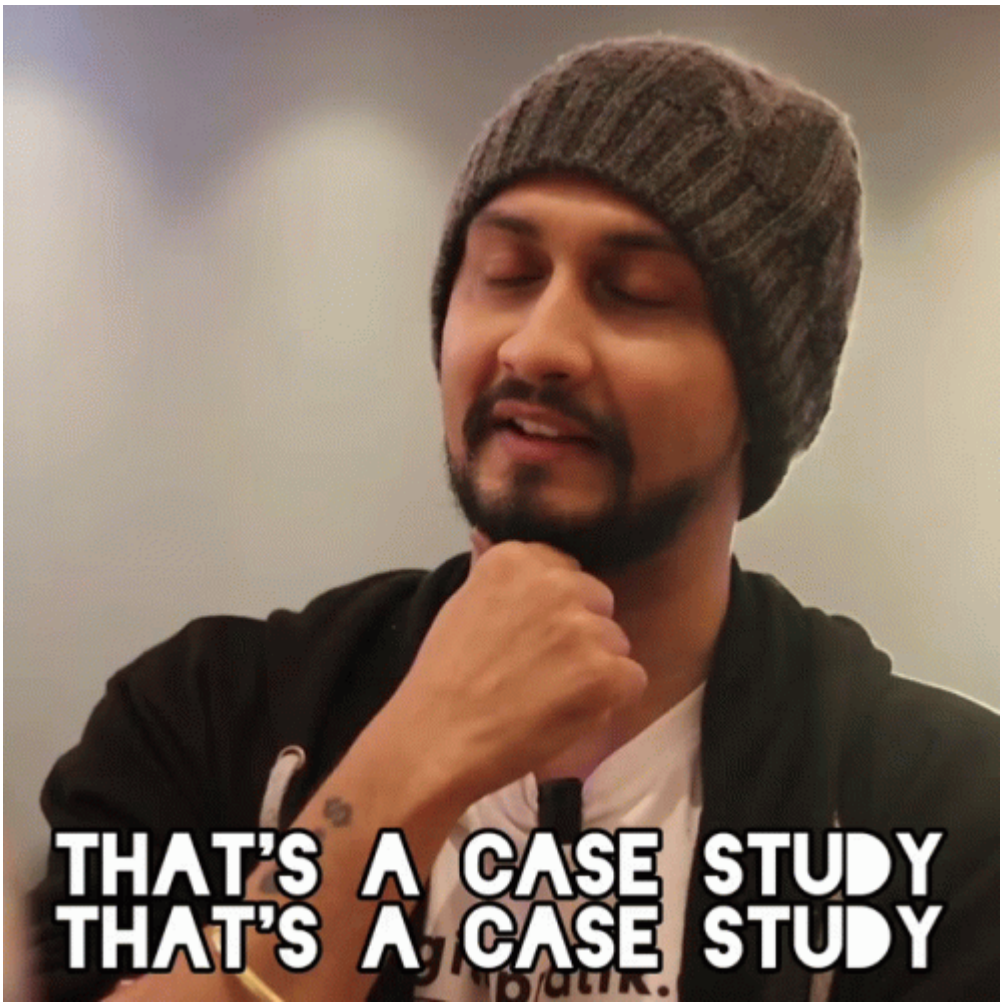


Libraries

In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from wordcloud import WordCloud, STOPWORDS, ImageColorGenerator
```

Data Loading

In [2]:
```
df = pd.read_csv(r'D:\Scaler\Case Studies\Netflix - DAV Busniess Case\Data.csv')
```

Data Cleaning

Data Inspection

In [3]:
```
# First 5 Rows
df.head()
```

Out[3]:

	show_id	type	title	director	cast	country	date_added	release_year
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021

In [4]:
```
# Shape of the data - How Many Rows and Columns
df.shape
```

Out[4]:
```
(8807, 12)
```

In [5]:
```
# Data Type Checking
df.dtypes
```

Out[5]:
```
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
```

Observations 💡

1. There are some Datetime Data Types are there we need to Change to Date Time Data Type (date_added) column
2. Rest all Columns have Approproiate Data Types

In [6]:
```
# Dataset Info such as datatype,null values etc
df.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 [7]:
```
# Basic Statistics (Numerical Data Only)
df.describe()
```

Out[7]:

	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 [8]:
```
# Basic Statistics (Non-Numerical/Categorical Data Only)
df.describe(include='all')
```

