NETFLIX'S BUSINESS CASE-STUDY

Submitted by –

Shatabdi Dutta

Business Problem: Analyze the data and generate insights that could help Netflix in deciding which type of shows/movies to produce and how they can grow the business in different countries

Pre-Requisites:

1. Required Python Libraries were imported
2. Dataset was imported to Jupyter notebook, stored in a data frame and preliminary analysis performed on the data to understand the data size, check null values, and derive statistical observations from the data

Initial Analysis, Observations and Data Cleansing:

1. The dataset provided consists of a list of all the TV shows/movies available on Netflix:

Column Name	Column Description
Show_id	Unique ID for every Movie / Tv Show
Type	Identifier - A Movie or TV Show
Title	Title of the Movie / Tv Show
Director	Director of the Movie
Cast	Actors involved in the movie/show
Country	Country where the movie/show was produced
Date_added	Date it was added on Netflix
Release_year	Actual Release year of the movie/show
Rating	TV Rating of the movie/show
Duration	Total Duration - in minutes or number of seasons
Listed_in	Genre
Description	The summary description

2. Dataset dimension is 8808 x 12 (Rows x Columns)

```
In [40]: netflix.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

In [41]: netflix.shape

Out[41]: (8807, 12)
```

3)All the Columns are of object Datatype except release year(int Datatype)

4)Since the column “type” consist of only two types.We can change its data type from object to category data type.

```
netflix["type"]=netflix["type"].astype("category")
```

```
netflix.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   category
 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: category(1), int64(1), object(10)
memory usage: 765.7+ KB
```

TO CHECK % OF MISSING VALUES

```
In [44]: 100*netflix.isna().sum()/len(netflix.index)
```

```
Out[44]: show_id         0.000000
         type            0.000000
         title           0.000000
         director       29.908028
         cast            9.367549
         country         9.435676
         date_added      0.113546
         release_year    0.000000
         rating          0.045418
         duration        0.034064
         listed_in       0.000000
         description     0.000000
         dtype: float64
```

5) 29% of Data in director column is null and 9% null values in cast column.

6)The column “Description ” will be of no use in our analysis.Hence will drop that column for our further analysis.

7)show_id is the unique identifier without any duplicates.

```
netflix.drop(["cast","description"],axis=1,inplace=True)
```

```
netflix.head()
```

```
7]:
```

	show_id	type	title	director	country	date_added	release_year	rating	duration	listed_in
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	United States	September 25, 2021	2020	PG-13	90 min	Documentaries
1	s2	TV Show	Blood & Water	NaN	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries
2	s3	TV Show	Ganglands	Julien Leclercq	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV
4	s5	TV Show	Kota Factory	NaN	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...

8)Changing the datatype of date_added from object to datetime type.

9)Also unnesting the columns director,listed_in ,country and cast for further detailed analysis.

10)A statistical look into the data suggests that we have 4994 unique directors from 128 countries who have been directing all 8807 shows in netflix.

```
netflix.describe(include=object)
```

2]:

	show_id	title	director	cast	country	rating	duration	listed_in
count	201991	201991	201991	201991	201991	201924	201988	201991
unique	8807	8807	4994	36440	128	17	220	42
top	s7165	Kahlil Gibran's The Prophet	unknown	unknown	United States	TV-MA	1 Season	Dramas
freq	700	700	50643	2146	59349	73867	35035	29775

Non-Graphical Analysis: Value counts and unique attributes (10 Points):

In [99]:
```
netflix.nunique()
```

Out[99]:
```
show_id         8807
type               2
title           8807
director        4994
cast           36440
country          128
date_added      1714
release_year      74
rating            17
duration         220
listed_in         42
dtype: int64
```

- There are a total of 8807 unique shows..Either of type Movie or TV Shows.
- There are 6131 movies in across 20 genres(listed_in column)
- There are 2676 TV Showin 22 genres.
- There are total 4994 directors from across 128 countries
- Majority of the shows generated are for TV-MA (Matured audience) having count of 3207,followed by movie with TV-14 rating with a count of TV_14 .

```
netflix.type.value_counts()
```

]:
```
Movie      6131
TV Show    2676
Name: type, dtype: int64
```

```
netflix[netflix.type=="Movie"].nunique()
```

```
show_id         6131
type               1
title           6131
director        4778
cast           25952
country          123
date_added      1533
release_year      73
rating            17
duration         205
listed_in         20
dtype: int64
```

```
netflix[netflix.type=="TV Show"].nunique()
```

```
show_id         2676
type               1
title           2676
director         300
cast           14864
country           67
date_added      1012
release_year      46
rating             9
duration          15
listed_in         22
dtype: int64
```

```
netflix.rating.value_counts()
```

```
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
Name: rating, dtype: int64
```

% contribution of each type of movies(rating wise):

```
100*netflix.rating.value_counts()/len(netflix.rating)
```

```
TV-MA       36.414216
TV-14       24.525945
TV-PG        9.799024
R            9.072329
PG-13        5.563756
TV-Y7        3.792438
TV-Y         3.485864
PG           3.258771
TV-G         2.498013
NR           0.908368
G            0.465539
TV-Y7-FV     0.068128
NC-17        0.034064
UR           0.034064
74 min       0.011355
84 min       0.011355
66 min       0.011355
Name: rating, dtype: float64
```

