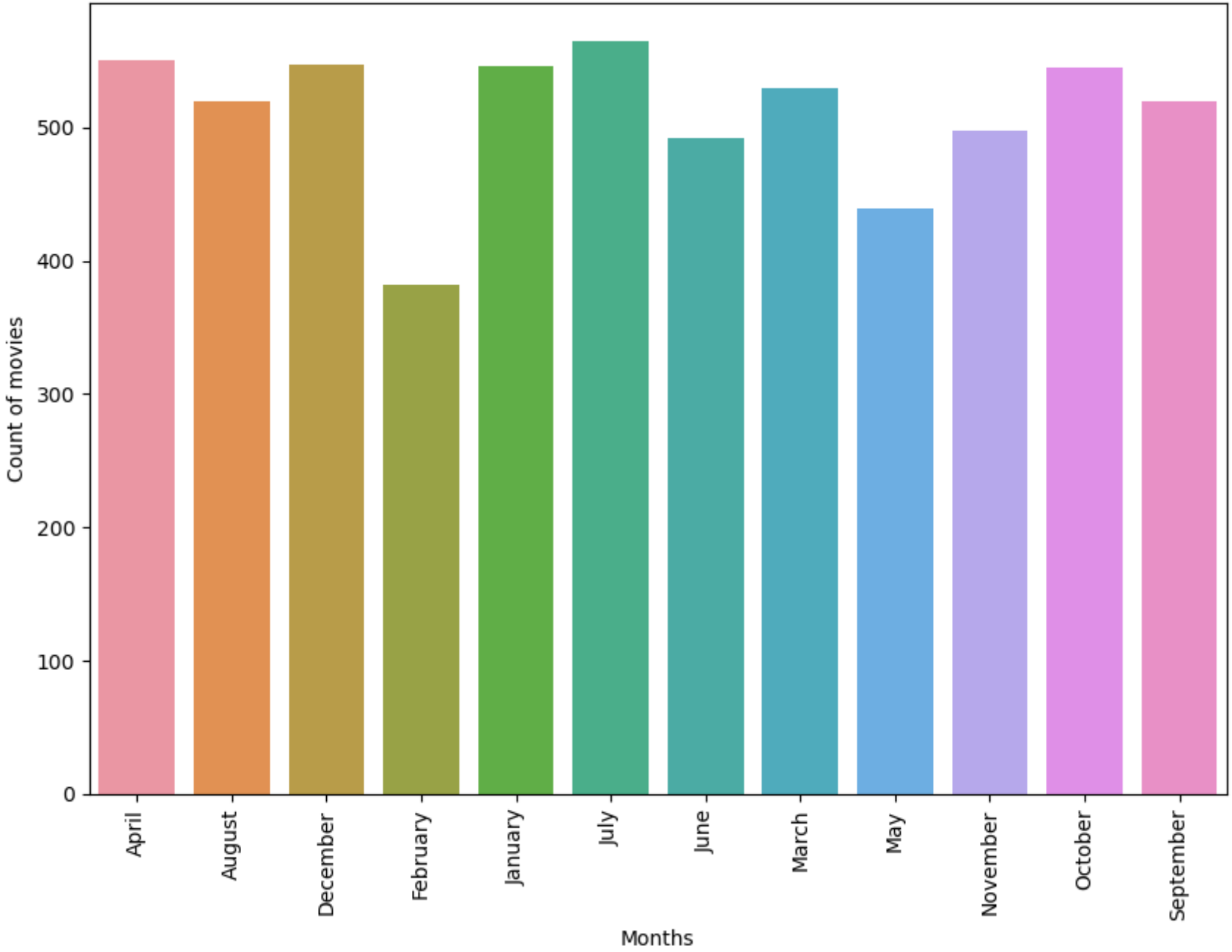
```
month_movie=month_movie.rename(columns={'title':'count'})
month_movie.sort_values(by='count',ascending=False)
```

Out[200]:

	date_added	count
5	July	565
0	April	550
2	December	547
4	January	546
10	October	545
7	March	529
1	August	519
11	September	519
9	November	498
6	June	492
8	May	439
3	February	382

In [203…

```
plt.figure(figsize=(10,7))
sns.barplot(data=month_movie,x='date_added',y='count')
plt.xlabel('Months')
plt.ylabel('Count of movies')
plt.xticks(rotation=90)
plt.show()
```



Best month to release Movie is July, And as compare to other months April is also pretty good month to release movie.