Out[8]:

	show_id	type	title	director	cast	country	date_added	release_ye
count	8807	8807	8807	6173	7982	7976	8797	8807.0000
unique	8807	2	8804	4528	7692	748	1767	Na
top	s1	Movie	15-Aug	Rajiv Chilaka	David Attenborough	United States	January 1, 2020	Na
freq	1	6131	2	19	19	2818	109	Na
mean	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2014.1801
std	NaN	NaN	NaN	NaN	NaN	NaN	NaN	8.8193
min	NaN	NaN	NaN	NaN	NaN	NaN	NaN	1925.0000
25%	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2013.0000
50%	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2017.0000
75%	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2019.0000
max	NaN	NaN	NaN	NaN	NaN	NaN	NaN	2021.0000

Type Casting (Data Type Conversions)

In [9]:
```
# Data Types
df.dtypes
```

Out[9]:
```
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 [10]:
```
# Date_Added

df['date_added'] = pd.to_datetime(df['date_added'].str.strip(), format='%B %d, %
df.head(3)
# Strip is used for handling inconsistency data in given column
```

Out[10]:

	show_id	type	title	director	cast	country	date_added	release_year
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	2021-09-25	2020
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	2021-09-24	2021
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	2021-09-24	2021

In [11]:
```
# release_year
df['release_year'] = pd.to_datetime(df['release_year'], format='%Y')
```

In [12]:
```
# Updated df
df.head(3)
```

Out[12]:

	show_id	type	title	director	cast	country	date_added	release_year
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	2021-09-25	2020-01-01
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	2021-09-24	2021-01-01
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	2021-09-24	2021-01-01

In [13]:
```
# Updated Data Types
df.dtypes
```

Out[13]:
```
show_id                 object
type                    object
title                   object
director                object
cast                    object
country                 object
date_added      datetime64[ns]
release_year    datetime64[ns]
rating                  object
duration                object
listed_in               object
description             object
dtype: object
```

Handling Missing / NULL Values

In [14]:
```
# Missing Values are represented by using NaN in pandas
df.isnull().sum()
```

Out[14]:
```
show_id            0
type               0
title              0
director        2634
cast             825
country          831
date_added        10
release_year       0
rating             4
duration           3
listed_in          0
description        0
dtype: int64
```

Duration

In [15]:
```
duration_temp = df[df['duration'].isnull()]
duration_temp
```

Out[15]:

	show_id	type	title	director	cast	country	date_added	release_year	rat
5541	s5542	Movie	Louis C.K. 2017	Louis C.K.	Louis C.K.	United States	2017-04-04	2017-01-01	
5794	s5795	Movie	Louis C.K.: Hilarious	Louis C.K.	Louis C.K.	United States	2016-09-16	2010-01-01	
5813	s5814	Movie	Louis C.K.: Live at the Comedy Store	Louis C.K.	Louis C.K.	United States	2016-08-15	2015-01-01	

In [16]:
```
for i in duration_temp['rating']:
    index = df.loc[df['rating'] == i].index[0]
    df.loc[index, 'duration'] = i
```

In [17]:
```
df[df['duration'].isnull()]
```

Out[17]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	durati

Directors,Rating Cast,Country

In [18]:
```
df.fillna({'director' : 'Unknown','cast':
'Unknown','country':'Unknown', 'rating': df['rating'].mode()[0],'date_added':df[
```

In [19]:
```
df.isnull().sum()
```

Out[19]:
```
show_id         0
type            0
title           0
director        0
cast            0
country         0
date_added      0
release_year    0
rating          0
duration        0
listed_in       0
description     0
dtype: int64
```

Splitting Duration and Converting to int

In [20]:
```
# Only Movies have Duration as min
```

In [21]:
```
df['duration'] = df['duration'].str.split(" ").str[0]
```

In [22]:
```
df['duration'].isna().sum()
```

Out[22]:
```
0
```

In [23]:
```
df['duration'].fillna(0,inplace = True)
```

In [24]:
```
df['duration'] = df['duration'].astype(int)
```

Nested Column Check

In [25]:
```
def has_nested_col(col):
    for value in col:
        if ',' in str(value):
            return True
    return False


nested_cols = [col for col in df.columns if has_nested_col(df[col])]
nested_cols
```

Out[25]:
```
['title', 'director', 'cast', 'country', 'listed_in', 'description']
```

In [26]:
```
df[df.duplicated()]
```

Out[26]:

show_id	type	title	director	cast	country	date_added	release_year	rating	durati

In [27]:
```
df['cast']=df['cast'].str.split(",")
df['listed_in'] = df['listed_in'].str.split(",")
df['director'] = df['director'].str.split(",")
df['country'] = df['country'].str.split(",")
```

In [28]:
```
df = df.explode('cast').reset_index(drop=True)
df = df.explode('director').reset_index(drop=True)
```