Created 2 separate dataFrames for movie type and tv shows-

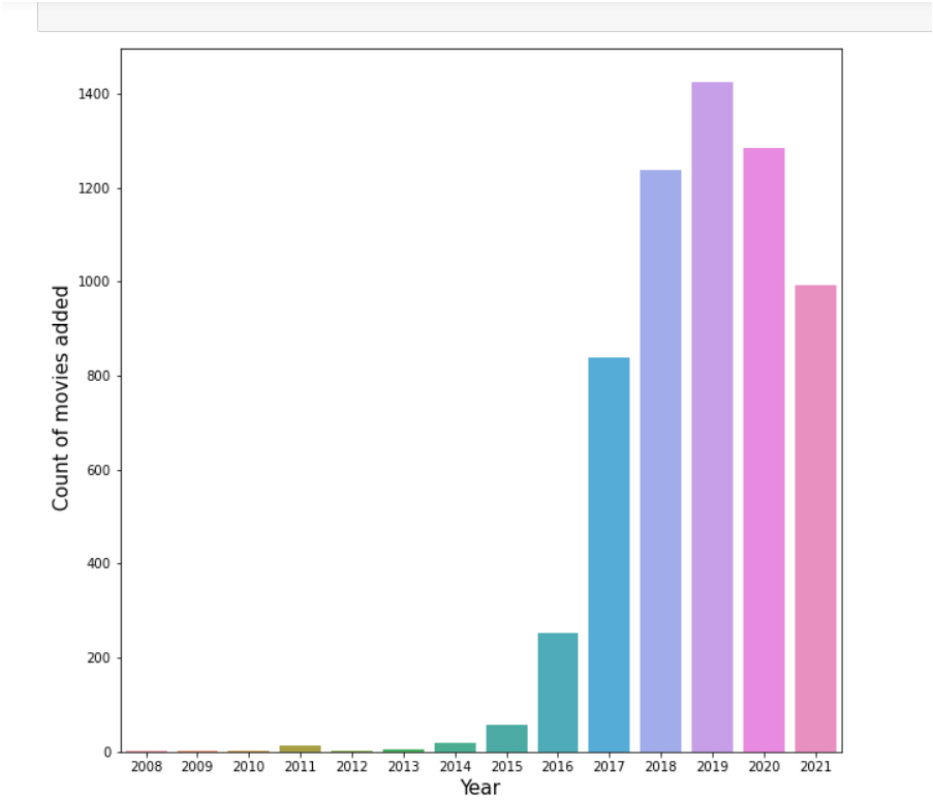
```
movie=netflix[netflix.type=="Movie"].reset_index(drop=True)
```

```
tv=netflix[netflix.type=="TV Show"].reset_index(drop=True)
```

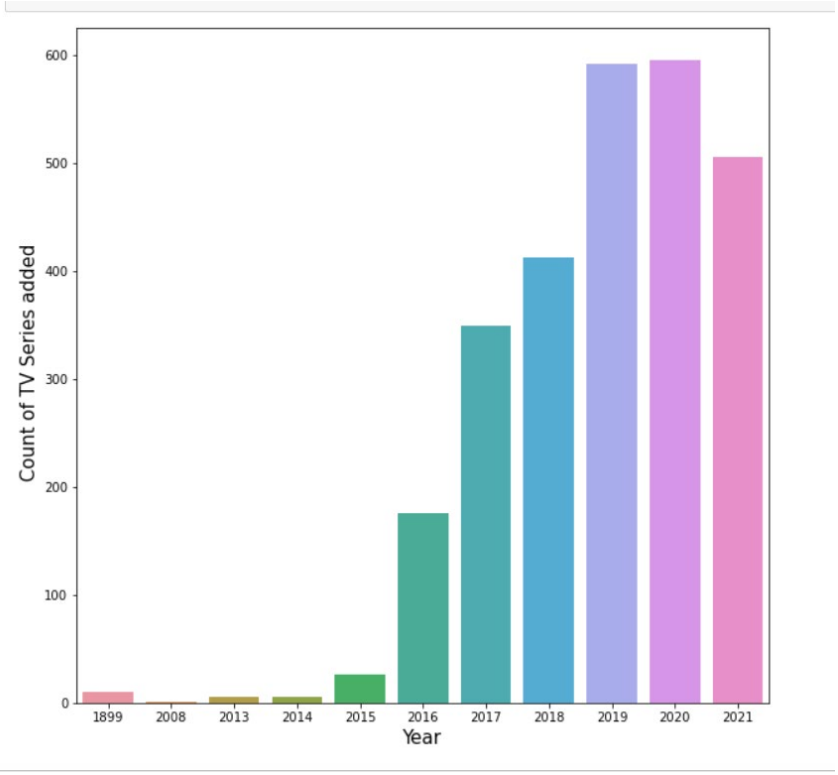
VISUAL ANALYSIS-

For movies-

On plotting year against count of movies added in a particular year, we can infer that in the year 2019 highest number of movies were added in Netflix.



For TV Series-

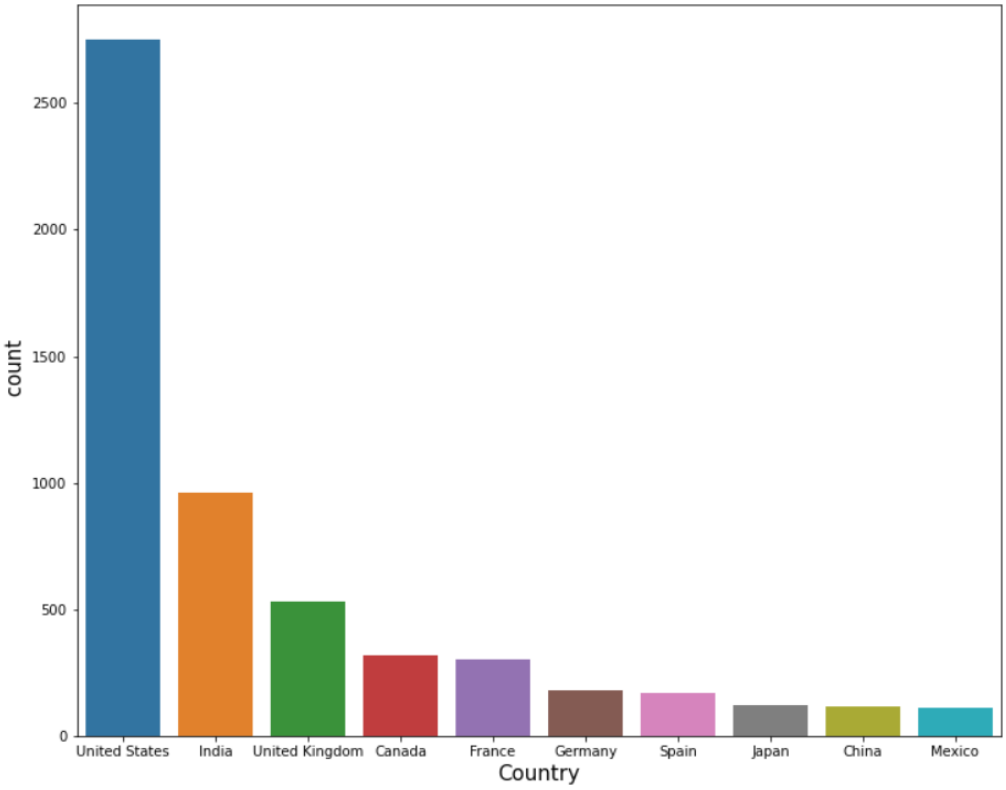


- Highest number of TV series were added in year 2019 & 2018.
- There was a increase in series in Netflix that were added over the years from 2008 to 2020 but there is a slight drop in 2021

Analysis on trend of TV Series/Movies added in recent past years -

- In 2020 and 2021, many productions faced delays, shutdowns, or had to implement strict safety protocols, which affected the release schedules of new series. The pandemic's impact on production timelines could have led to a slight drop in the number of series added in 2021.

