```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import math
import plotly.express as px
from wordcloud import WordCloud
from datetime import datetime
```

```
!gdown https://drive.google.com/uc?id=1x_3IwnZNC3lQg4AVQno0AQLUHm50Sz5R
```

```
Downloading...
From: https://drive.google.com/uc?id=1x_3IwnZNC3lQg4AVQno0AQLUHm50Sz5R
To: /content/netflix.csv
100% 3.40M/3.40M [00:00<00:00, 158MB/s]
```

```
data = pd.read_csv('netflix.csv')
data
```

	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	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

Next steps: Generate code with data View recommended plots New interactive sheet

First observations

- There are null values in Director,Cast,country coloumns
- Durations coloumn has a mixed values ones with seasons and ones with times
- There are multiple values in the cast coloumn separated by ","
- Listed coloumn also had multiple values separated by ","

Initial Analysis

Shape of the data

```
data.shape
```

```
(8807, 12)
```

The data set has currntly 8807 rows and 12 coloumns

Information of the data we have the kind

```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8807 entries, 0 to 8806
Data columns (total 12 columns):
 #   Column        Non-Null Count  Dtype 
---  ------        --------------  ----- 
 0   show_id       8807 non-null   object
 1   type          8807 non-null   object
 2   title         8807 non-null   object
 3   director      6173 non-null   object
 4   cast          7982 non-null   object
 5   country       7976 non-null   object
 6   date_added    8797 non-null   object
 7   release_year  8807 non-null   int64 
 8   rating        8803 non-null   object
 9   duration      8804 non-null   object
 10  listed_in     8807 non-null   object
 11  description   8807 non-null   object
dtypes: int64(1), object(11)
memory usage: 825.8+ KB
```

Total No of Missing value counts

```
data.isnull().sum().sum()
```

```
4307
```

Total No of Null values across the entire data set

Univariate Analysis

Analysis performed on coloumn or variables

```
data['type'].value_counts()
```

type	count
Movie	6131
TV Show	2676

dtype: int64

We Have two different types of data One is the Movie and other is the TV Show and total we have around 6131 and 2676 no of values

```
data['rating'].value_counts()
```

```
            count
   rating
    TV-MA    3207
    TV-14    2160
    TV-PG     863
        R     799
    PG-13     490
    TV-Y7     334
     TV-Y     307
       PG     287
     TV-G     220
       NR      80
        G      41
 TV-Y7-FV       6
    NC-17       3
       UR       3
   74 min       1
   84 min       1
   66 min       1

dtype: int64
```

Above data shows the ratings and the total count of each

```
data['country'].value_counts()
```

```
                                              count
                                   country
                     United States             2818
                             India              972
                    United Kingdom              419
                             Japan              245
                       South Korea              199
                               ...              ...
          Romania, Bulgaria, Hungary              1
                 Uruguay, Guatemala               1
            France, Senegal, Belgium              1
  Mexico, United States, Spain, Colombia          1
        United Arab Emirates, Jordan              1
748 rows × 1 columns

dtype: int64
```

```
data.groupby('release_year')['release_year'].aggregate('count').sort_values(ascending=False)
```

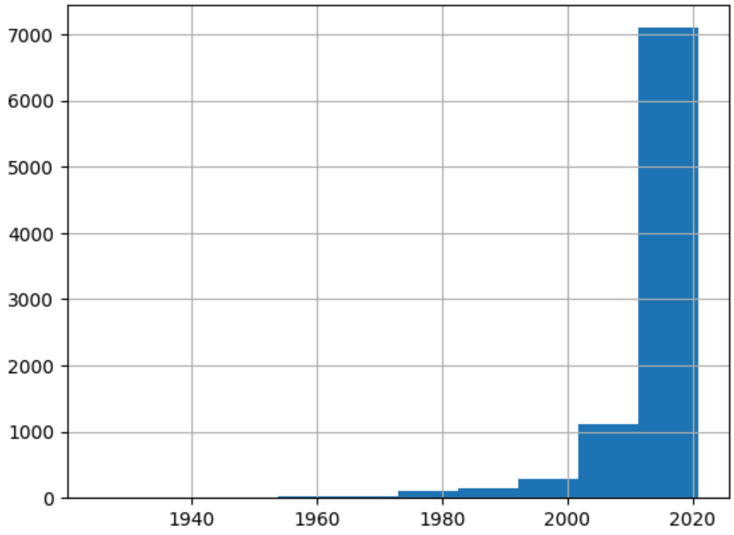
```
                 release_year
release_year
        2018             1147
        2017             1032
        2019             1030
        2020              953
        2016              902
         ...              ...
        1959                1
        1961                1
        1947                1
        1966                1
        1925                1

74 rows × 1 columns

dtype: int64
```

```
data['release_year'].hist()
```

```
<Axes: >
```



Checking for duplicates

```
data.duplicated().value_counts()
```

```
        count
False    8807

dtype: int64
```

This goes to say that there are no repeated entries in the data set

Converting the data added to data time format

```
data['date_added'] = pd.to_datetime(data['date_added'], format='%B %d, %Y', errors='coerce')
data.head(4)
```

	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	2021-09-25	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	South Africa	2021-09-24	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t

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The format of date and time have been converted to "Y-M-D" format and this we will be able to extract and convert to the format required for the analysis

Extracting month and year

```
data['year_added'] = data['date_added'].dt.year
data['month_added'] = data['date_added'].dt.month
data.head(4)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	ye
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	2021-09-25	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	South Africa	2021-09-24	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t	

Next steps: Generate code with data View recommended plots New interactive sheet

Season conversion

Now we have seen that there are seasons present for TV shows and we do not know the mins for it so let us consider one season has 30 episodes of each 30 mins which accounts to more of sitcomes these days which is of 900 min

```
def conversion(row):
    if ("season" in row.lower()):
        num = int(row.split()[0])
        return num * 30 * 30
    else:
        return int(row.split()[0]) if row else 0
data['duration'] = data['duration'].fillna('').astype(str)
data['duration_num'] = data['duration'].apply(conversion)
data.head(3)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	ye
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	2021-09-25	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...	
		TV	Blood &		Ama Qamata, Khosi	South				2	International TV Shows, TV	After crossing	

Next steps: Generate code with data View recommended plots New interactive sheet

If seen the duration num is converted to number values in terms of mins

Handeling the Missing Values

- Fill missing values in 'director' and 'cast' with 'Unknown'
- Fill missing values in 'country' with 'Unknown'
- Fill missing values in 'cast' with 'Unknown'
- Fill missing values in 'date_added' with 'Unknown'
- Fill missing values in 'rating' with 'Unknown'
- Fill missing values in 'duration' with 'Unknown'

```
data['director'] = data['director'].fillna('Unknown')
data['country'] = data['country'].fillna('Unknown')
data['cast'] = data['cast'].fillna('Unknown')
data['date_added'] = data['date_added'].fillna('Unknown')
data['rating'] = data['rating'].fillna('Unknown')
data['duration'] = data['duration'].fillna('Unknown')
data.head(3)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	ye
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	Unknown	United States	2021-09-25 00:00:00	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...	
		TV	Blood &		Ama Qamata, Khosi	South	2021-09-24			2	International TV Shows, TV	After crossing	

Next steps: Generate code with data View recommended plots New interactive sheet

All the missing data has been replaced

Graphical and Non Graphical Analysis of the data count per category

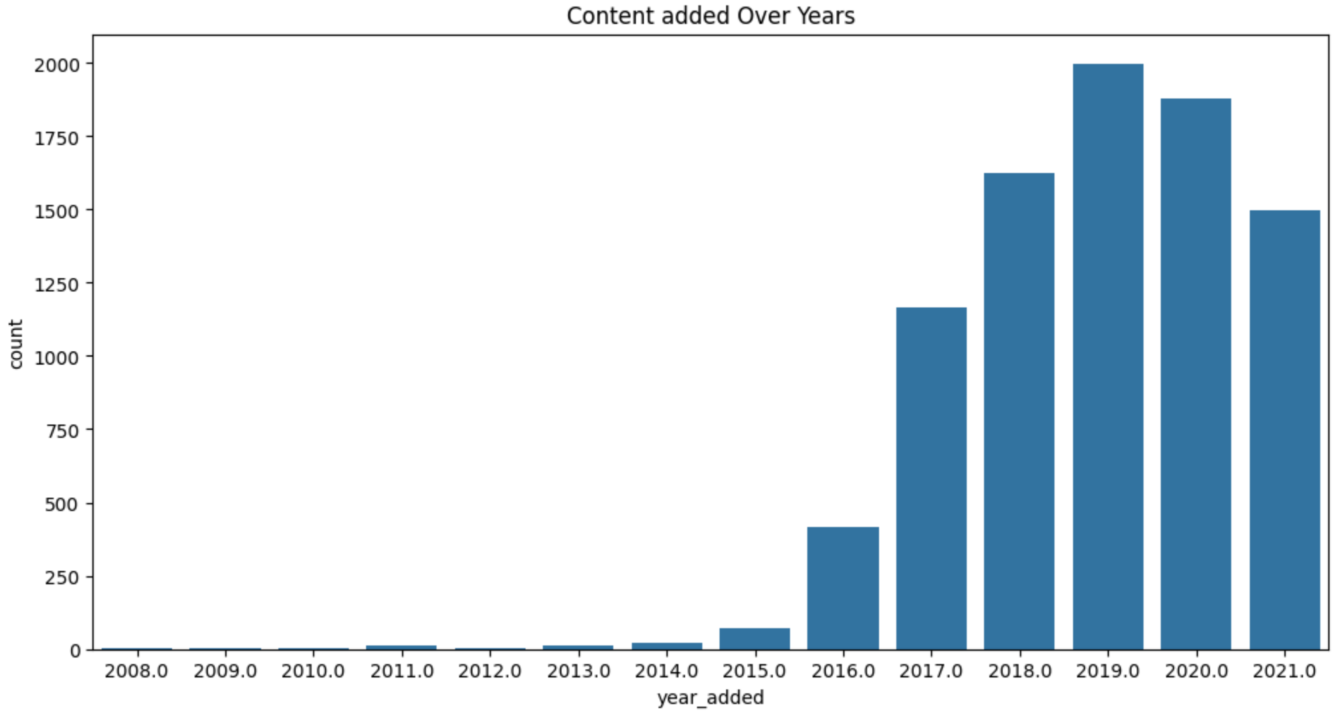
Growth of content over the period

```
data['year_added'].value_counts(ascending=False)
```

year_added	count
2019.0	1999
2020.0	1878
2018.0	1625
2021.0	1498
2017.0	1164
2016.0	418
2015.0	73
2014.0	23
2011.0	13
2013.0	10
2012.0	3
2009.0	2
2008.0	2
2010.0	1

dtype: int64