```
df = df.explode('listed_in').reset_index(drop=True)
df = df.explode('country').reset_index(drop=True)
```

In [29]:
```
df.shape
```

Out[29]:
```
(202065, 12)
```

Removing Leading and Trailing Spaces from all Columns

In [30]:
```
def df_strip(df):
    for i in df.columns:
        if df[i].dtype == 'object':
            df[i] = df[i].map(str.strip)
            print(f'Spaces Removed in {i}')
        else:
            pass
df_strip(df)
```

```
Spaces Removed in show_id
Spaces Removed in type
Spaces Removed in title
Spaces Removed in director
Spaces Removed in cast
Spaces Removed in country
Spaces Removed in rating
Spaces Removed in listed_in
Spaces Removed in description
```

Observations 💡

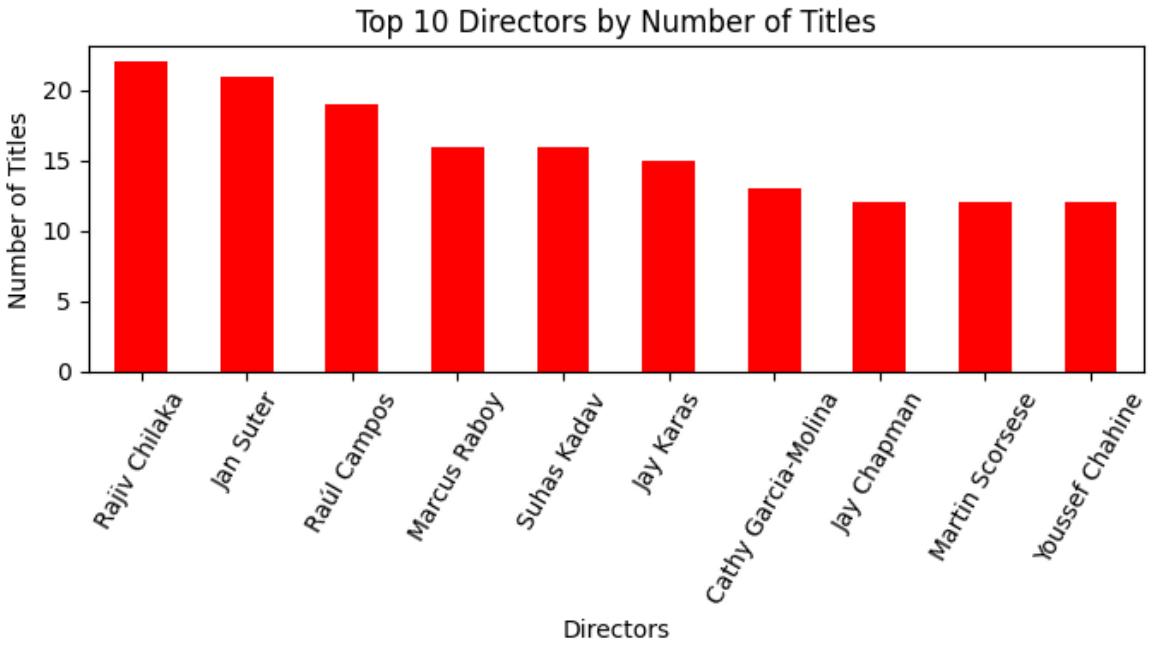
All Null Values are treated

1 Find the Counts of each categorical variable both using graphical and non graphical analysis

In [31]:
```
# Top 10 Directors
dir_cnts = df.groupby('director')['title'].nunique().sort_values(ascending = Fal
top_10_Directors = dir_cnts.head(10)
top_10_Directors
```

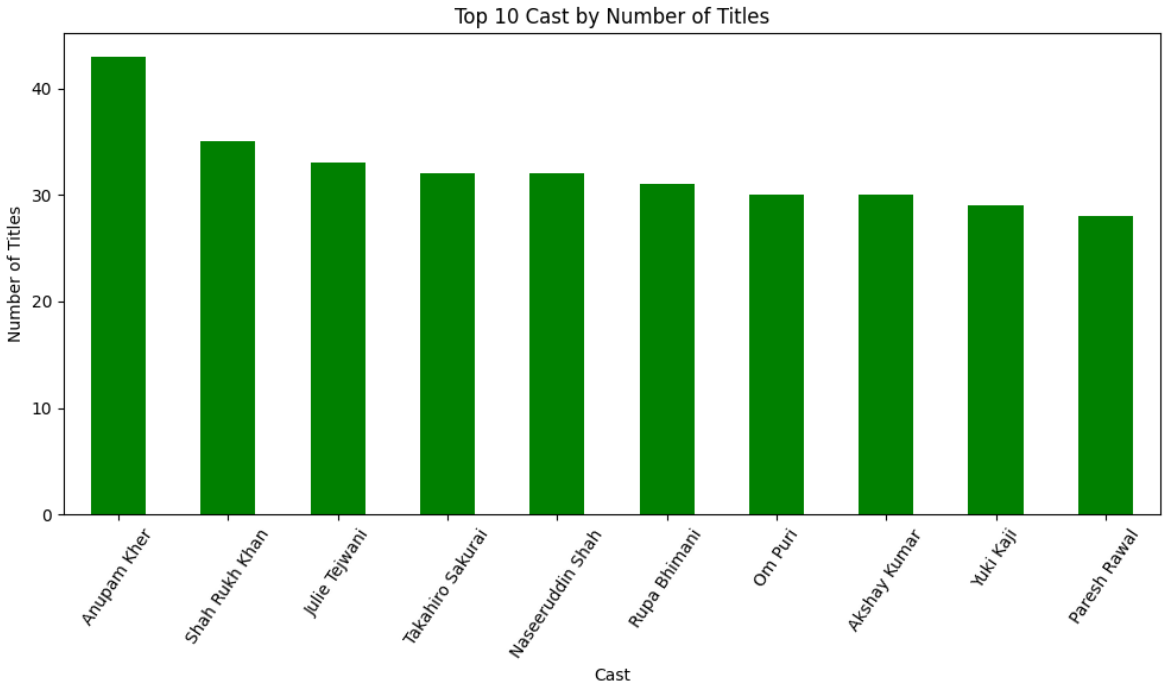
Out[31]:
```
director
Rajiv Chilaka          22
Jan Suter              21
Raúl Campos            19
Marcus Raboy           16
Suhas Kadav            16
Jay Karas              15