Plotting Country vs count of movies produced in those countries –




```
In [359]: top10mov
```

Out[359]:

	country	title
0	United States	2751
1	India	962
2	United Kingdom	532
4	Canada	319
5	France	303
6	Germany	182
7	Spain	171
8	Japan	119
9	China	114
10	Mexico	111

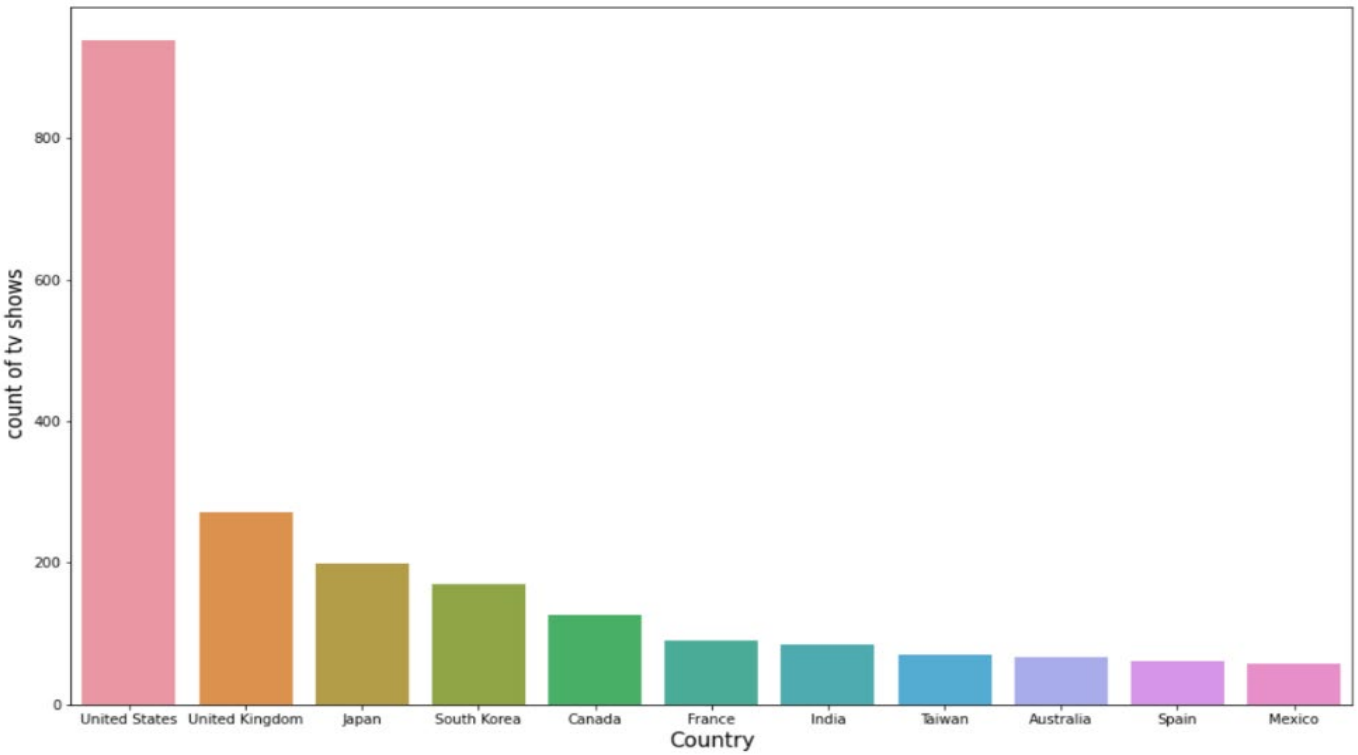
- We have considered only the top 10 countries as the contribution of the rest of the countries is less than 1%.
- The number of total movies produced in the country USA is the highest, followed by India.

```
: top10tv
375]:
```

	country	title
0	United States	938
2	United Kingdom	272
3	Japan	199
4	South Korea	170
5	Canada	126
6	France	90
7	India	84
8	Taiwan	70
9	Australia	66
10	Spain	61
11	Mexico	58

In case of TV Series-

- USA is the leading country in terms of producing tv shows, followed by UK.
- We are taking into consideration only the top 10 countries as the contribution of the remaining countries is less than 1%



ANALYSIS ON COUNTRIES AND MOVIES/SHOWS PRODUCED THERE-

- Data suggests that USA is the leading country in producing movies/tv shows which can obviously be supported by the fact that it has a rich history and tradition of filmmaking, with a well-established infrastructure, studios, production companies, and resources that attract filmmakers from around the world.

- Netflix can be benefitted more if- Netflix can collaborate with top directors who have a preference for the United States to create original content exclusively for the platform, which will attract audience more to engage in netlix's original content.
- Netflix can generate buzz, create anticipation, and generate interest among subscribers by capitalizing and marketing the top director's involvement in Netflix Original's project.This can be carried out by holding campaigns and interviews which can be channeled in both Netflix and YOUTUBE so that people who are not already a subscriber of Netflix will be intrigued into becoming one.