```
plt.figure(figsize=(12, 6))
sns.countplot(data=data, x='year_added')
plt.title('Content added Over Years')
plt.show()
```



The graphical representation shows that the content was minimum in the year 2008 to 2010 and was highest in the year 2019

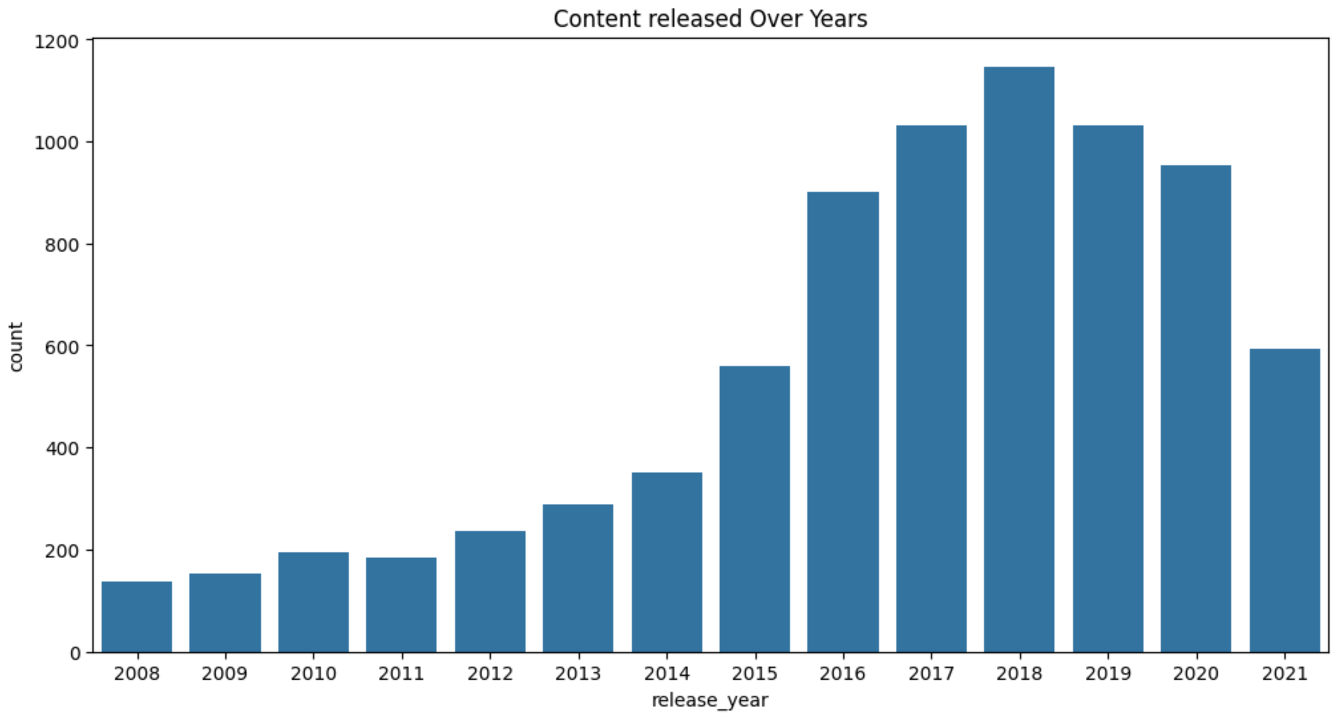
No of releats per year

```
data['release_year'].value_counts(ascending=False)
```

```
              count
release_year
    2018       1147
    2017       1032
    2019       1030
    2020        953
    2016        902
     ...        ...
    1959          1
    1925          1
    1961          1
    1947          1
    1966          1

74 rows × 1 columns

dtype: int64
```

since the data is huge we will consider only from 2008

```
mroy=data[data['release_year']>=2008]
plt.figure(figsize=(12, 6))
sns.countplot(data=mroy, x='release_year')
plt.title('Content released Over Years')
plt.show()
```



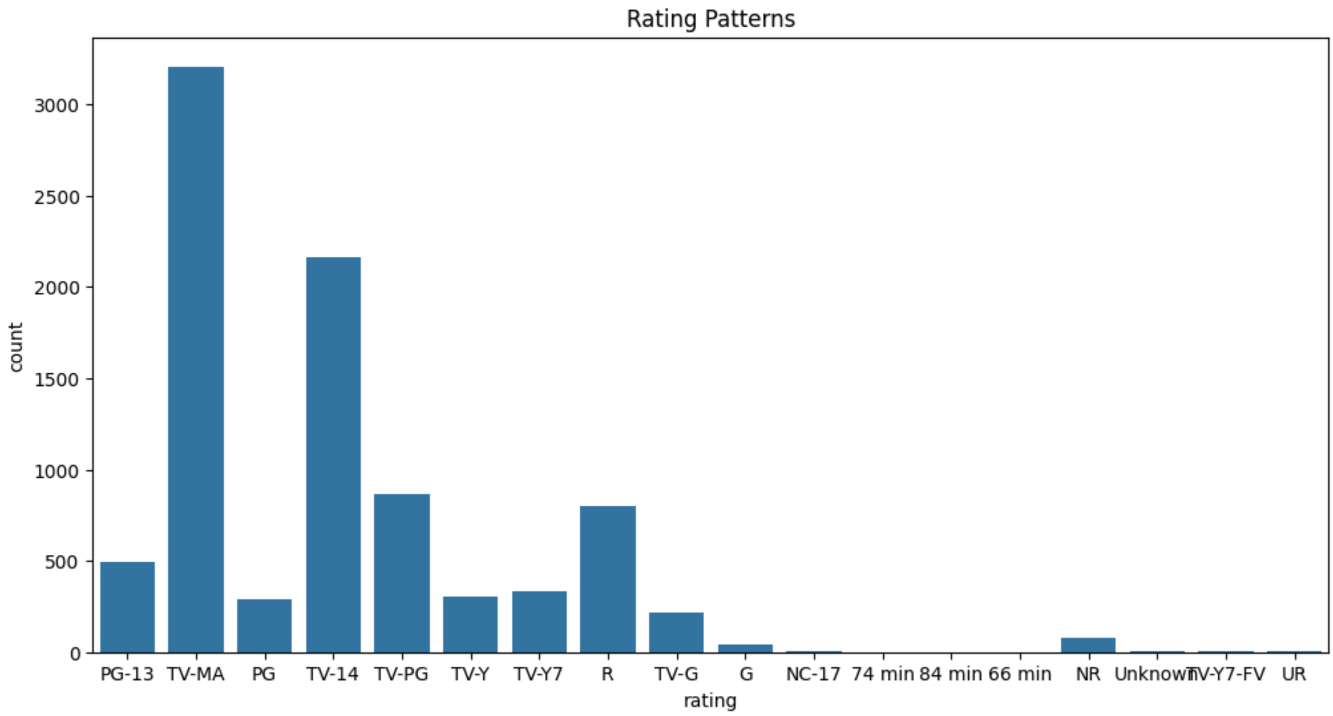
We can see that the content released from 2018 to 2021 with 2018 being the highest

Rating Patterns

```
data['rating'].value_counts(ascending=False)
```

```
                count
      rating
       TV-MA     3207
       TV-14     2160
       TV-PG      863
           R      799
       PG-13      490
       TV-Y7      334
        TV-Y      307
          PG      287
        TV-G      220
          NR       80
           G       41
    TV-Y7-FV        6
     Unknown        4
       NC-17        3
          UR        3
      74 min        1
      84 min        1
      66 min        1

dtype: int64
```

```
plt.figure(figsize=(12, 6))
sns.countplot(data=data, x='rating')
plt.title('Rating Patterns')
plt.show()
```



We can see that TV-MA has the highest rating

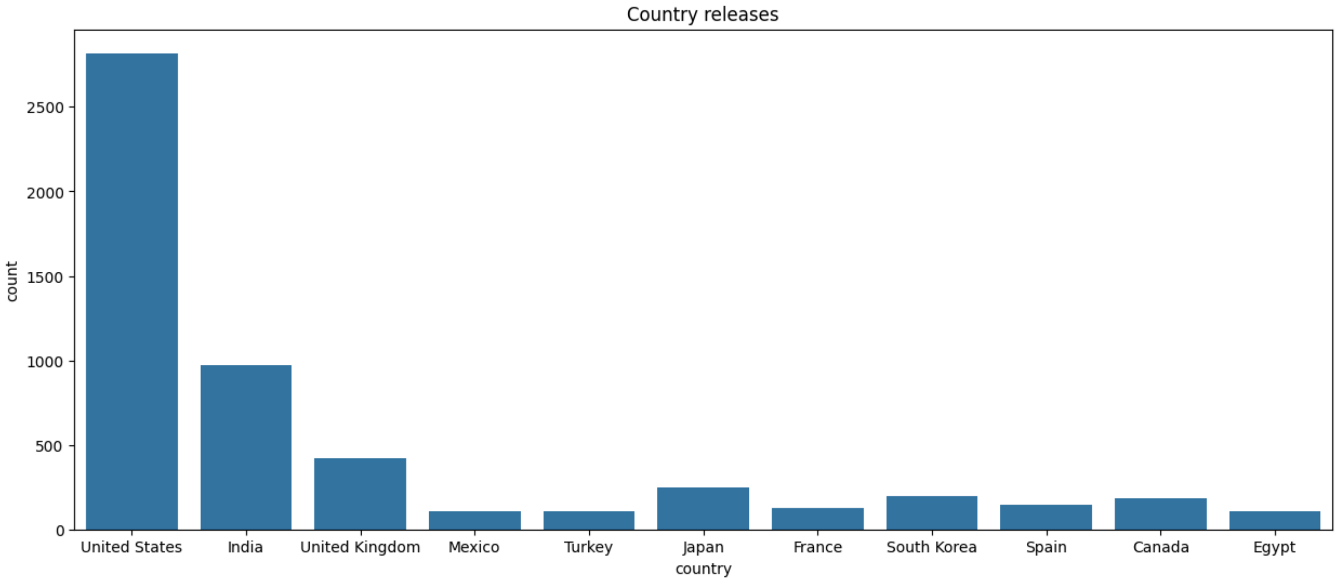
Countries which have more than 100 release of movies or tv shows

```
country_counts = data.groupby('country')['country'].transform('count')
countries = data[country_counts > 100]
countries.groupby('country')['country'].aggregate('count').sort_values(ascending=False)
```

	country
country	
United States	2818
India	972
Unknown	831
United Kingdom	419
Japan	245
South Korea	199
Canada	181
Spain	145
France	124
Mexico	110
Egypt	106
Turkey	105

dtype: int64