Cathy Garcia-Molina    13
Jay Chapman            12
Martin Scorsese        12
Youssef Chahine        12
Name: title, dtype: int64
```

In [32]:
```
netflix_color_palette = sns.color_palette(['black','red'])
plt.figure(figsize=(7, 4))
top_10_Directors.plot(kind='bar', color='red')
plt.xlabel('Directors')
plt.ylabel('Number of Titles')
plt.title('Top 10 Directors by Number of Titles')
plt.xticks(rotation=60)  # Rotate x-axis labels for better readability
plt.tight_layout()
plt.show()
```



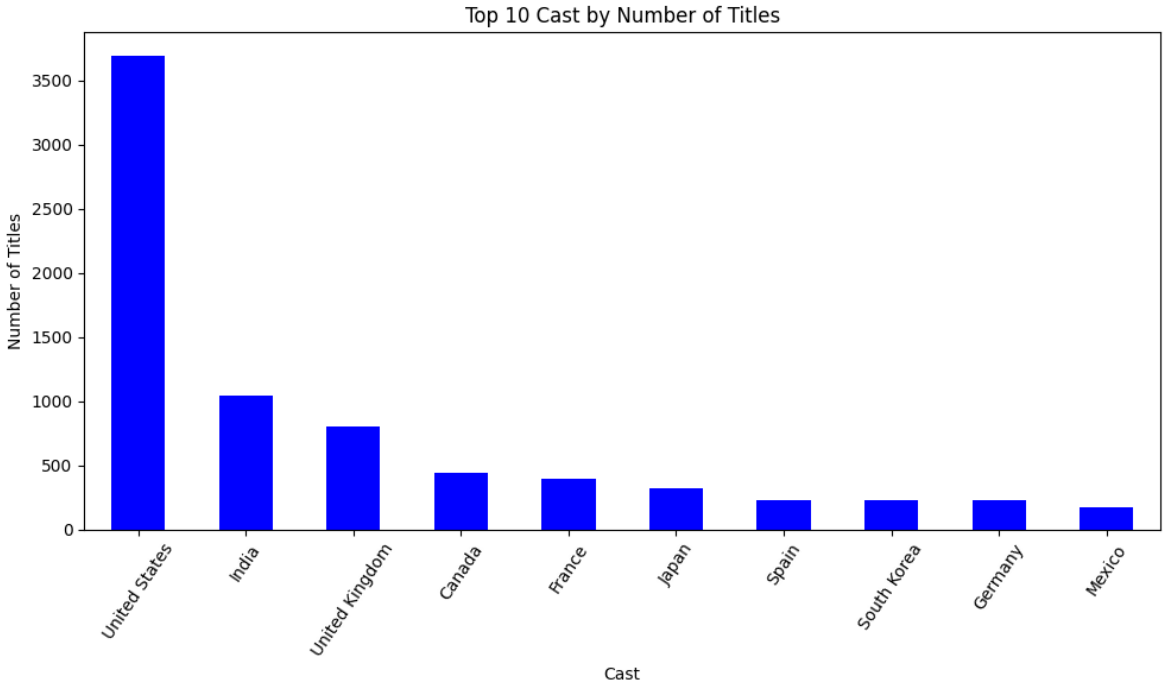
In [33]:
```
# Top 10 Cast
cast_cnts = df.groupby('cast')['title'].nunique().sort_values(ascending = False)
top_10_Cast =  cast_cnts.head(10)
```

In [34]:
```
plt.figure(figsize=(10, 6))
top_10_Cast.plot(kind='bar', color='green')
plt.xlabel('Cast')
plt.ylabel('Number of Titles')
plt.title('Top 10 Cast by Number of Titles')
plt.xticks(rotation=56)  # Rotate x-axis labels for better readability
plt.tight_layout()
plt.show()
```



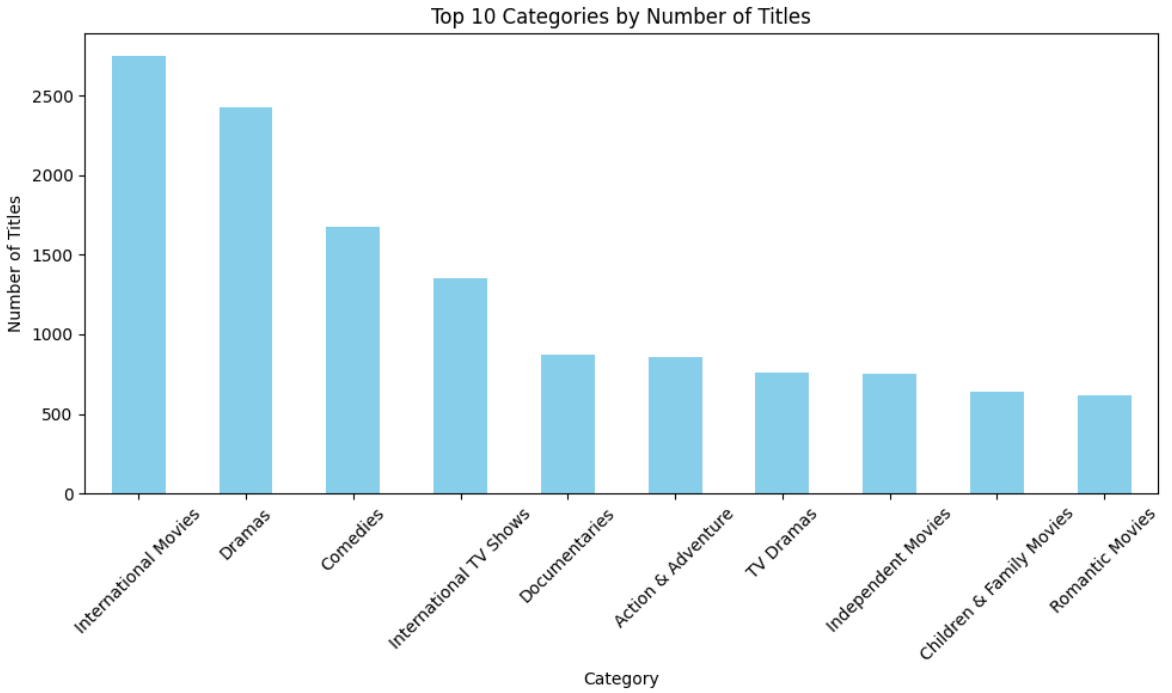
In [35]:
```
# Top 10 Countries
country_cnts = df.groupby('country')['title'].nunique().sort_values(ascending =
top_10_countries = country_cnts.head(10)
```

In [36]:
```
plt.figure(figsize=(10, 6))
top_10_countries.plot(kind='bar', color='blue')
plt.xlabel('Cast')