In [205…

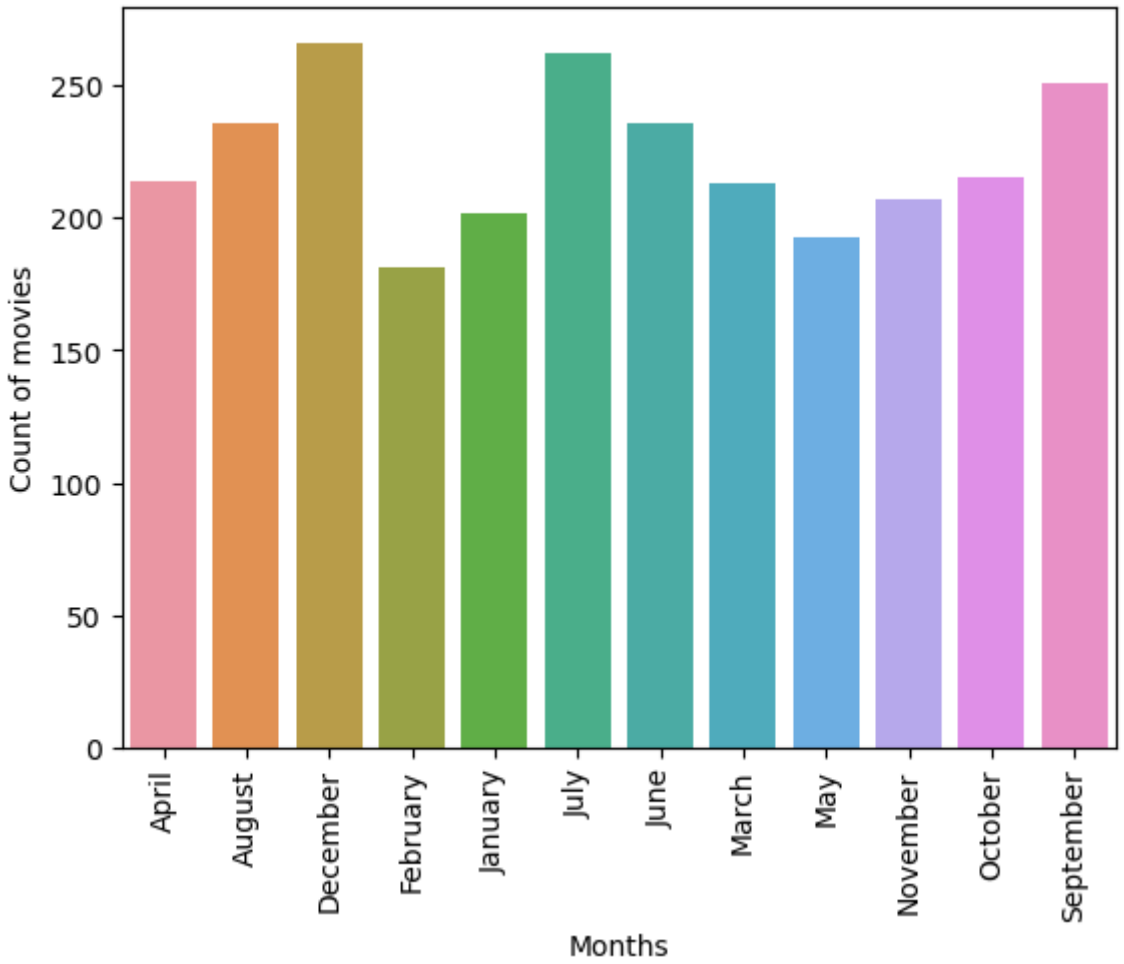
```
# for tv show
t2=final[final['type']=='TV Show']
month_tv=t2.groupby(pd.to_datetime(t2['date_added']).dt.month_name())['title'].nunique().reset_index()
month_tv
```