```
country_counts = data.groupby('country')['country'].transform('count')
countries = data[(country_counts > 100) & (data['country']!="Unknown")]
plt.figure(figsize=(15, 6))
sns.countplot(data=countries, x='country')
plt.title('Country releases')
plt.show()
```



We can see that United States has highest number of releases next to India

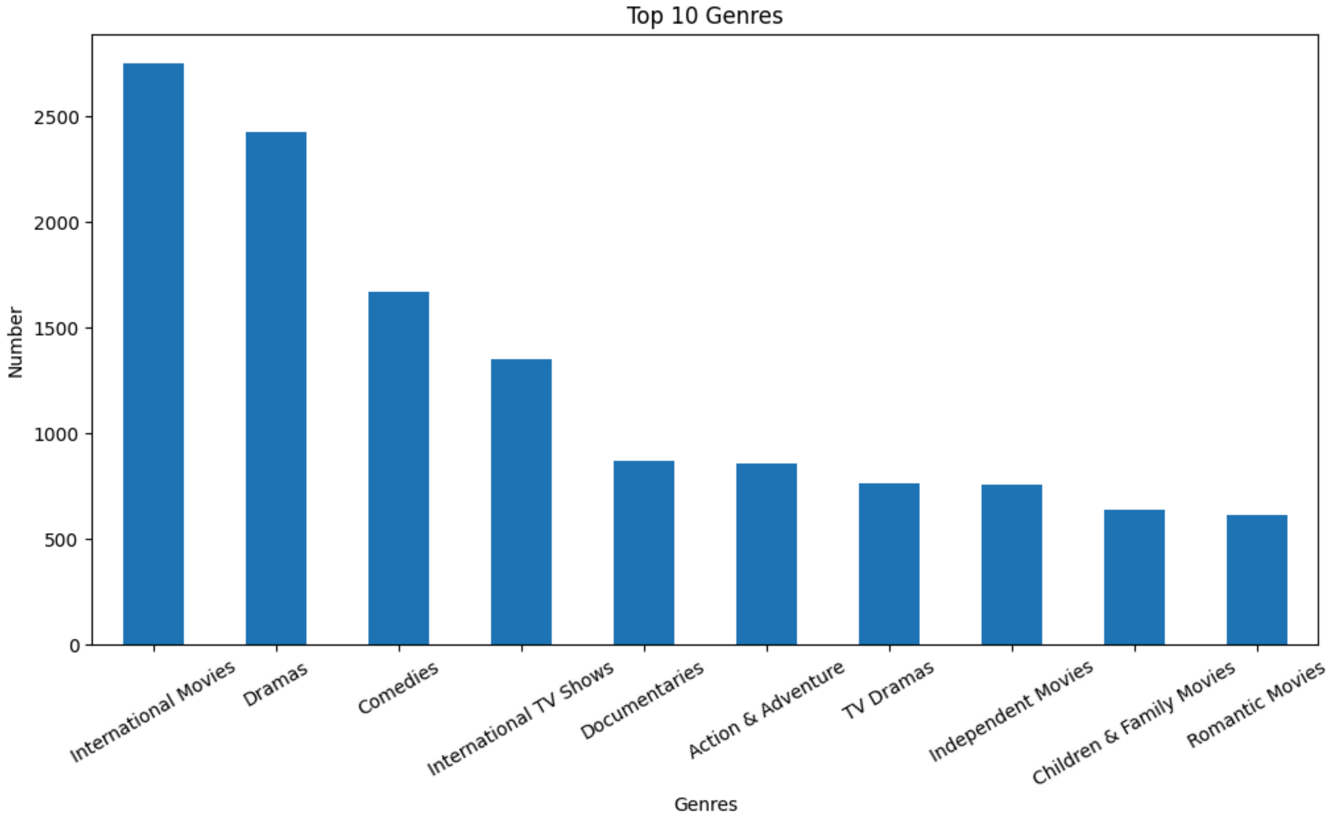
By Genres

```
genre=data['listed_in'].str.split(',').explode().str.strip()
mgenre = genre.value_counts().head(10)
mgenre
```

	count
listed_in	
International Movies	2752
Dramas	2427
Comedies	1674
International TV Shows	1351
Documentaries	869
Action & Adventure	859
TV Dramas	763
Independent Movies	756
Children & Family Movies	641
Romantic Movies	616

dtype: int64

```
plt.figure(figsize=(12, 6))
mgenre.plot(kind='bar')
plt.title('Top 10 Genres')
plt.xlabel('Genres')
plt.ylabel('Number')
plt.xticks(rotation=30)
plt.show()
```



We can see that the count of Internation Movies as Genre is the highest

By Director

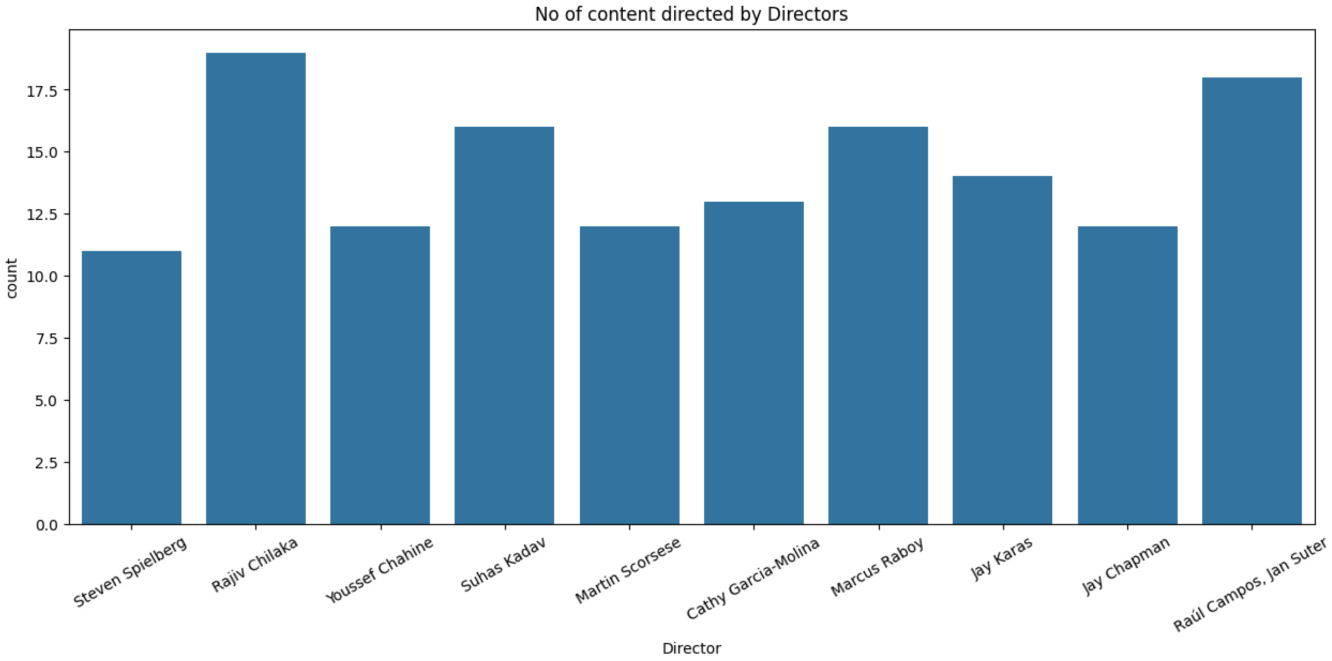
```
data['director'].value_counts(ascending=False)
```

	count
director	
Unknown	2634
Rajiv Chilaka	19
Raúl Campos, Jan Suter	18
Suhas Kadav	16
Marcus Raboy	16
...	...
Raymie Muzquiz, Stu Livingston	1
Joe Menendez	1
Eric Bross	1
Will Eisenberg	1
Mozez Singh	1

4529 rows × 1 columns

dtype: int64

```
dcount=data.groupby('director')['director'].transform('count')
dcount1 = data[(dcount > 10) & (data['director']!="Unknown")]
plt.figure(figsize=(15, 6))
sns.countplot(data=dcount1, x='director')
plt.title('No of content directed by Directors')
plt.xlabel('Director')
plt.xticks(rotation=30)
plt.show()
```



We Can See that Rajiv Chilaka has directed the highest no of content

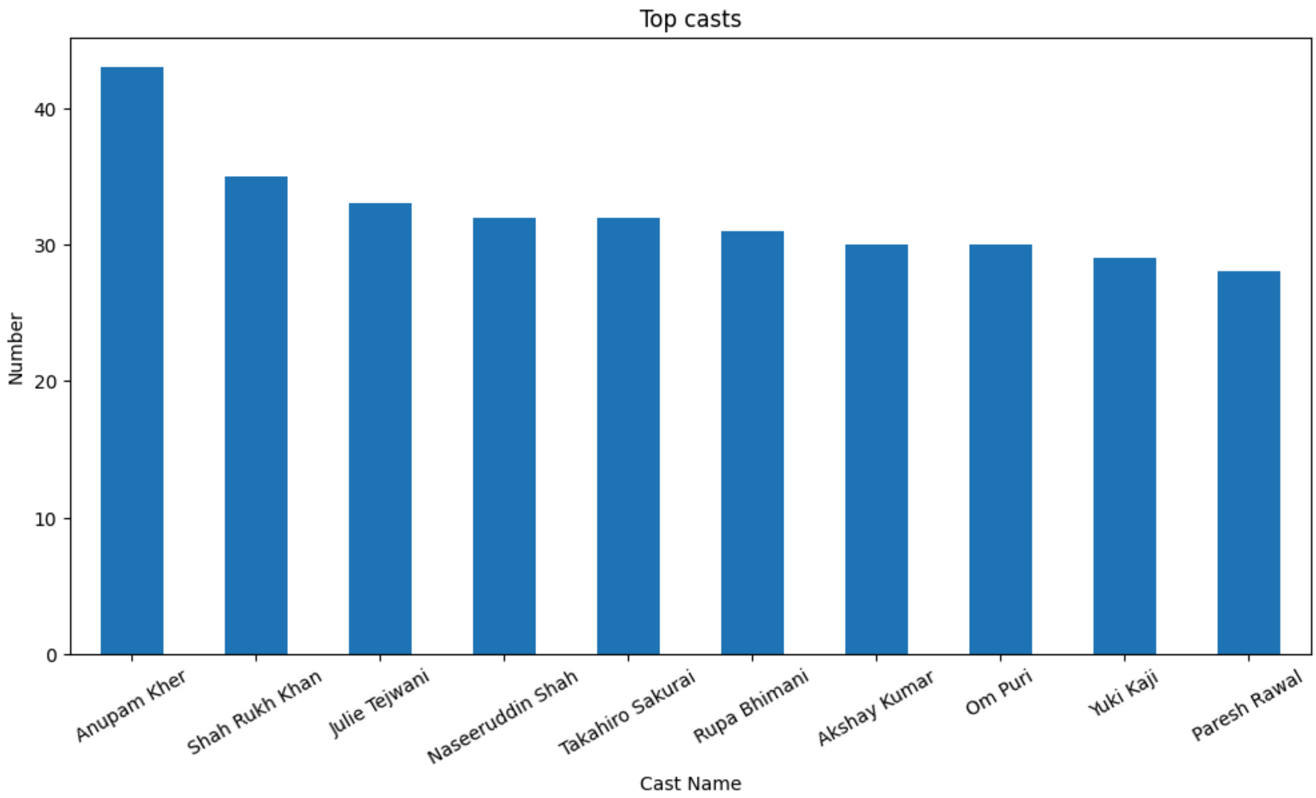
By Cast