plt.ylabel('Number of Titles')
plt.title('Top 10 Cast by Number of Titles')
plt.xticks(rotation=56)  # Rotate x-axis labels for better readability
plt.tight_layout()
plt.show()
```



In [37]:
```
# Top Listed in
listed_in_cnts = df.groupby('listed_in')['title'].nunique().sort_values(ascendir
top_10_listed_in = listed_in_cnts.head(10)
```

In [38]:
```
plt.figure(figsize=(10, 6))
top_10_listed_in.plot(kind='bar', color='skyblue')
plt.xlabel('Category')
plt.ylabel('Number of Titles')
plt.title('Top 10 Categories by Number of Titles')
plt.xticks(rotation=45)  # Rotate x-axis labels for better readability
plt.tight_layout()
plt.show()
```



Date_added breakdown

In [39]:
```
df['year_added']=df['date_added'].dt.year.astype('Int64')
df['month_added']=df['date_added'].dt.month_name().str[0:3]
df['month_added']=df['date_added'].dt.month_name().str[0:3]
df['week_added']=df['date_added'].dt.isocalendar().week.astype('Int64')
```

In [40]:
```
df.head(2)
```

Out[40]:

	show_id	type	title	director	cast	country	date_added	release_year	ra
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	Unknown	United States	2021-09-25	2020-01-01	P(
1	s2	TV Show	Blood & Water	Unknown	Ama Qamata	South Africa	2021-09-24	2021-01-01	

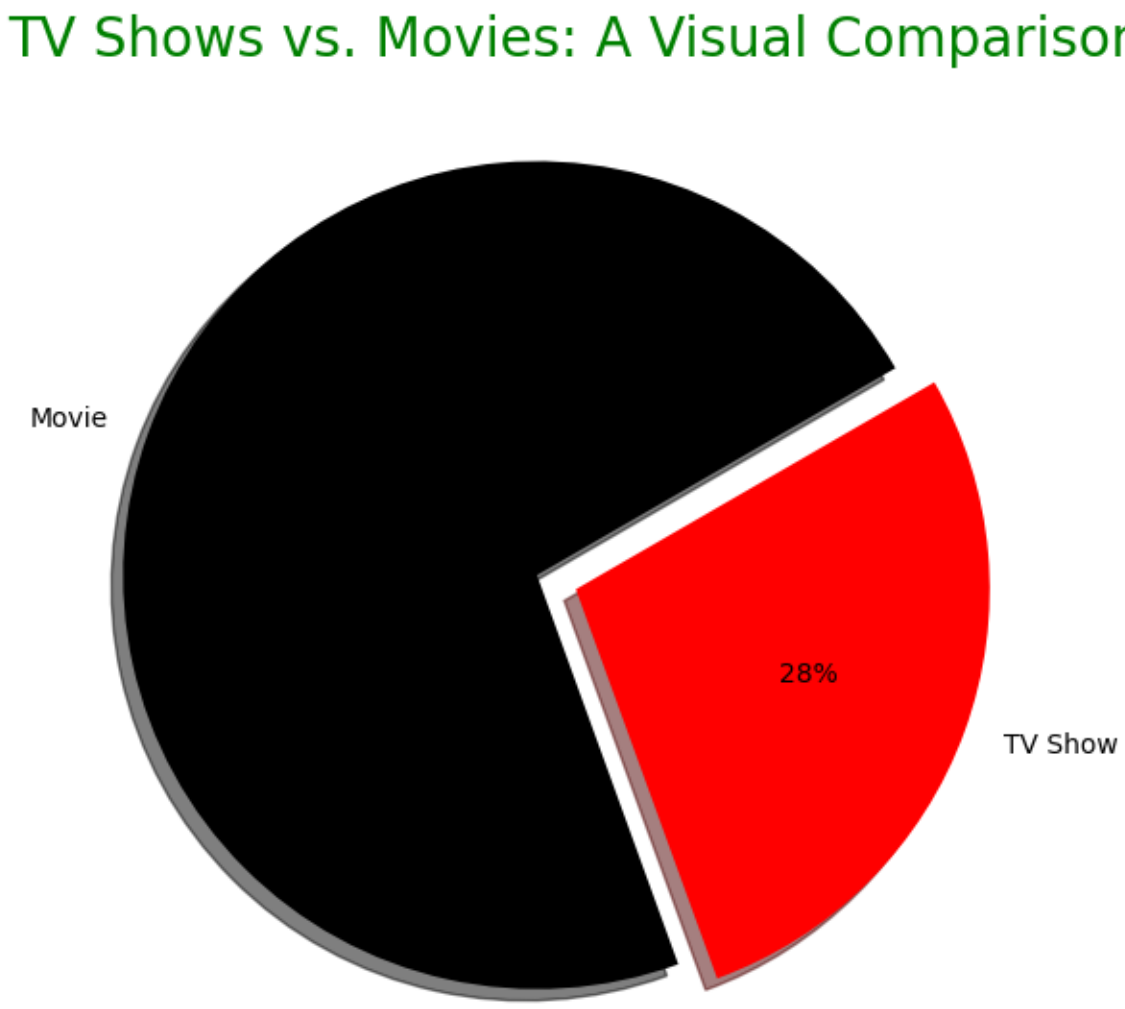