BEST TIME TO LAUNCH A MOVIE-

Best week to release a movie-

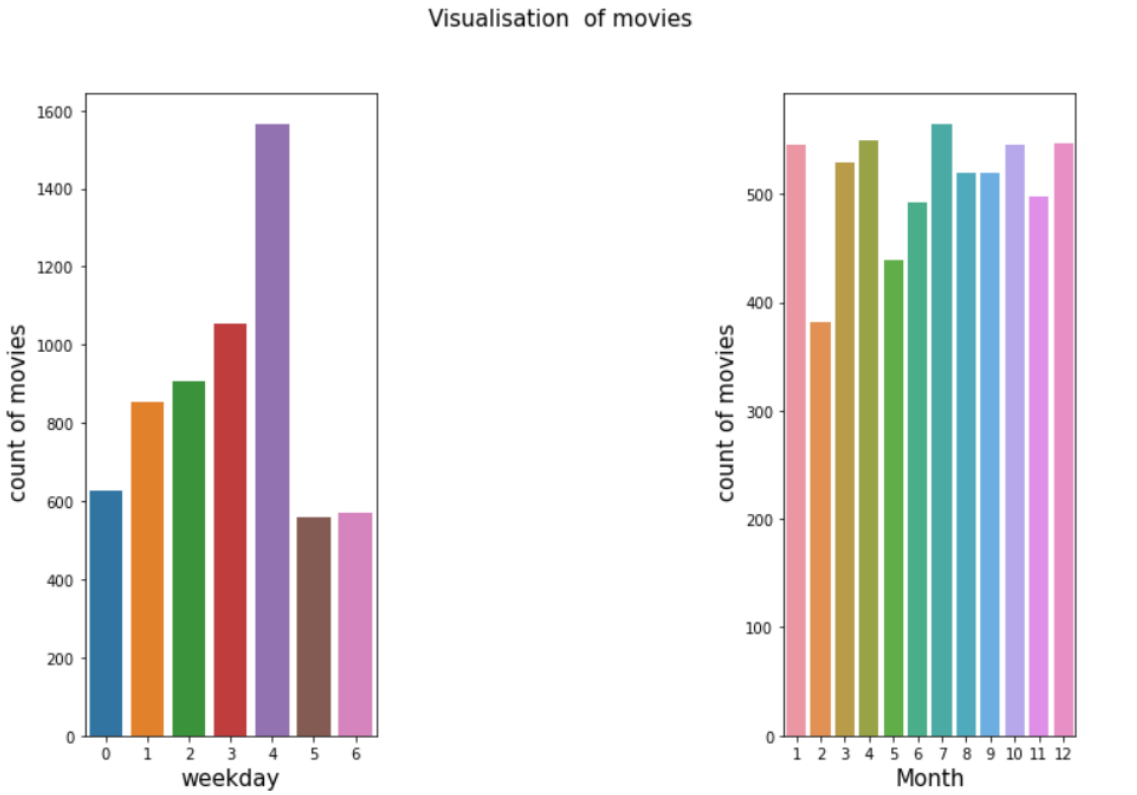
In the entertainment industry, it has always been observed that Friday is a popular day for releasing new movies as it allows a full weekend thus contributing to a higher box office collection.Netflix also follows a similar trend and releases movies on Friday .It follows the same traditional concept to make their content attract more viewers.

However, they might release movies on different days as well as we can see that the number of movies launched increases from Monday to Friday and then a sudden drop on Saturday and Sunday.

Best month to release a movie- Similar to week days, entertainment industry also keeps in mind the month of the year before releasing any movies.It takes into consideration the holidays and summer vacations to ensure a higher collection in the box office.

The summer months from July to October is a prime time for movies due to the summer vacation holidays in those months in several regions.The month of December is also a favourable time because of holidays that attract people seeking for leisure time during their off time.

The lowest release can be seen in the month of Feb as there are no such vacations or holidays in this month.



BEST TIME TO LAUNCH A SERIES-

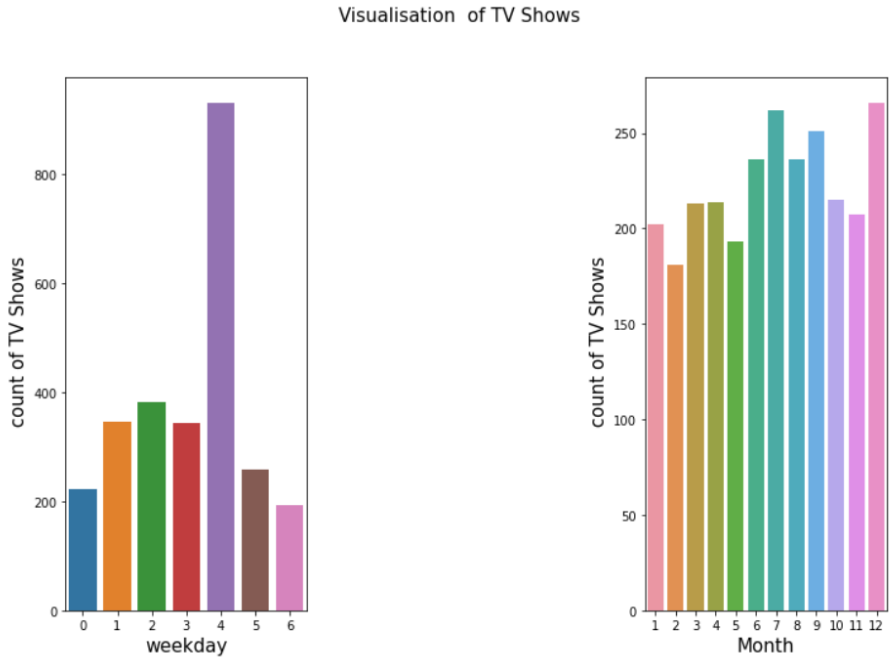
Best week to release a TV/Show-

TV shows also follows a similar trend as movies as we can observe that the number of tv shows released on Friday is higher. The release increase over the week from Monday to Friday and then a drop again on Saturday and Sundays

Best month to release a TV/Show-

Release of tv shows during holidays and vacations will generate more views as compared to other months.

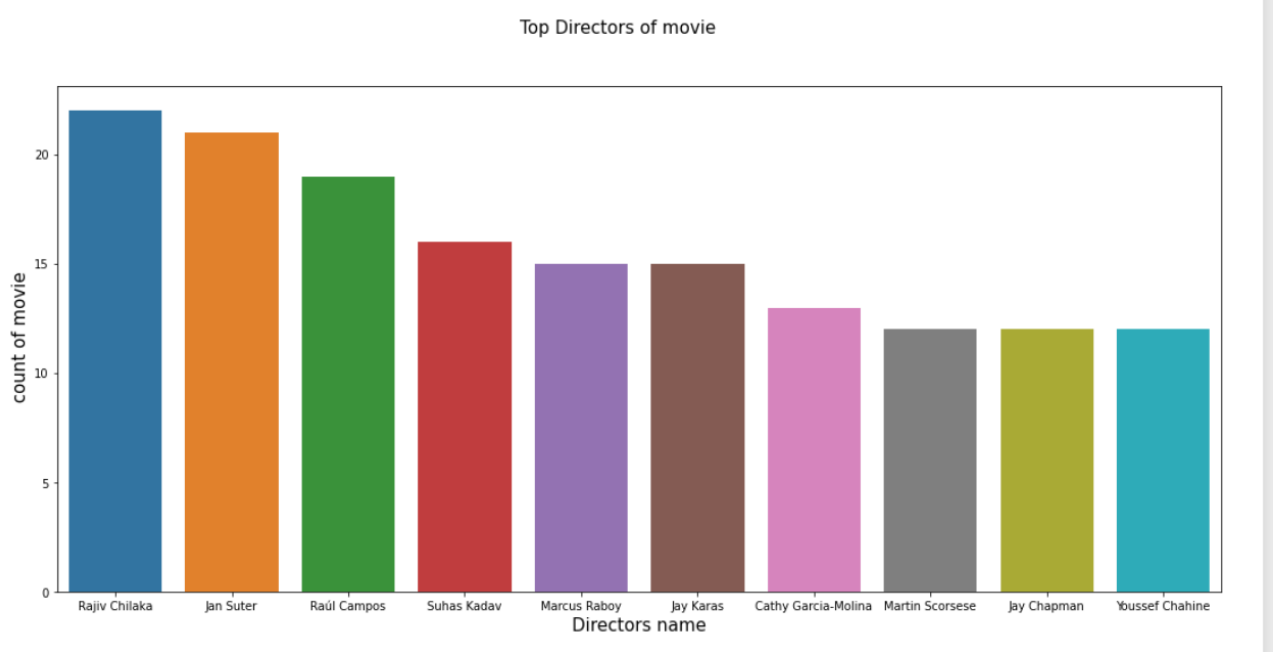
We can observe here that from the month of June to September there is increase in the number of movies launched and the movies launched in the month of feb is the lowest.