```
cast = data['cast'].str.split(',').explode().str.strip()
cast = cast[cast != "Unknown"]
castc = cast.value_counts().head(10)
castc
```

cast	count
Anupam Kher	43
Shah Rukh Khan	35
Julie Tejwani	33
Naseeruddin Shah	32
Takahiro Sakurai	32
Rupa Bhimani	31
Akshay Kumar	30
Om Puri	30
Yuki Kaji	29
Paresh Rawal	28

dtype: int64

```
plt.figure(figsize=(12, 6))
castc.plot(kind='bar')
plt.title('Top casts')
plt.xlabel('Cast Name')
plt.ylabel('Number')
plt.xticks(rotation=30)
plt.show()
```



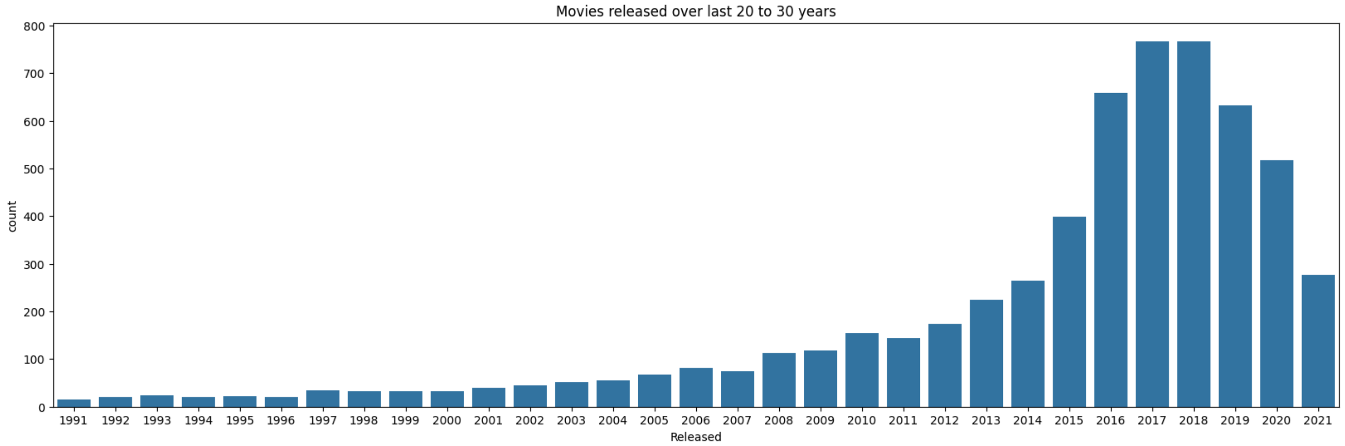
Anupam Kher has acted the highest in the content present in the netflix and shah rukh khan being next

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

```
newdata=data[(data['type']=="Movie") & (data['release_year'] > 1990)]
newdata['release_year'].value_counts()
```

```
              count
release_year
        2017    767
        2018    767
        2016    658
        2019    633
        2020    517
        2015    398
        2021    277
        2014    264
        2013    225
        2012    173
        2010    154
        2011    145
        2009    118
        2008    113
        2006     82
        2007     74
        2005     67
        2004     55
        2003     51
        2002     44
        2001     40
        1997     34
        2000     33
        1998     32
        1999     32
        1993     24
        1995     23
        1996     21
        1994     20
        1992     20
        1991     16

dtype: int64
```

```
def moviesLast20to30(data):
  newdata=data[(data['type']=="Movie") & (data['release_year'] > 1990)]
  plt.figure(figsize=(20, 6))
  sns.countplot(data=newdata, x='release_year')
  plt.title('Movies released over last 20 to 30 years')
  plt.xlabel('Released')
  plt.show()

moviesLast20to30(data)
```



The no of movies released in the year 2017 and 2018 is the highest which accounts to of about 767 whiles 1991 being the lowest

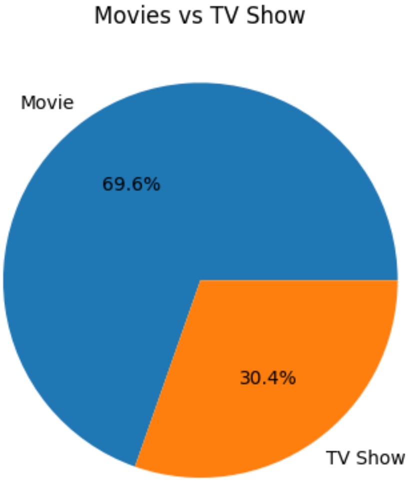
2) Comparison of tv shows vs. movies

```
data['type'].value_counts()
```

```
             count
    type
   Movie      6131
 TV Show      2676

dtype: int64
```

```
plt.pie(data['type'].value_counts(), labels=data['type'].value_counts().index, autopct='%1.1f%%')
plt.title("Movies vs TV Show")
```

```
Text(0.5, 1.0, 'Movies vs TV Show')
```



When the overall data is seen we can see that the no of movies present over the netflix is more than that of the TV show

Movies produced in each country

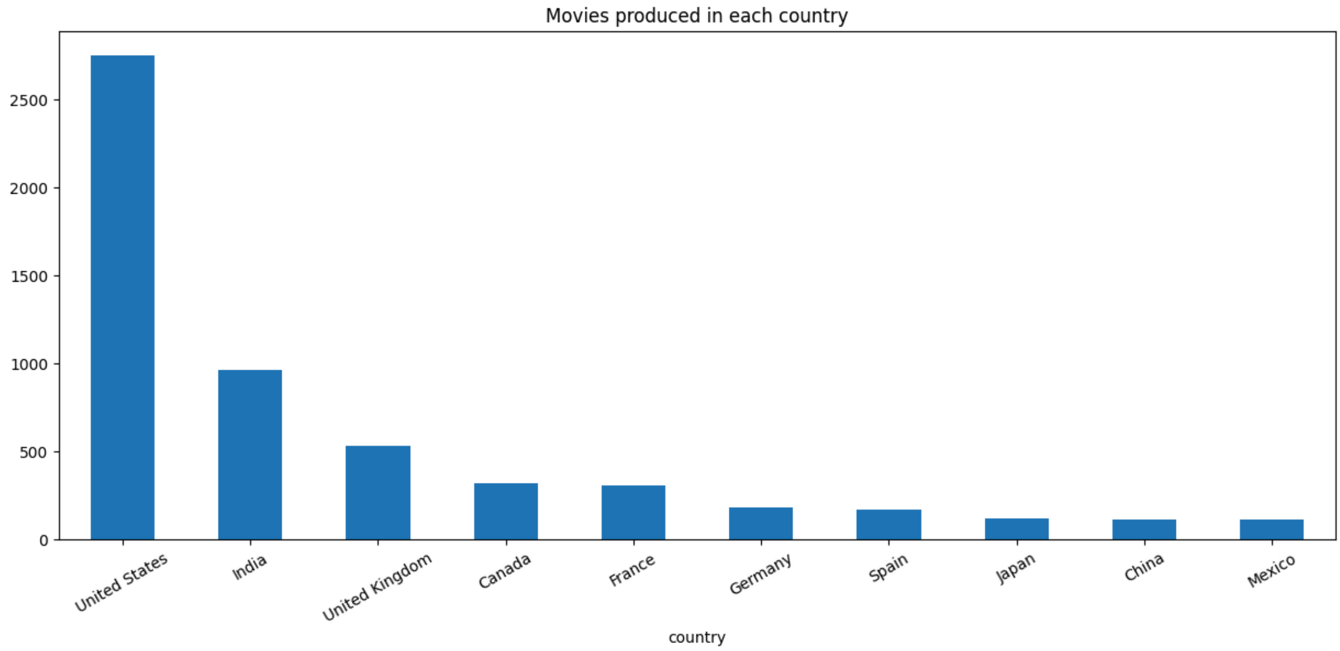
```
ndc=data[(data['type']=="Movie") & (data['country']!="Unknown")]
gdc=ndc['country'].str.split(',').explode().str.strip().value_counts().head(10)
gdc
```

	count
country	
United States	2752
India	962
United Kingdom	534
Canada	319
France	303
Germany	182
Spain	171
Japan	119
China	114
Mexico	111

dtype: int64

```
def moviesproducedineachcountry(data):
  newdata=data[(data['type']=="Movie") & (data['country']!="Unknown")]
  gdata=newdata['country'].str.split(',').explode().str.strip()
  gdatac=gdata.value_counts().head(10)
  plt.figure(figsize=(15, 6))
  gdatac.plot(kind='bar')
  plt.title('Movies produced in each country')
  plt.xlabel('country')
  plt.xticks(rotation=30)
  plt.show()
```