Out[205]:

	date_added	title
0	April	214
1	August	236
2	December	266
3	February	181
4	January	202
5	July	262
6	June	236
7	March	213
8	May	193
9	November	207
10	October	215
11	September	251

In [207…

```
sns.barplot(data=month_tv,x='date_added',y='title')
plt.xlabel('Months')
plt.ylabel('Count of movies')
plt.xticks(rotation=90)
plt.show()
```



Best month to release Tv Show is December.

Q6.Analysis of actors/directors of different types of shows/movies.

a. Identify the top 10 actor who have appeared in most movies or TV shows.

In [214…

```
top10_actor=final.groupby('cast')['title'].nunique().reset_index()
top10_actor.sort_values(by='title',ascending=False)
top10_actor=top10_actor[top10_actor['cast']!='Unknown cast']
```

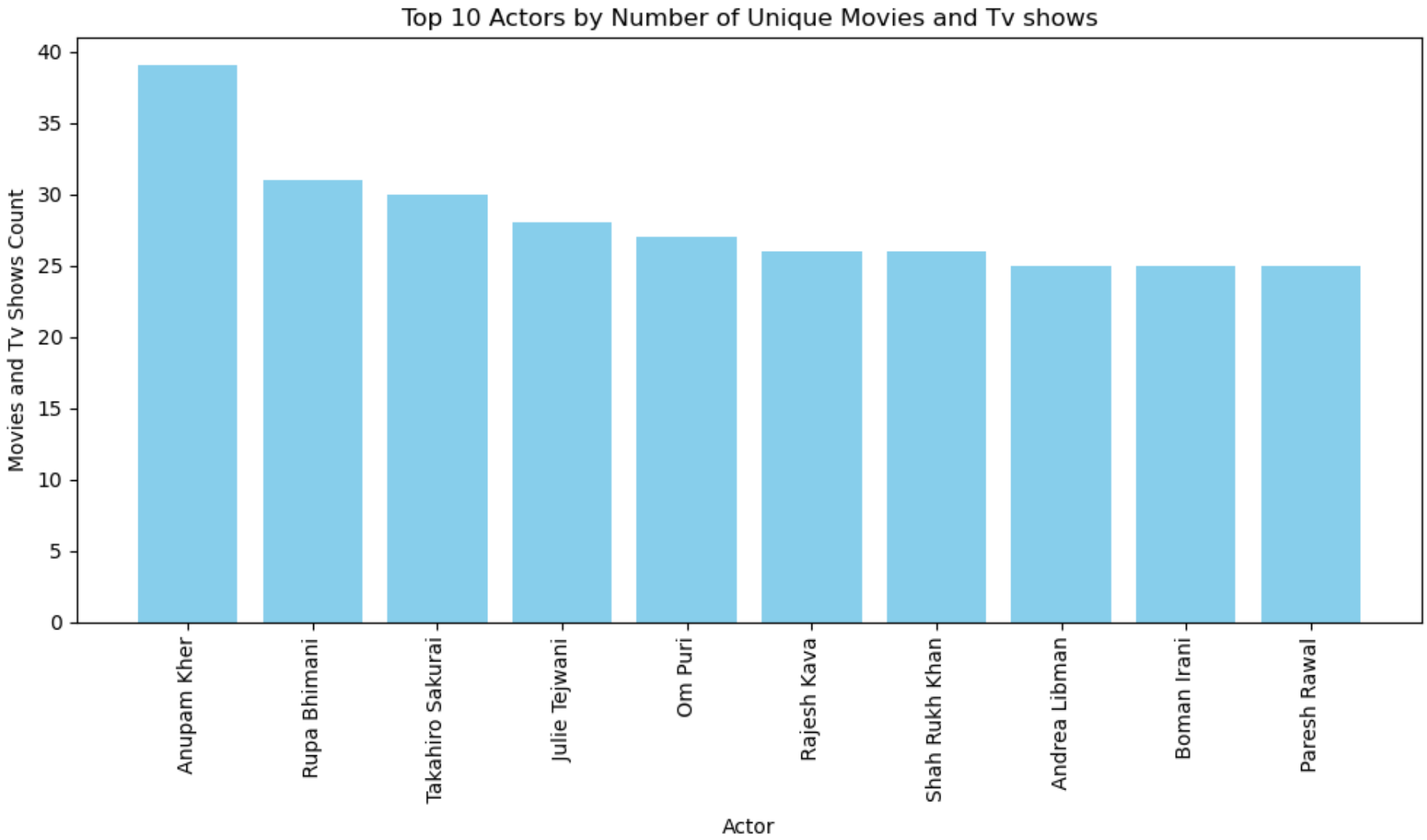
```
top10_actor=top10_actor.rename(columns={'title':'count'})
actor_10=top10_actor.nlargest(10,columns='count')
actor_10
```