Analysis of top Directors in Movies–

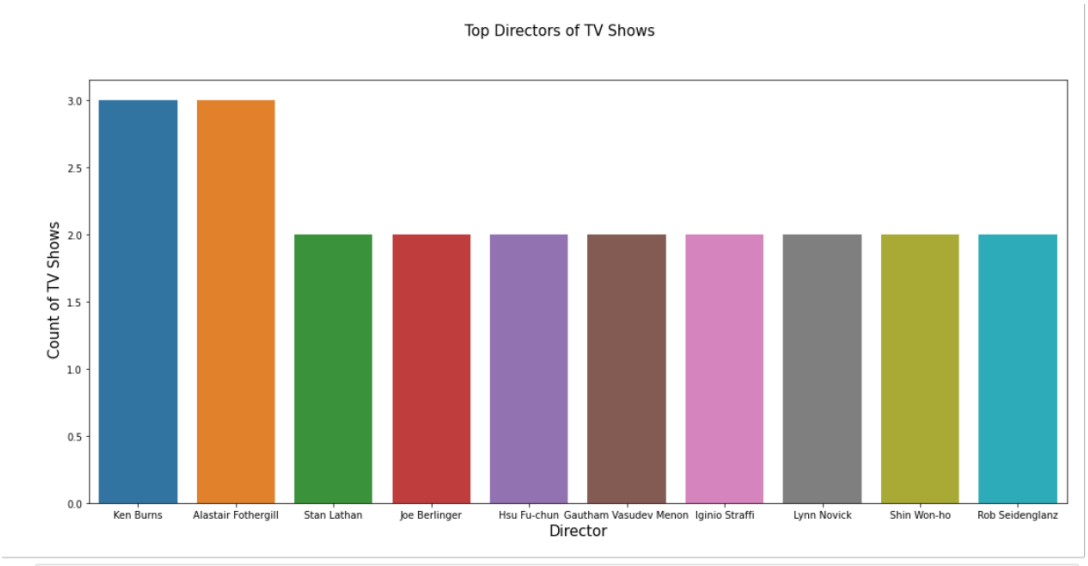
In Movies, Rajiv Chilaka has directed the maximum number of movies followed by Jan Suter.

	director	title
1	Rajiv Chilaka	22
2	Jan Suter	21
3	Raúl Campos	19
4	Suhas Kadav	16
5	Marcus Raboy	15
6	Jay Karas	15
7	Cathy Garcia-Molina	13
8	Martin Scorsese	12
9	Jay Chapman	12
10	Youssef Chahine	12



Top Directors in shows-

Ken Burns and Alastair Fothergill has directed the highest number of shows .

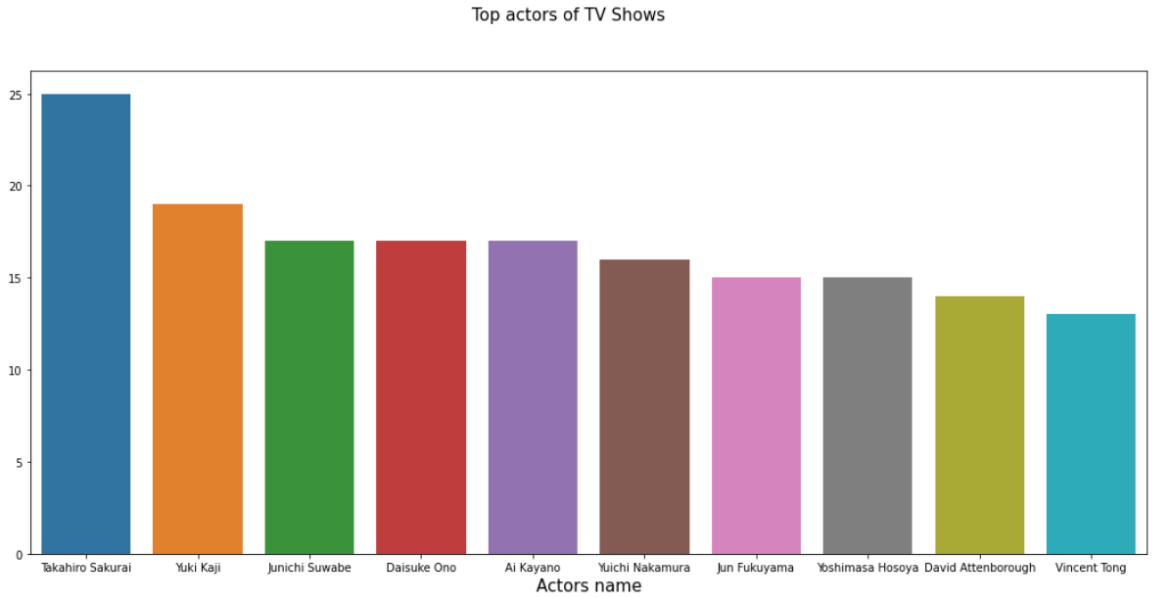


Analysis of Top cast in TV Shows-

TV shows- The actor Takahiro Sakurai has acted in the maximum number of tv shows aired in netflix .