2. How has the number of movies released per year changed over the last 20-30 years

In [41]:
```
# Exracting movie and tv data
movie_data = df[df.type=='Movie'].copy()
tv_data = df[df.type=='TV Show'].copy()
movie_year = movie_data[['type','release_year']].reset_index(drop= True)
```

3. Comparison of TV Shows & Movies

In [42]:
```
plt.figure(figsize=(12,7))
plt.tight_layout()
plt.pie(df.groupby('type')['show_id'].count(), labels=df.type.unique(), colors=r
[0.1, 0], shadow = True, startangle=30)
plt.title('TV Shows vs. Movies: A Visual Comparison',fontsize=20, color = 'greer
```

Out[42]: Text(0.5, 1.0, 'TV Shows vs. Movies: A Visual Comparison')



Observations 💡

Movies are enjoyed by audiences more than twice as often as TV shows, highlighting their popularity in the realm of entertainment.

3a. Find the number of movies produced in each country and pick the top 10 countries

In [43]:
```
movie_data.groupby('country')['title'].nunique().drop('Unknown').sort_values(asc
```

Out[43]:

	country	title
0	United States	2751
1	India	961
2	United Kingdom	534
3	Canada	319
4	France	303
5	Germany	182
6	Spain	171
7	Japan	119
8	China	114
9	Mexico	111

Observations 💡

United States stands in the first place in producing netflix movies with a count of '2364' and next stands India with a movie count of '962'.