Out[214]:

	cast	count
2612	Anupam Kher	39
26941	Rupa Bhimani	31
30303	Takahiro Sakurai	30
15541	Julie Tejwani	28
23624	Om Puri	27
25410	Rajesh Kava	26
38445	Shah Rukh Khan	26
1905	Andrea Libman	25
4186	Boman Irani	25
23956	Paresh Rawal	25

In [215…

```
plt.figure(figsize=(10, 6))
plt.bar(actor_10['cast'], actor_10['count'], color='skyblue')
plt.xlabel('Actor')
plt.ylabel('Movies and Tv Shows Count')
plt.title('Top 10 Actors by Number of Unique Movies and Tv shows')
plt.xticks(rotation=90)
plt.tight_layout()
plt.show()
```



Anupam Kher has appeared in most movies or TV shows.

b. Identify the top 10 directors who have appeared in most movies or TV shows.

In [216…

```
top10_director=final.groupby('director')['title'].nunique().reset_index()
top10_director.sort_values(by='title',ascending=False)
top10_director=top10_director[top10_director['director']!='Unknown director']
```

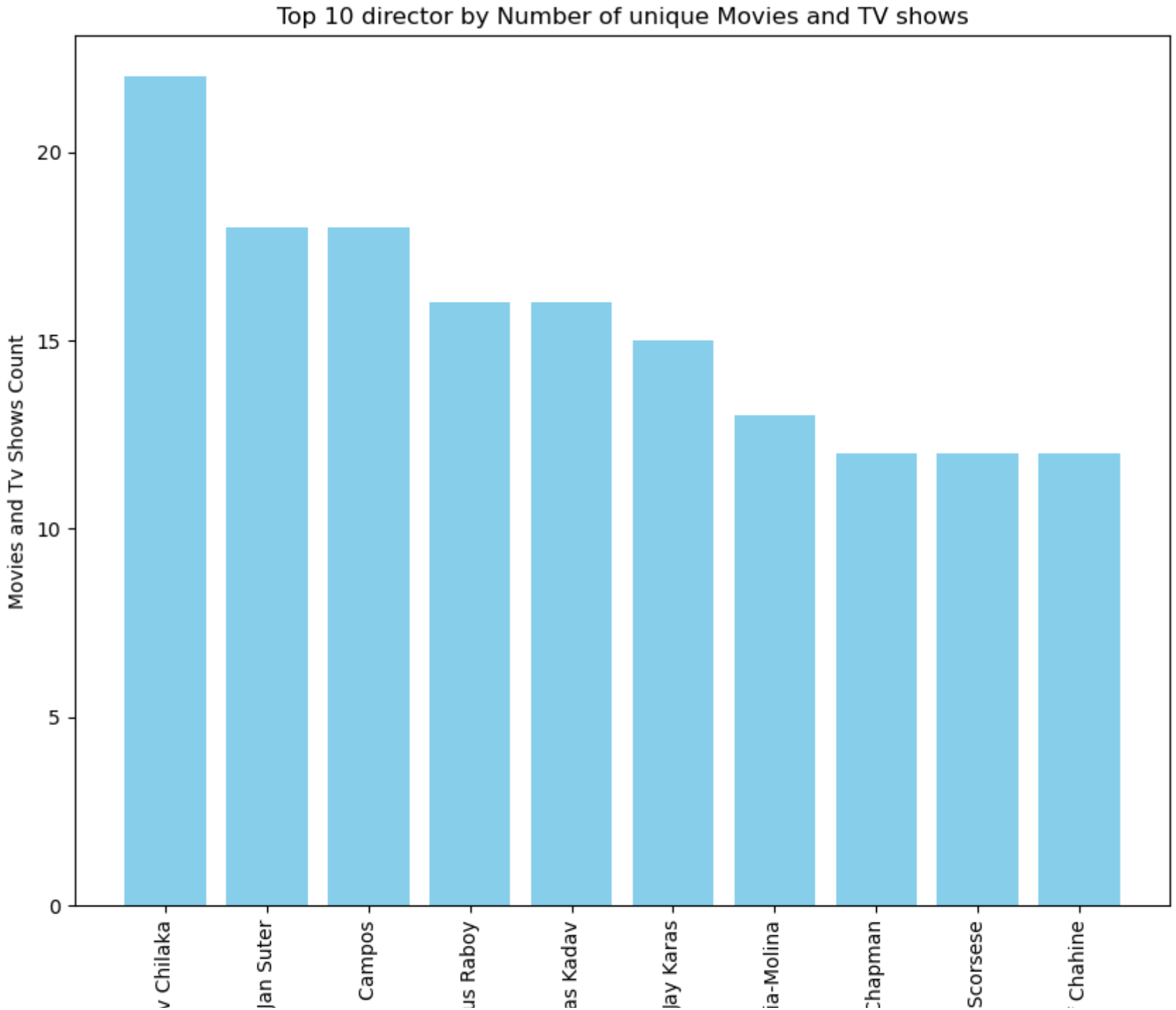
```
top10_director=top10_director.rename(columns={'title':'count'})
direcotr_10=top10_director.nlargest(10,columns='count')
direcotr_10
```

Out[216]:

	director	count
4020	Rajiv Chilaka	22
261	Jan Suter	18
4067	Raúl Campos	18
3235	Marcus Raboy	16
4651	Suhas Kadav	16
2450	Jay Karas	15
1382	Cathy Garcia-Molina	13
2447	Jay Chapman	12
3306	Martin Scorsese	12
5075	Youssef Chahine	12

In [217…

```
plt.figure(figsize=(10,8))
plt.bar(direcotr_10['director'],direcotr_10['count'],color='skyblue')
plt.title("Top 10 director by Number of unique Movies and TV shows")
plt.xlabel('Direcotr')
plt.ylabel('Movies and Tv Shows Count')
plt.xticks(rotation=90)
plt.show()
```