```
moviesproducedineachcountry(data)
```



United States has the highest no of movies released that is 2752 marking the highest no of movies and the next is India which is 962

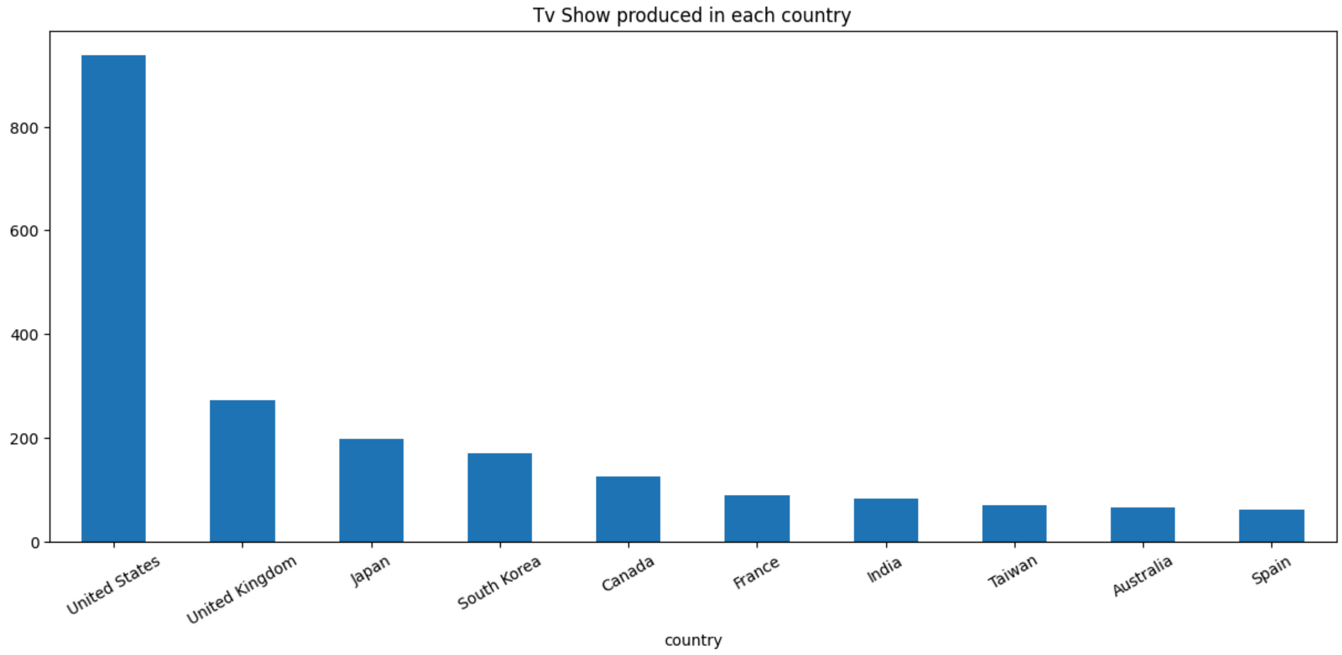
Tv Shows produced in each country

```
ndtvc=data[(data['type']=="TV Show") & (data['country']!="Unknown")]
gdtvc=ndtvc['country'].str.split(',').explode().str.strip().value_counts().head(10)
gdtvc
```

country	count
United States	938
United Kingdom	272
Japan	199
South Korea	170
Canada	126
France	90
India	84
Taiwan	70
Australia	66
Spain	61

dtype: int64

```
def tvshowproducedineachcountry(data):
  newtvdata=data[(data['type']=="TV Show") & (data['country']!="Unknown")]
  gtvdata=newtvdata['country'].str.split(',').explode().str.strip()
  gtvdatac=gtvdata.value_counts().head(10)
  plt.figure(figsize=(15, 6))
  gtvdatac.plot(kind='bar')
  plt.title('Tv Show produced in each country')
  plt.xlabel('country')
  plt.xticks(rotation=30)
  plt.show()

tvshowproducedineachcountry(data)
```



When it comes to TV shows United States has the highest no of TV shows produced which is 938 while UK has the second highest which is about 272

3) What is the best time to launch a TV show?

```
data['date_added'] = pd.to_datetime(data['date_added'], errors='coerce')
```

```
data['day_added'] = data['date_added'].dt.day
data.head(3)
```

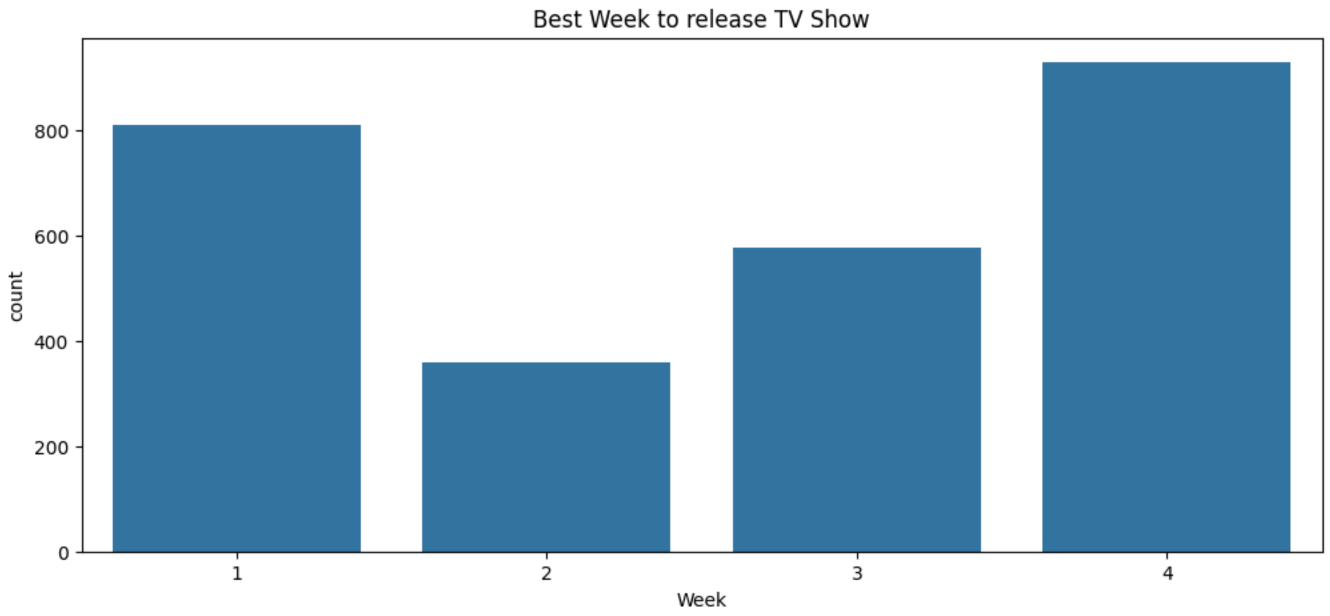
	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	ye
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	Unknown	United States	2021-09-25	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...	
					Ama Qamata, Khosi						International	After crossing	

Next steps: Generate code with data View recommended plots New interactive sheet

```
def weekgenerator(data):
  if(data<7):
    return 1
  elif(data<14 and data>7):
    return 2
  elif(data<21 and data>14):
    return 3
  else:
    return 4
```

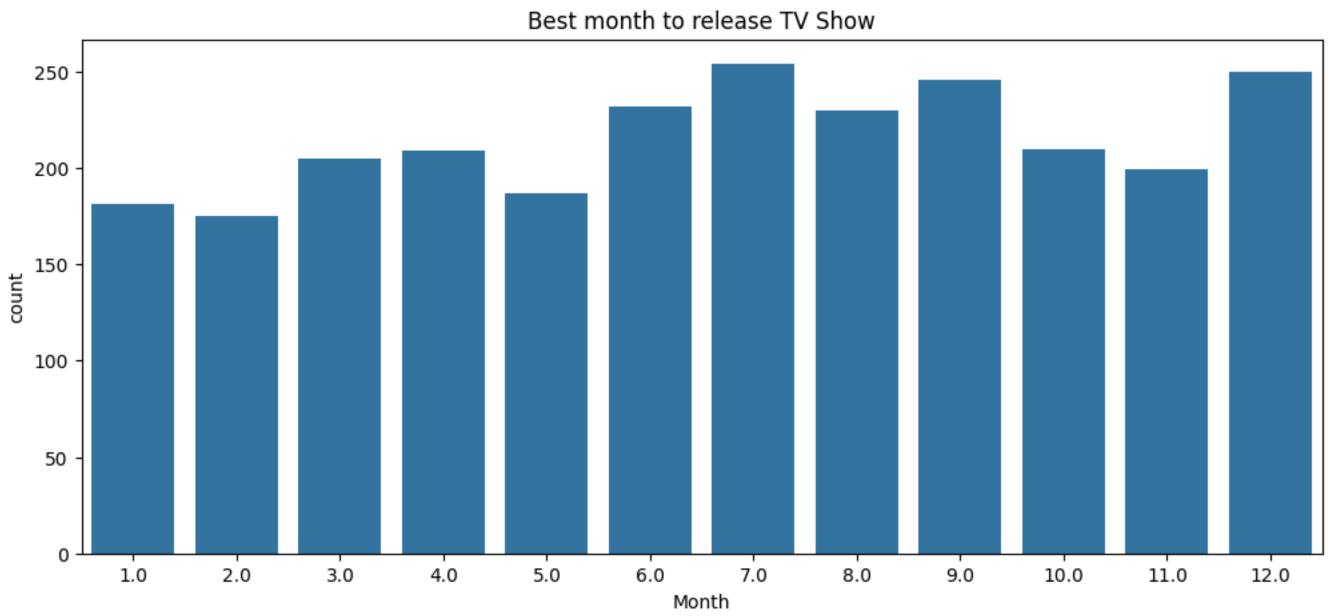
```
data['week']=data['day_added'].apply(weekgenerator)
```

```
def besttimetvshow(data):
  tvdbst=data[data['type']=="TV Show"]
  plt.figure(figsize=(12, 5))
  sns.countplot(data=tvdbst, x='week')
  plt.title('Best Week to release TV Show')
  plt.xlabel('Week')
  plt.show()

besttimetvshow(data)
```



From this we can say that the 4th week is tyhe best time to release the TV Show