3b. Find the number of TV-shows Produced in Each Country and pick the top 10 countries.

In [44]:
```
tv_data.groupby('country')['title'].nunique().drop('Unknown').sort_values(ascenc
```

Out[44]:

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

Observations 💡

United States stands in the first place in producing netflix Tv-shows with a count of '938' and next stands India with a movie count of '272'.

4. What is the best time to launch a TV show?

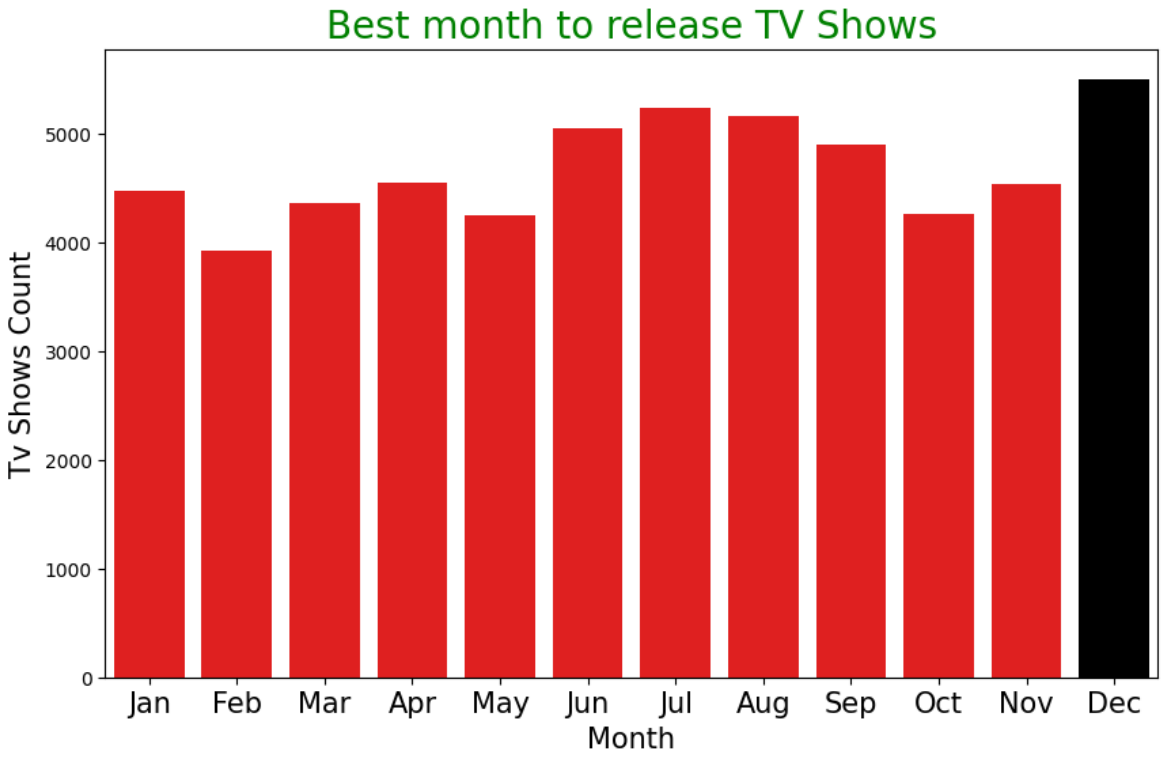
Month Wise

In [45]:
```
# TV Shows grouping by Month
tv_data_monthGroup = tv_data.groupby('month_added')['show_id'].apply(lambda x :
month_dict = {'Jan':1,'Feb':2,'Mar':3, 'Apr':4, 'May':5, 'Jun':6, 'Jul':7, 'Aug'
tv_data_monthGroup = tv_data_monthGroup.sort_values('month_added',key = lambda x
```

In [46]:
```
plt.figure(figsize=(10, 6))
cond_color_palette = ['red' if (x < max(tv_data_monthGroup.show_id)) else 'black
sns.barplot(x = tv_data_monthGroup.month_added.unique(), y = tv_data_monthGroup.
plt.xlabel('Month', fontsize= 15, color = 'black')
plt.ylabel('Tv Shows Count',fontsize= 15, color = 'black')
plt.xticks(fontsize = 15)
plt.title("Best month to release TV Shows",fontsize=20, color = 'green')
```