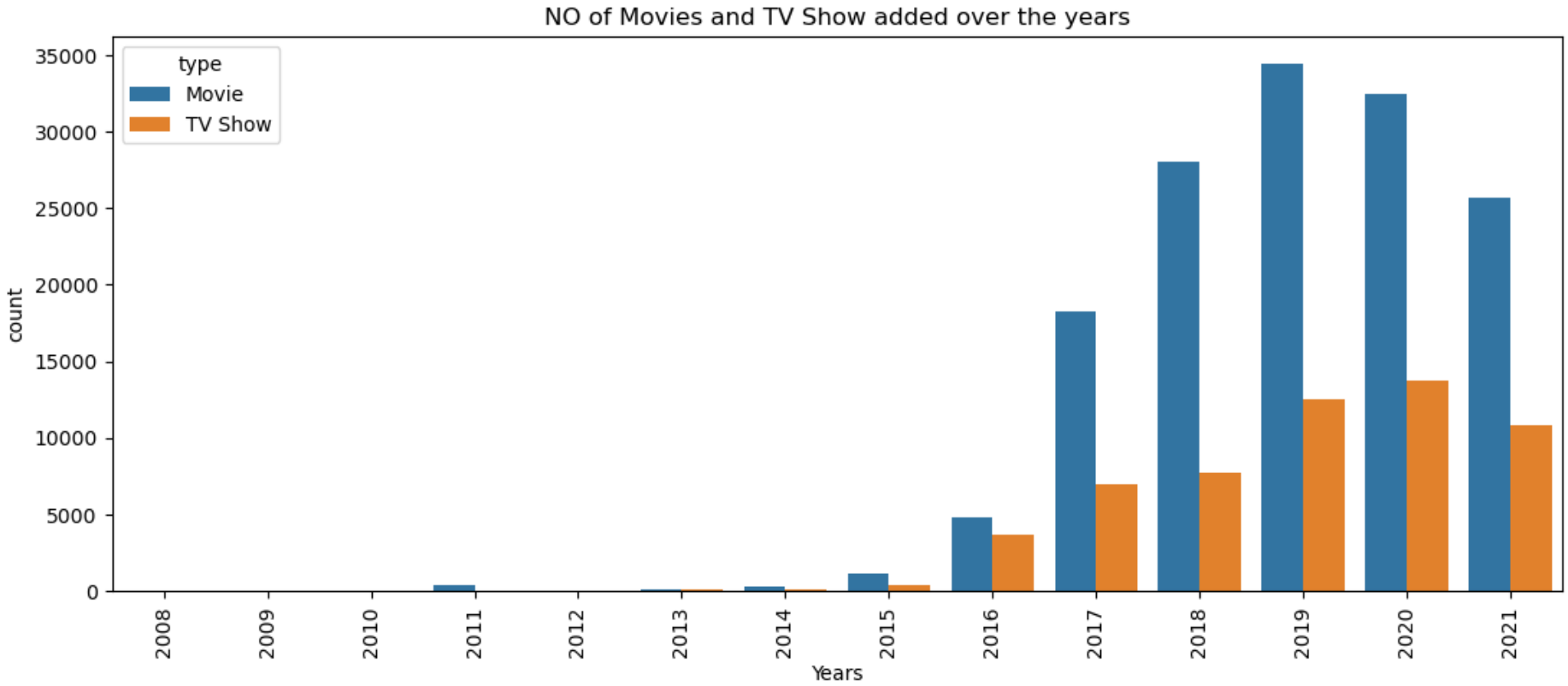

Top 10 director by Number of unique Movies and TV shows
Movies and Tv Shows Count
0
5
10
15
20
v Chilaka
Jan Suter
Campos
us Raboy
as Kadav
Jay Karas
ia-Molina
Chapman
Scorsese
Chahine

Rajiv Chilaka has directed most movies or TV shows.

Q7: Number of movies and TV shows added over the years

In [218…

```
plt.figure(figsize=(13,5))
sns.countplot(data=final,x='added_year',hue='type')
plt.xticks(rotation=90)
plt.xlabel('Years')
plt.title('NO of Movies and TV Show added over the years')
plt.show()
```



Here we can see that the upper trend from 2016 to 2021 in both the movie and tv show. Movies are more launched as compare to tv shows

8. Find After how many days the movie will be added to Netflix after the release of the movie

In [158…
```
final['dif']=final['added_year']-final['release_year']
```

In [159…
```
final['dif'].mode()[0]
```

Out[159]:
```
0
```

Here is the mode is 0 that it difference beween realase year and date_added , that means the best time to movie add to netflix is within 1 year.

Q9. Which genre movies are more popular or produced more

In [170…
```
text = str(list(final['listed_in'])).replace(',', '').replace('[', '').replace("'", '').replace(']', '')
plt.figure(figsize=(10, 7))
```

```
plt.imshow(wordcloud, interpolation='bilinear')
plt.axis('off')
plt.show()
```