```
def besttimemtvshow(data):
  tvdbst=data[data['type']=="TV Show"]
  plt.figure(figsize=(12, 5))
  sns.countplot(data=tvdbst, x='month_added')
  plt.title('Best month to release TV Show')
  plt.xlabel('Month')
  plt.show()

besttimemtvshow(data)
```

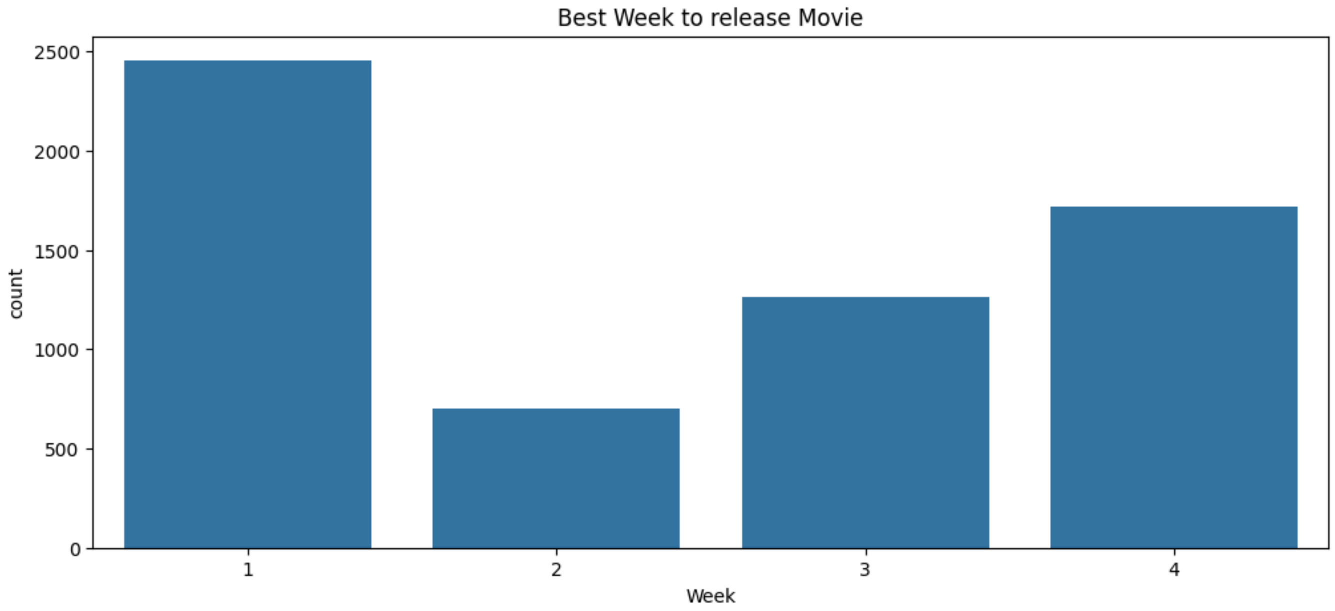


We can say that the July Month is the best time to release the TV show

Overall we can conclude that 4th week and the july month would be the best time to release TV show

What is the best time to launch a Movie?

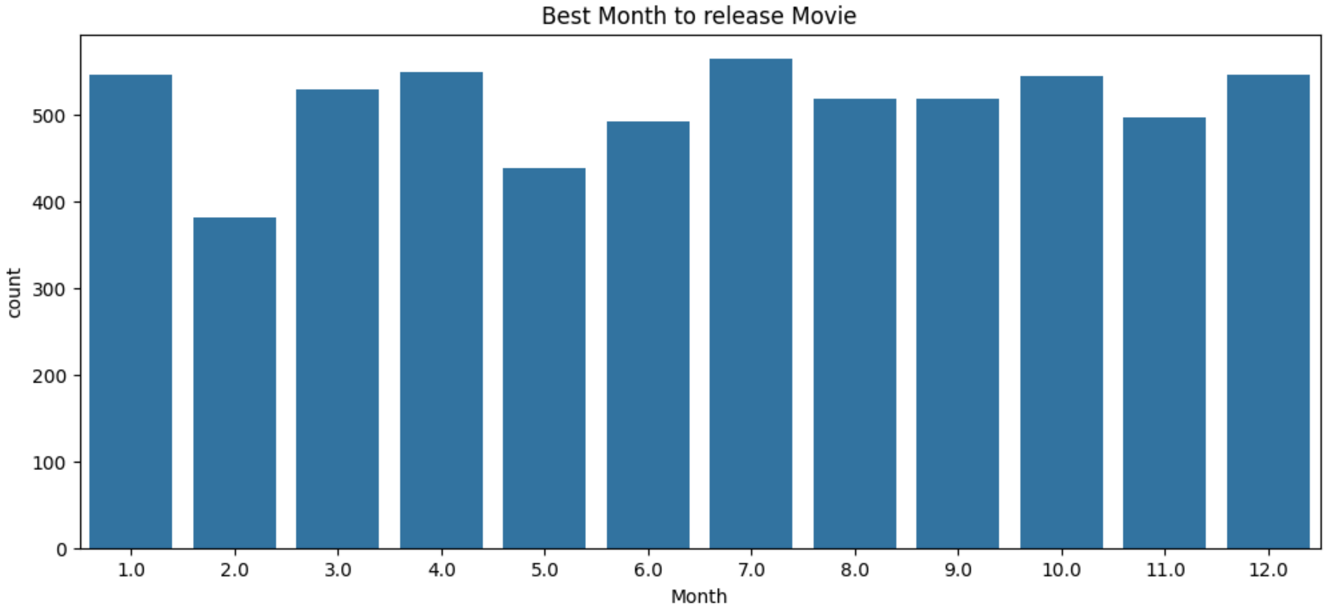
```
def besttimemvshow(data):
  tvdbst=data[data['type']=="Movie"]
  plt.figure(figsize=(12, 5))
  sns.countplot(data=tvdbst, x='week')
  plt.title('Best Week to release Movie')
  plt.xlabel('Week')
  plt.show()

besttimemvshow(data)
```



We can say the best week to release a movie is on the 1st week of the month

```
def besttimemmvshow(data):
  tvdbst=data[data['type']=="Movie"]
  plt.figure(figsize=(12, 5))
  sns.countplot(data=tvdbst, x='month_added')
  plt.title('Best Month to release Movie')
  plt.xlabel('Month')
  plt.show()
```

```
besttimemmvshow(data)
```



The best month to release a movie is in the month of July

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

Analysis on the Directors

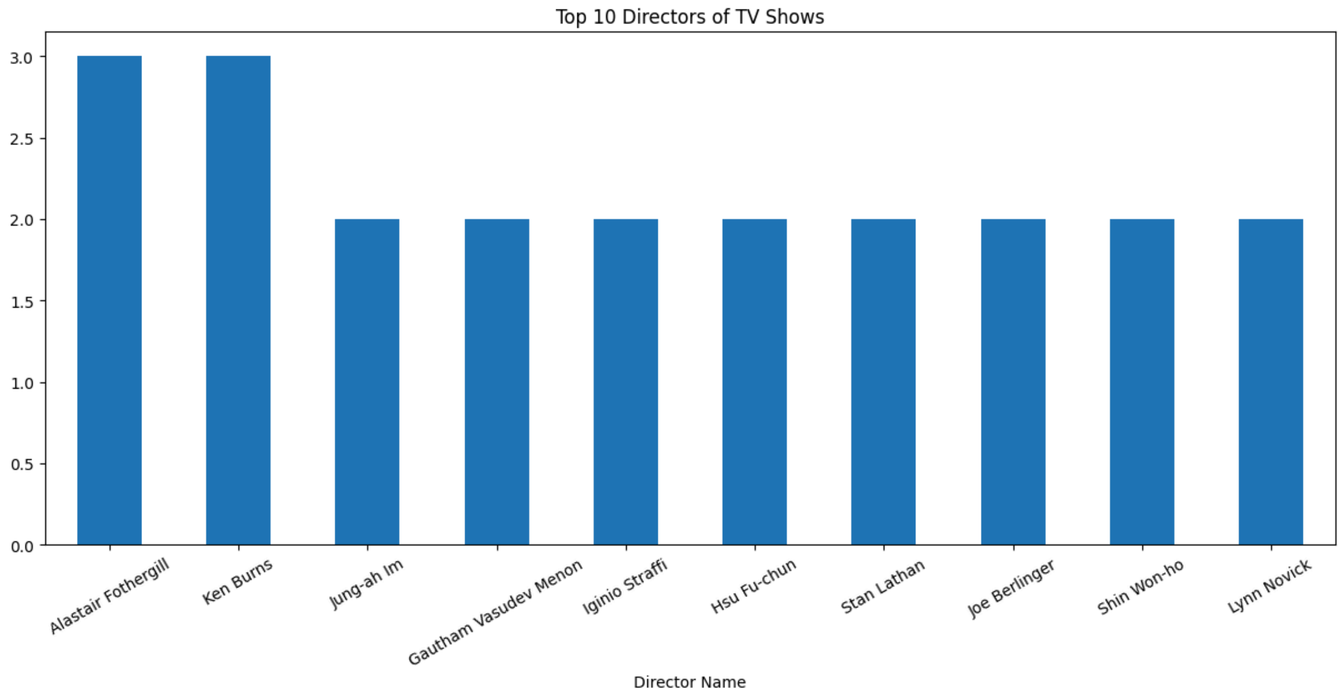
Top 10 directors who have directed most TV shows

```
datadirector=data[(data['type']=="TV Show" ) & (data['director']!="Unknown")]
directors = datadirector['director'].str.split(',').explode().str.strip()
directors.value_counts().head(10)
```

director	count
Alastair Fothergill	3
Ken Burns	3
Jung-ah Im	2
Gautham Vasudev Menon	2
Iginio Straffi	2
Hsu Fu-chun	2
Stan Lathan	2
Joe Berlinger	2
Shin Won-ho	2
Lynn Novick	2

dtype: int64

```
def top10directors(data):
  datadirector=data[(data['type']=="TV Show" ) & (data['director']!="Unknown")]
  directors = datadirector['director'].str.split(',').explode().str.strip()
  countofdirectors=directors.value_counts().head(10)
  plt.figure(figsize=(15, 6))
  countofdirectors.plot(kind='bar')
  plt.title('Top 10 Directors of TV Shows')
  plt.xlabel('Director Name')
  plt.xticks(rotation=30)
  plt.show()

top10directors(data)
```



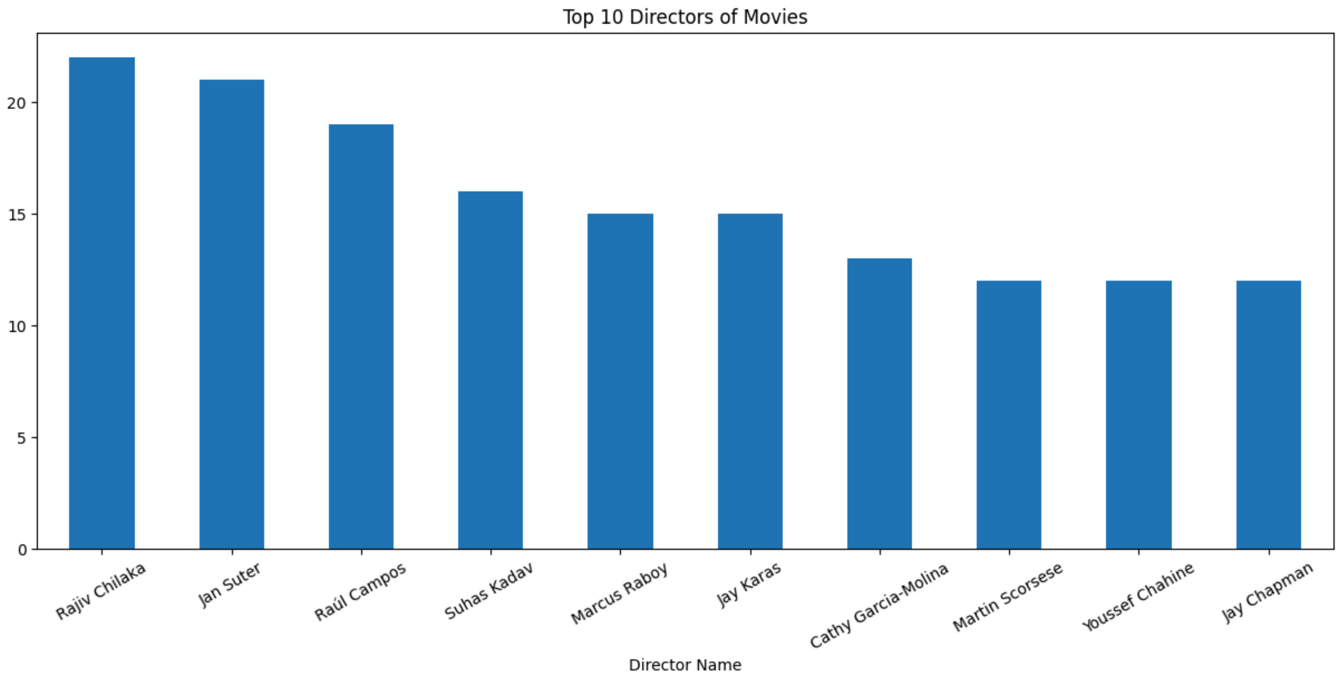
We have Alastair Fothergill and Ken Burns who have directed most of the TV Shows which is about 3

Top 10 Directors who have directed Movies