4J:

	cast	title
1	Takahiro Sakurai	25
2	Yuki Kaji	19
3	Junichi Suwabe	17
4	Daisuke Ono	17
5	Ai Kayano	17
6	Yuichi Nakamura	16
7	Jun Fukuyama	15
8	Yoshimasa Hosoya	15
9	David Attenborough	14
10	Vincent Tong	13

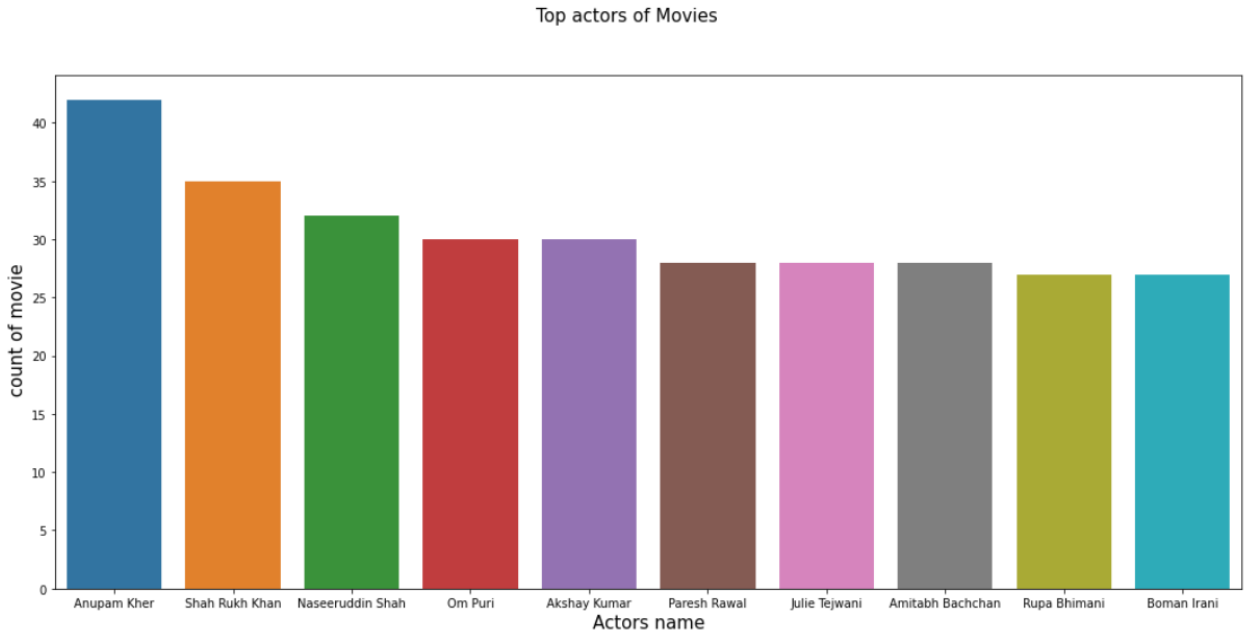


Analysis of Top Actors in shows-

- Takahiro Sakurai's has the highest number of shows in his name.His wide popularity can contribute to Netflix gaining more popularity in several ways:
- Since he is very famous in the anime industry,popular for his roles in anime series,more and more anime titles can be included in Netflix series featuring Takahiro.This will attract global audience as he has a global following not just limited to Japan.This will lead to more subscribers of Netflix.
- Netflix should also collaborate with Takahiro for more Netflix originals, which will gain netflix more viewers when compared to other market competitors .

Top Actors in Movies-

Actor Anupam Kher has acted in the most number of movies.(around 42) followed by Shahrukh Khan

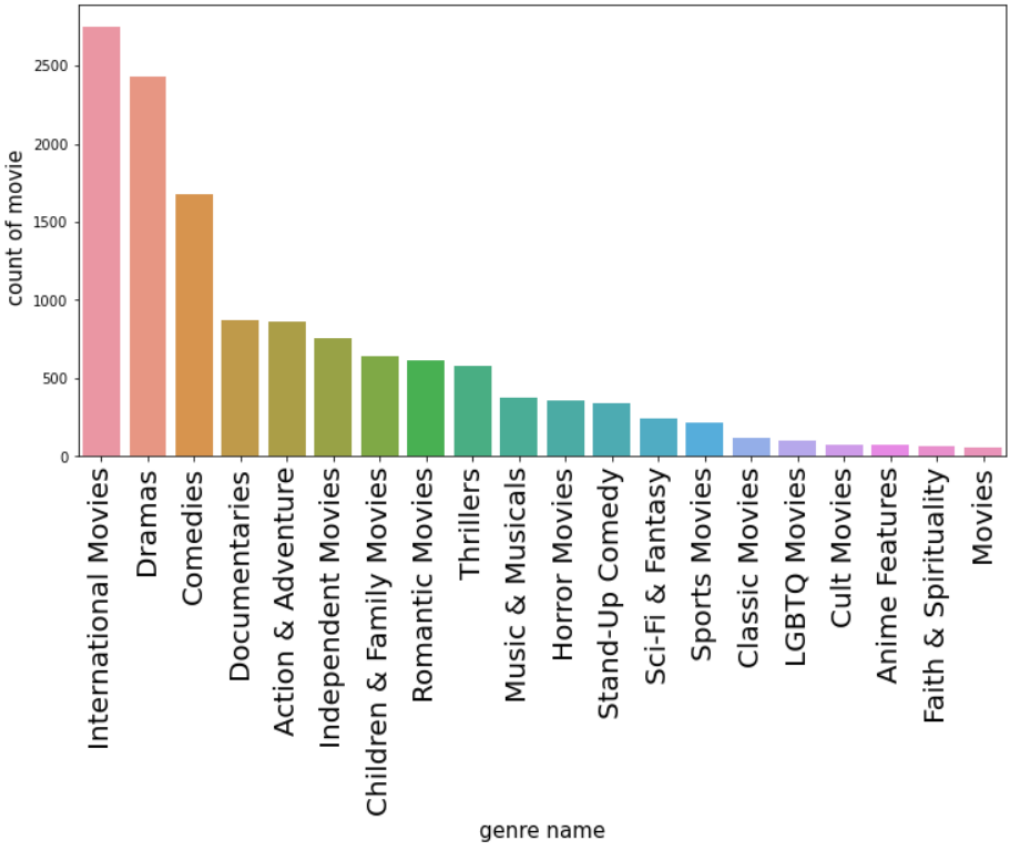


9]:

	cast	title
1	Anupam Kher	42
2	Shah Rukh Khan	35
3	Naseeruddin Shah	32
4	Om Puri	30
5	Akshay Kumar	30
6	Paresh Rawal	28
7	Julie Tejwani	28
8	Amitabh Bachchan	28
9	Rupa Bhimani	27
10	Boman Irani	27

Top Genres by movie-

According to the genres, “International Movies” has the highest number of movies in Netflix followed by Dramas.



	listed_in	title
0	International Movies	2752
1	Dramas	2427
2	Comedies	1674
3	Documentaries	869
4	Action & Adventure	859
5	Independent Movies	756
6	Children & Family Movies	641
7	Romantic Movies	616
8	Thrillers	577
9	Music & Musicals	375
10	Horror Movies	357
11	Stand-Up Comedy	343
12	Sci-Fi & Fantasy	243
13	Sports Movies	219
14	Classic Movies	116
15	LGBTQ Movies	102
16	Cult Movies	71
17	Anime Features	71
18	Faith & Spirituality	65
19	Movies	57