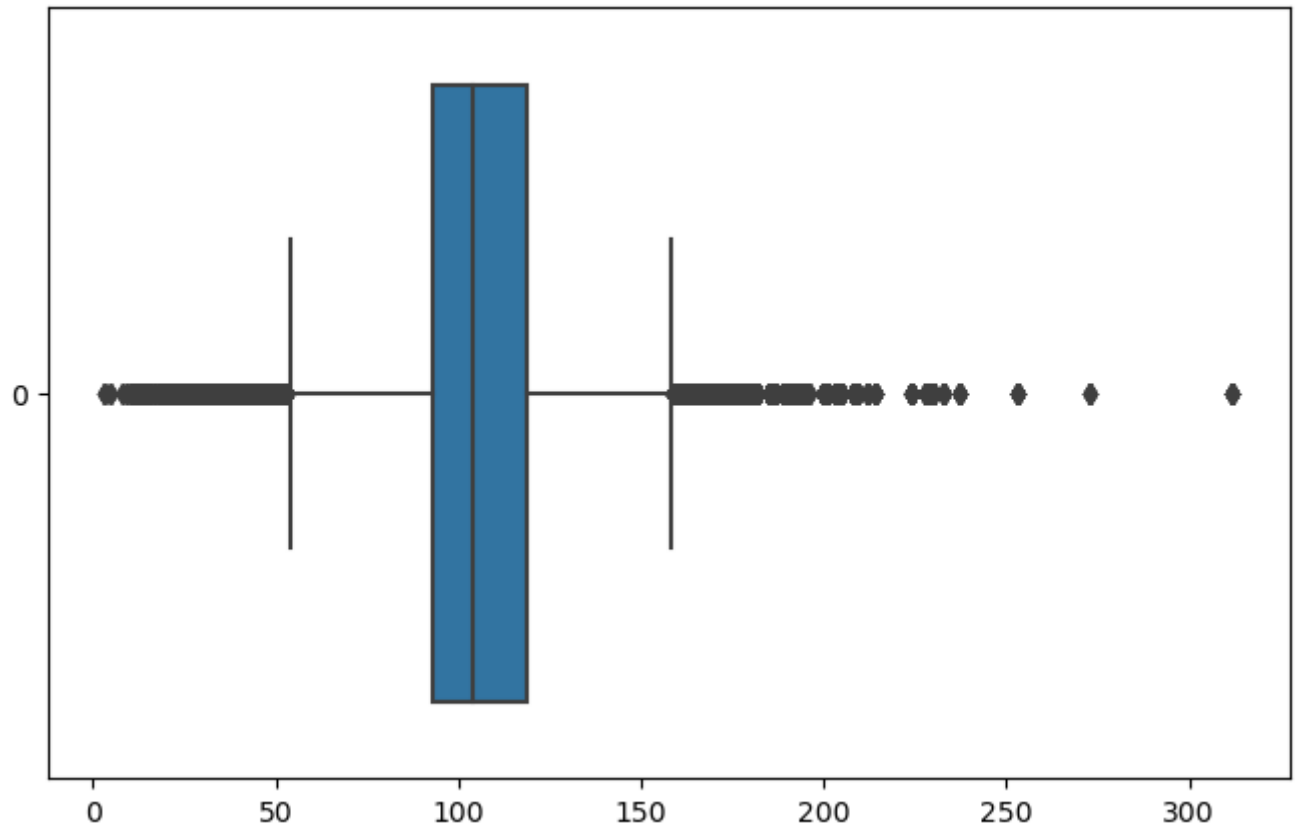
In [ ]:

10 : Analysis on Duration

For Movies

In [171…
```
move_duration=final[(final['type']=='Movie') & (final['duration']!='Unknown duration')]
```

In [172…
```
plt.figure(figsize=(8,5))
sns.boxplot(move_duration['duration'],orient='h')
plt.show()
```



The average movie time is 100 mins and there are some movie which are less than 50 min we can cosider them as outliers

Recommendations:

1: Netflix should focus more on launching TV shows or series since today's generation also watches TV shows. 2: Additionally, they should release a greater variety of content in countries beyond the United States. 3: Moreover, Netflix should consider releasing their movies and TV shows during peak vacation times such as summer, winter, and New Year's. 4: They should aim to add movies to their platform within six months of the movies' actual release dates.