```
datamoviedirector=data[(data['type']=="Movie" ) & (data['director']!="Unknown")]
directors = datamoviedirector['director'].str.split(',').explode().str.strip()
directors.value_counts().head(10)
```

```
                     count
          director
      Rajiv Chilaka     22
          Jan Suter     21
        Raúl Campos     19
        Suhas Kadav     16
      Marcus Raboy      15
          Jay Karas     15
Cathy Garcia-Molina     13
    Martin Scorsese     12
    Youssef Chahine     12
        Jay Chapman     12

dtype: int64
```

```
def top10moviedirectors(data):
  datamoviedirector=data[(data['type']=="Movie" ) & (data['director']!="Unknown")]
  directors = datamoviedirector['director'].str.split(',').explode().str.strip()
  countofdirectors=directors.value_counts().head(10)
  plt.figure(figsize=(15, 6))
  countofdirectors.plot(kind='bar')
  plt.title('Top 10 Directors of Movies')
  plt.xlabel('Director Name')
  plt.xticks(rotation=30)
  plt.show()

top10moviedirectors(data)
```



We have Rajiv Chiilaka and Jan Suter who have directed most of the movies that is 22 and 21 respectiviely

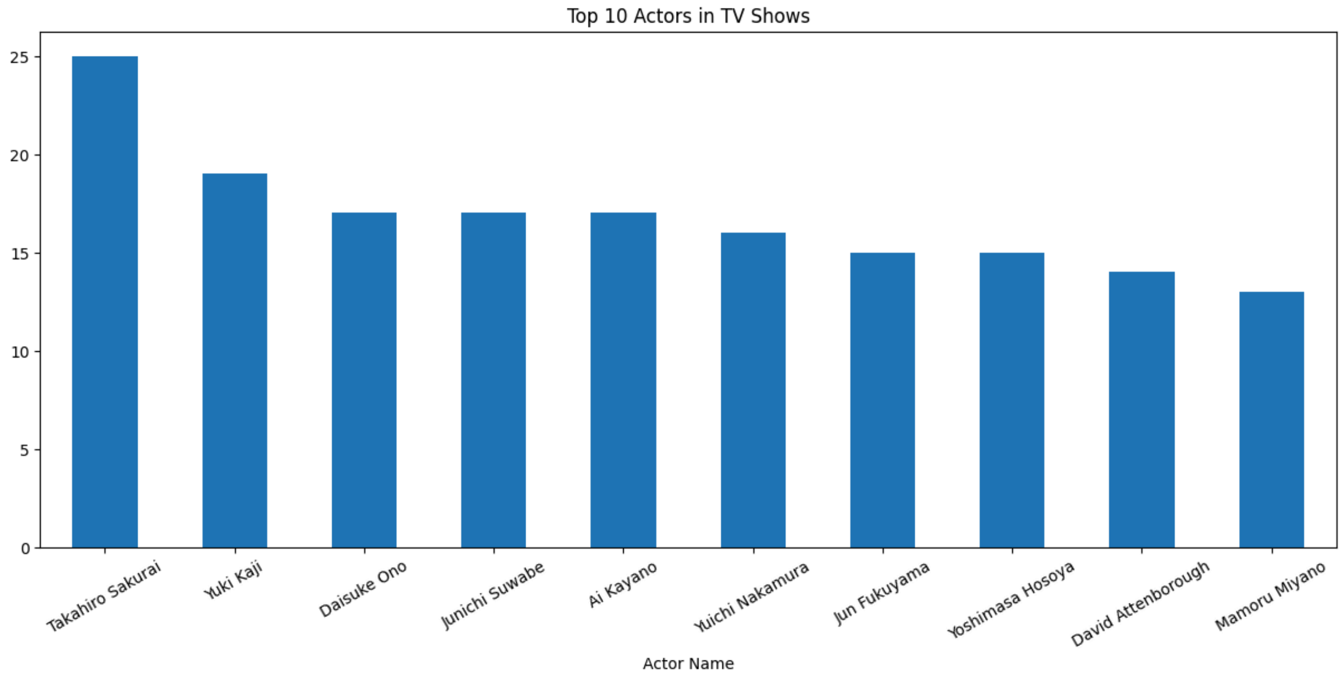
Analysis on the Actors

Top 10 Actors who have PLayed in most TV shows

```
datatvactor=data[(data['type']=="TV Show" ) & (data['cast']!="Unknown")]
actors = datatvactor['cast'].str.split(',').explode().str.strip()
actors.value_counts().head(10)
```

```
                     count
              cast
  Takahiro Sakurai      25
         Yuki Kaji      19
       Daisuke Ono      17
   Junichi Suwabe       17
         Ai Kayano      17
  Yuichi Nakamura       16
     Jun Fukuyama       15
 Yoshimasa Hosoya       15
David Attenborough      14
    Mamoru Miyano       13

dtype: int64
```

```
def top10tvactors(data):
  datatvactor=data[(data['type']=="TV Show" ) & (data['cast']!="Unknown")]
  actors = datatvactor['cast'].str.split(',').explode().str.strip()
  actors = actors.value_counts().head(10)
  plt.figure(figsize=(15, 6))
  actors.plot(kind='bar')
  plt.title('Top 10 Actors in TV Shows')
  plt.xlabel('Actor Name')
  plt.xticks(rotation=30)
  plt.show()

top10tvactors(data)
```



Takashiro is the actor who have played in highest no of TV shows that is 25

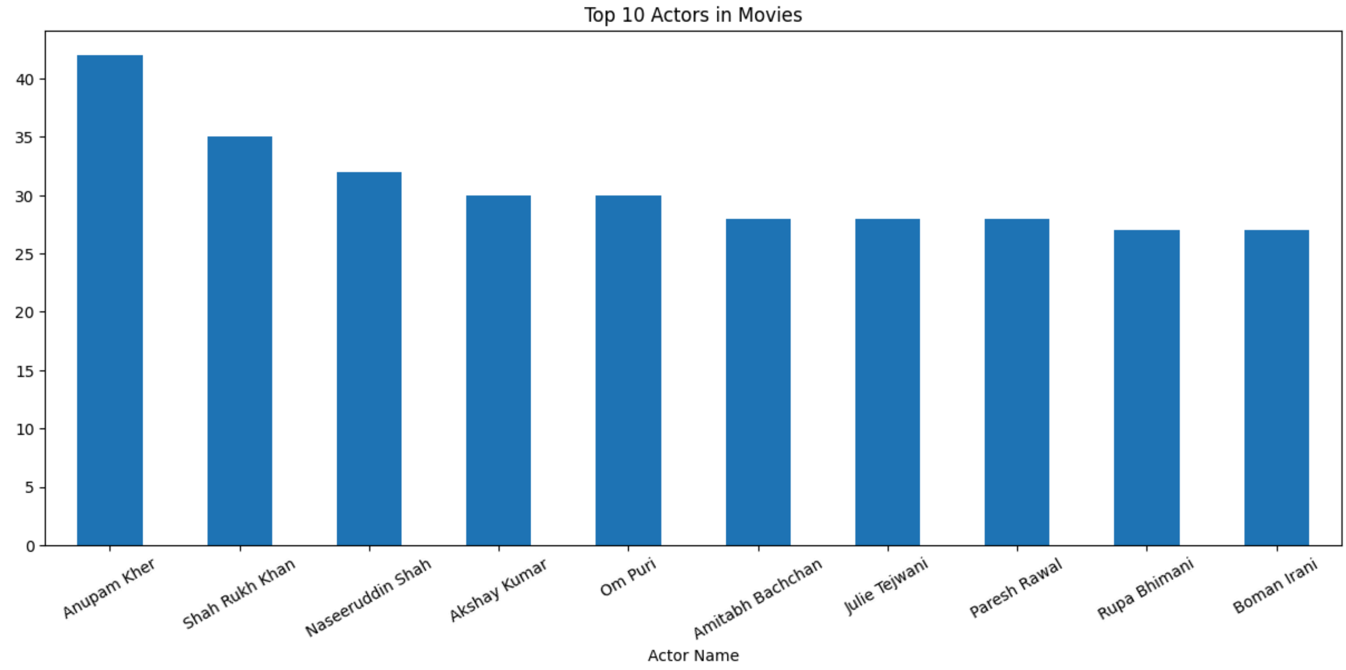
Top 10 Actors played in Movies

```
datamvoieactor=data[(data['type']=="Movie" ) & (data['cast']!="Unknown")]
actors = datamvoieactor['cast'].str.split(',').explode().str.strip()
actors.value_counts().head(10)
```