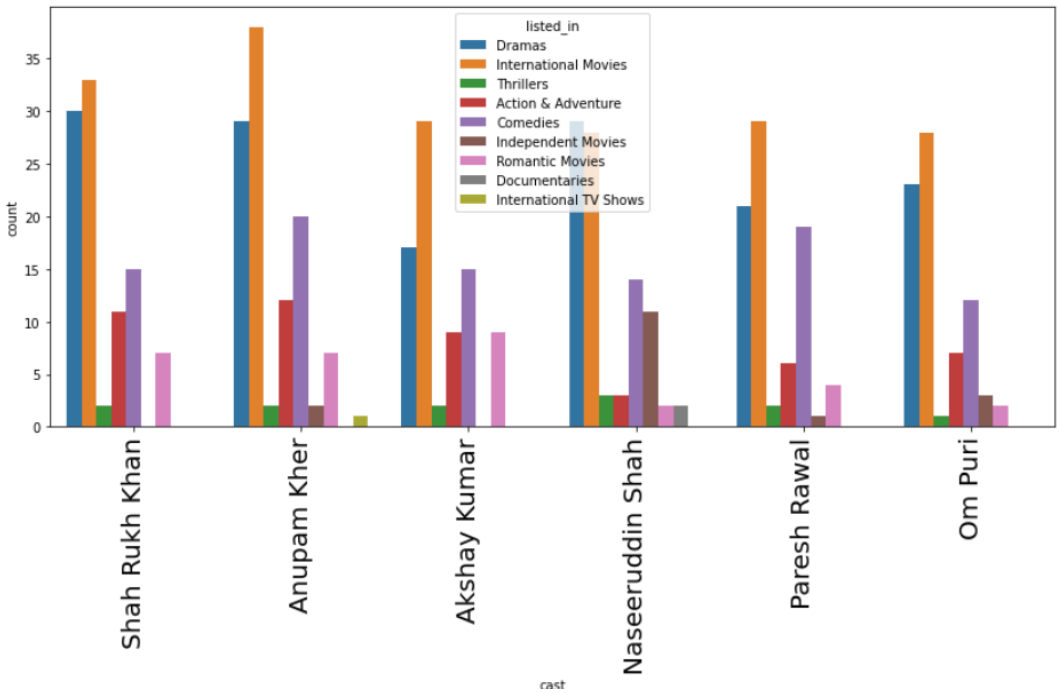
Netflix invests the mosts in producing and acquiring a significant number of "International Movies”.

- As a streaming platform with a worldwide presence, Netflix aims to cater to a diverse global audience.
- Netflix can actively seek partnerships with international production companies and distributors to acquire a wider variety of international movies By expanding the selection of international movies available on the platform, Netflix can attract viewers interested in exploring global cinema.
- Original international movies can also generate buzz and media attention, drawing in new viewers and subscribers from across the globe.
- Netflix can implement targeted promotional campaigns to highlight the "International Movies" genre. By promoting international movies across different marketing channels, including social media and email campaigns, Netflix can generate awareness and interest among subscribers.

TOP CAST IN TOP Genres-

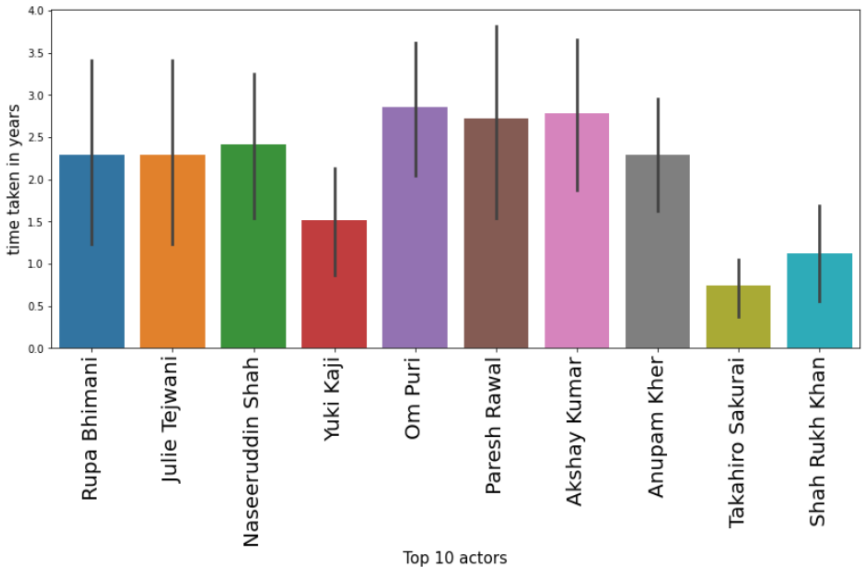
Considering the top 6 actors from top 10genres across top country fetched us the follwing results-

Inference-Shahrukh Khan, Anupam Kher,Akshay Kumar,Nasiruddin Shah,Paresh Rawal and OM puri are among the top 6 actors (according to the count of maximum movies that they have acted in) & who also belong to top 5 countries acting in top 10 genres.



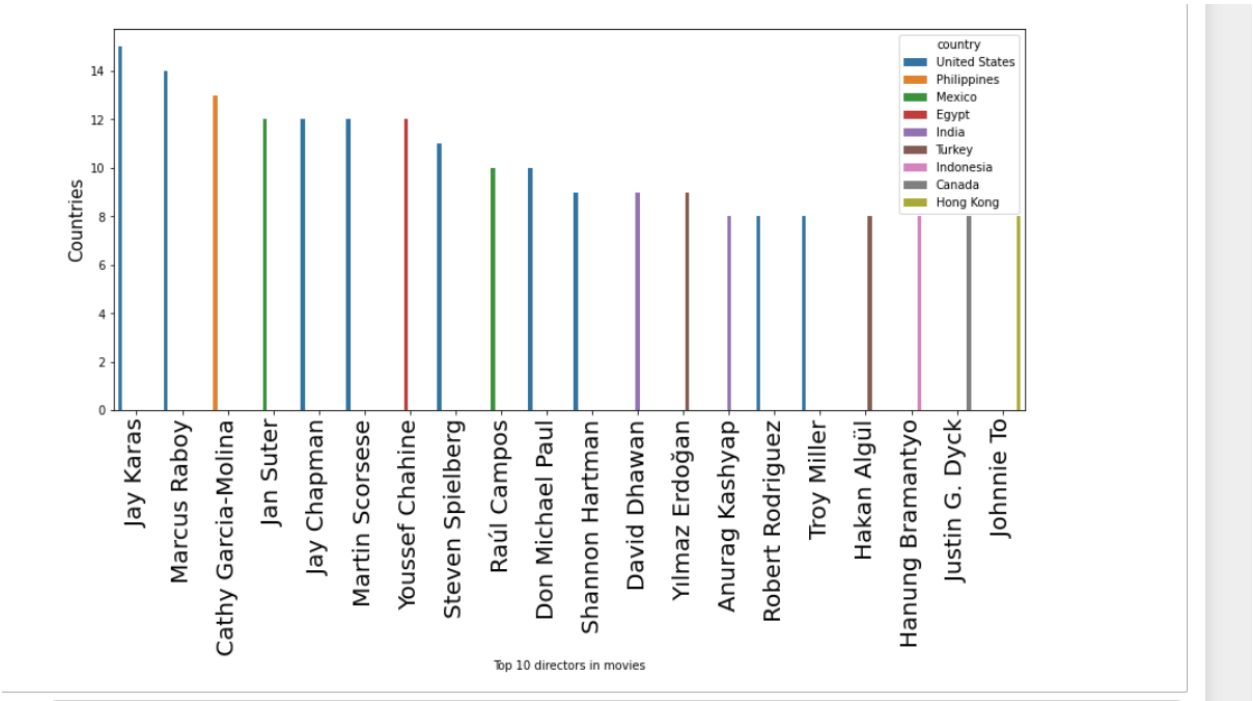
Average time taken for a movie to be launched in Netflix after its release-