```
                   count
              cast
      Anupam Kher     42
    Shah Rukh Khan    35
  Naseeruddin Shah    32
     Akshay Kumar     30
          Om Puri     30
  Amitabh Bachchan    28
     Julie Tejwani    28
      Paresh Rawal    28
     Rupa Bhimani     27
       Boman Irani    27

dtype: int64
```

```
def top10movieactors(data):
  datamvoieactor=data[(data['type']=="Movie" ) & (data['cast']!="Unknown")]
  actors = datamvoieactor['cast'].str.split(',').explode().str.strip()
  actors = actors.value_counts().head(10)
  plt.figure(figsize=(15, 6))
  actors.plot(kind='bar')
  plt.title('Top 10 Actors in Movies')
  plt.xlabel('Actor Name')
  plt.xticks(rotation=30)
  plt.show()

top10movieactors(data)
```

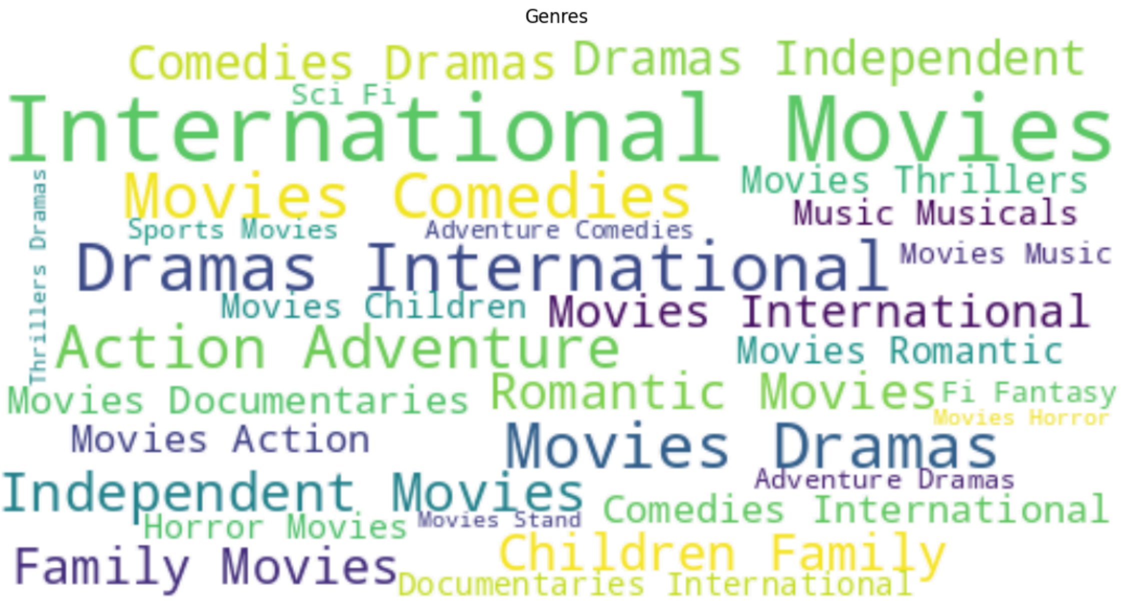
```
def top10movieactors(data):
  datamvoieactor=data[(data['type']=="Movie" ) & (data['cast']!="Unknown")]
  actors = datamvoieactor['cast'].str.split(',').explode().str.strip()
  actors = actors.value_counts().head(10)
  plt.figure(figsize=(15, 6))
  actors.plot(kind='bar')
  plt.title('Top 10 Actors in Movies')
  plt.xlabel('Actor Name')
  plt.xticks(rotation=30)
  plt.show()

top10movieactors(data)
```

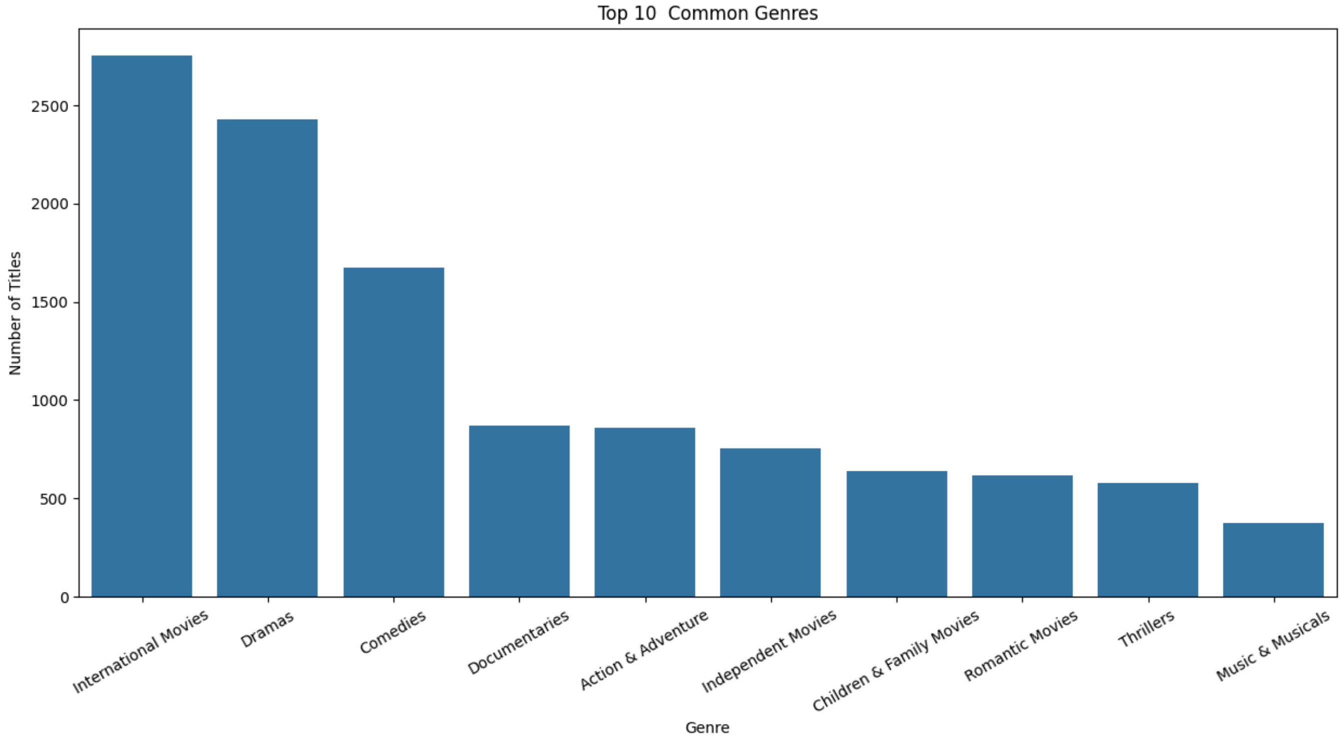


We have Anupam Kher who has acted in most of the movies

5) Which genre movies are more popular or produced more

```
def genredata(data):
  plt.figure(figsize=(15, 15))
  plt.subplot(2, 1, 1)
  wordcloud = WordCloud(
  width=500, height=250,
  background_color='white',
  colormap='viridis',
  min_font_size=10,
  max_font_size=150).generate(' '.join(data['genre']))
  plt.imshow(wordcloud, interpolation='bilinear')
  plt.axis('off')
  plt.title('Genres')
  plt.subplot(2, 1, 2)
  genre_counts = data['genre'].value_counts().head(10)
  sns.barplot(x=genre_counts.index, y=genre_counts.values)
  plt.title('Top 10  Common Genres')
  plt.xlabel('Genre')
  plt.ylabel('Number of Titles')
  plt.xticks(rotation=30)
  plt.show()

moviesdatatogenre= data[(data['type']=="Movie") & (data['type']!="UnKnown")]
genre_data = pd.DataFrame({
    'genre': moviesdatatogenre['listed_in'].str.split(',').explode().str.strip(),
    'type': moviesdatatogenre['type'].repeat(moviesdatatogenre['listed_in'].str.split(',').str.len())
})

genredata(genre_data)
```

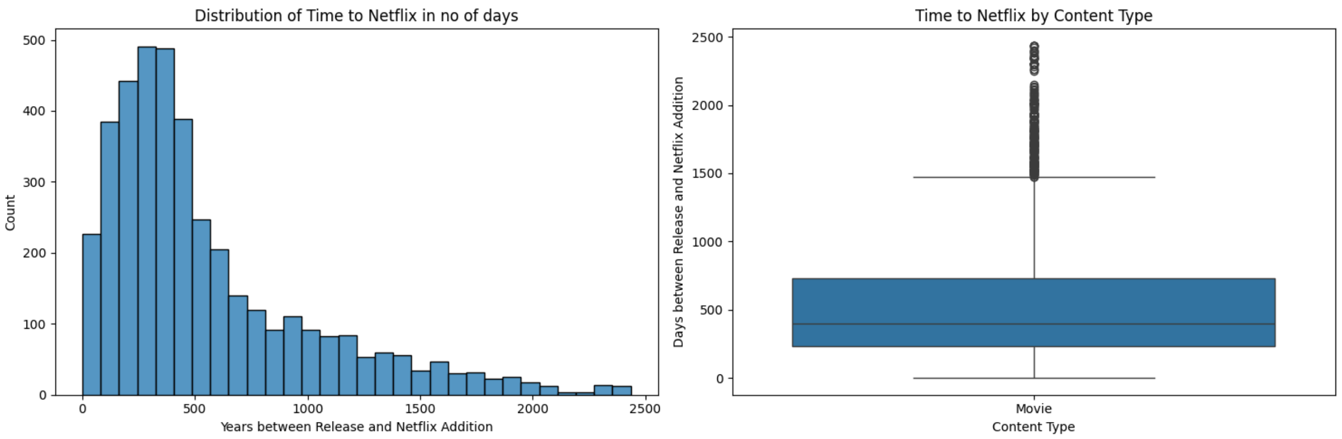




We can Say that International Movies Genre is the highest among other movies genre and it accounts to about 2500

6) After how many days the movie will be added to Netflix after the release of the movie (you can consider the recent past data)

```
def timetoaddtonextflix(data):
  recent_data = data[data['release_year'] >= 2015]
  plt.figure(figsize=(15, 5))
  plt.subplot(1, 2, 1)
  sns.histplot(data=recent_data, x='days_to_netflix', bins=30)
  plt.title('Distribution of Time to Netflix in no of days')
  plt.xlabel('Years between Release and Netflix Addition')
  plt.tight_layout()
  plt.subplot(1, 2, 2)
  sns.boxplot(data=recent_data, x='type', y='days_to_netflix')
  plt.title('Time to Netflix by Content Type')
  plt.xlabel('Content Type')
  plt.ylabel('Days between Release and Netflix Addition')
  plt.tight_layout()
  plt.show()

data['date_added'] = pd.to_datetime(data['date_added'], format='%B %d, %Y', errors='coerce')
data['days_to_netflix'] = data.apply(lambda row: (row['date_added'] - pd.to_datetime(str(row['release_year']) + '-01-01')).days if not
mvoiedata = data[(data['days_to_netflix'] >= 0) & (data['type'] == "Movie")]

timetoaddtonextflix(mvoiedata)
```



```
mvoiedata['days_to_netflix'].value_counts().head(1)
```

	count
days_to_netflix	
334.0	29

dtype: int64

Most of the movies are added within 500 days what is almost 1 year and 4 months from the date of release of the movie. We can see the highest no of movies that were added was within a year that is of 334 days approximately 11 months after the release date

Double-click (or enter) to edit