Our data has movies that was launched way before Netflix came into market.So we will be considering only the recent past launches after the year 2013:



- Our observation shows that for Actors like Shahrukh Khan and Takahiro Sakurai, it takes the least time for their movies to get launched in Netflix.
- Shahrukh Khan is a renowned Bollywood actor, while Takahiro Sakurai is a prominent voice actor in the anime industry. Their movies often have international appeal and are sought after by a diverse audience. Hence,Streaming platforms like Netflix aim to cater to a global audience, so acquiring movies featuring these actors promptly allows them to offer content with broad international appeal.
- If movies featuring these actors are promptly added to Netflix, it can gain competitive edge over other streaming services and attract more subscribers.

Top director's Preference in countries-



We can infer here that majority of the top director's preference country wise is USA .

- While many top directors prefer working in the United States, their films often have global appeal and will have a wide diverse audience.Netflix can use its international distribution network to bring these movies to audiences worldwide.
- Netflix can cater to the diverse tastes and preferences of its global subscriber base, enhancing the platform's overall content library and attracting viewers from different regions.

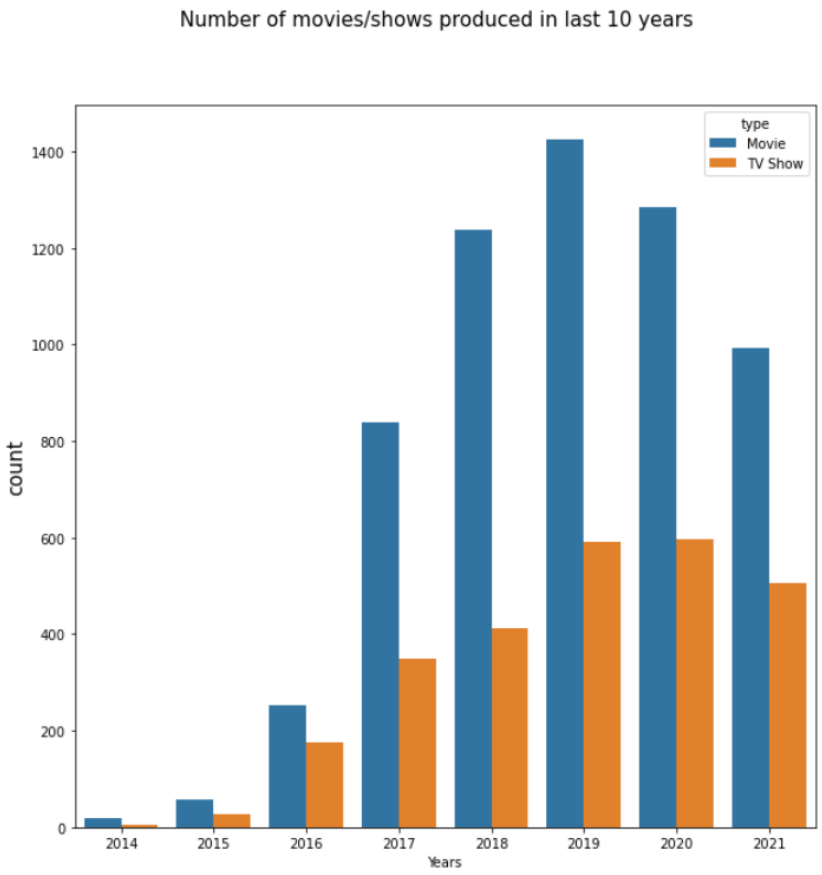
In the countries where very less movies are produced-

- Netflix can support and promote film festivals and events in those countries .This can involve sponsorship, collaboration, and showcasing selected films from these festivals on the Netflix platform. By highlighting and celebrating local cinema through such events, Netflix can create

awareness, stimulate interest, and encourage further investment in the film industry of these countries.

- This involvement can enhance the platform's brand reputation as a champion of global cinema, appealing to subscribers

Preference of Netflix over movies/series-



In the last decade, the data suggests that Netflix is releasing more Movies than TV shows.

- Movies often have a broader appeal and can attract a wider audience compared to TV shows, which may have more niche or specific target demographics.
- By releasing more movies, Netflix can reach a larger and more diverse viewer base, attracting casual viewers who enjoy standalone stories and film experiences.
- To cut down on competitive market, Releasing a greater number of movies allows Netflix to differentiate itself from competitors
- Producing movies often involves shorter production cycles compared to TV shows
- Releasing more movies allows Netflix to attract a broader audience, which can translate into increased revenue through subscription fees.

While releasing more movies has its advantages, Netflix continues to invest in TV shows and recognizes the value of both formats.

Recommendations-

- While Netflix is primarily a subscription-based service, they could potentially explore limited advertising options to generate additional revenue and offer This could involve non-intrusive ad placements within the platform, targeting specific audience segments or introducing ad-supported subscription tiers for users who prefer a lower-cost option with ads.
- In few countries where limited movies are made, Netflix can carry out campaigns for few movies to be available to all viewers irrespective of their subscriptions, which might develop a new interest among the viewers that might lead to increase in subscriptions in later period.
- Netflix can further enhance its personalized recommendations and algorithms that can increase customer satisfaction and retention. Happy and engaged subscribers are more likely to continue their subscriptions, resulting in sustained revenue growth.