```
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\2005661385.py:3: FutureWarnin
g:

Passing `palette` without assigning `hue` is deprecated and will be removed in v
0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effe
ct.

  sns.barplot(x = tv_data_monthGroup.month_added.unique(), y = tv_data_monthGrou
p.show_id, palette = cond_color_palette)
```

Out[46]: Text(0.5, 1.0, 'Best month to release TV Shows')

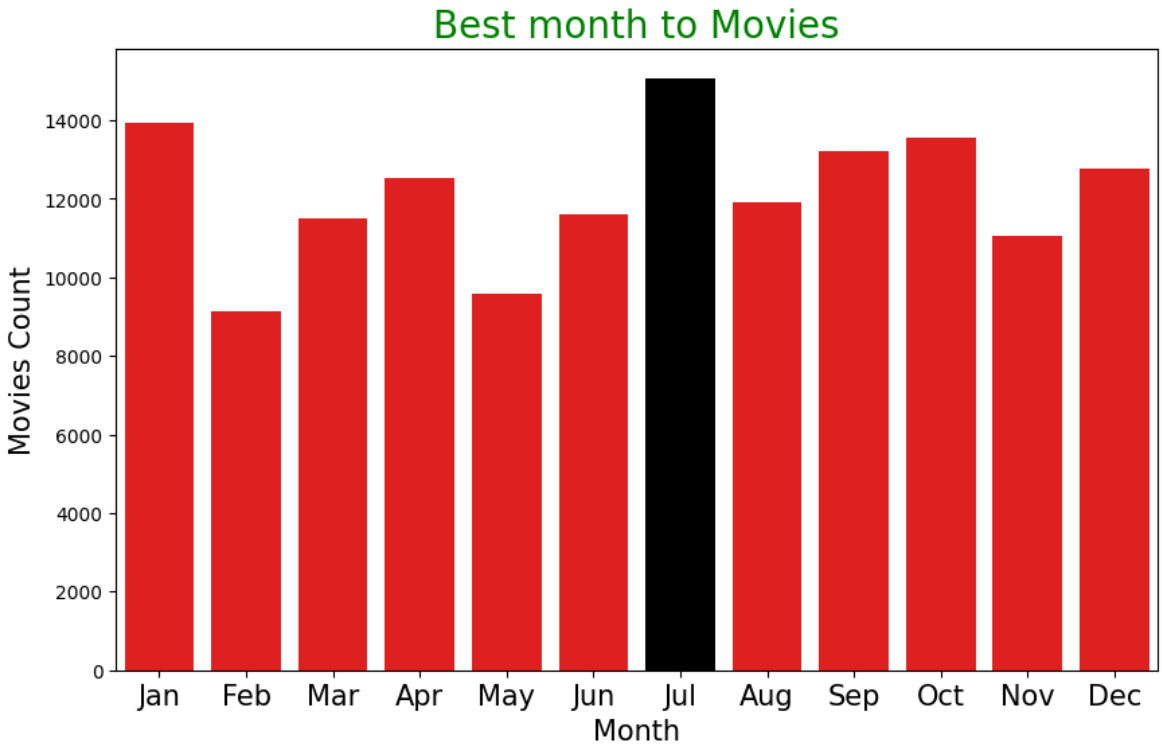


In [47]:
```
movie_data_monthGroup = movie_data.groupby('month_added')['show_id'].apply(lambd
month_dict = {'Jan':1,'Feb':2,'Mar':3, 'Apr':4, 'May':5, 'Jun':6, 'Jul':7, 'Aug'
movie_data_monthGroup = movie_data_monthGroup.sort_values('month_added',key = la
```

In [48]:
```
plt.figure(figsize=(10, 6))
cond_color_palette = ['red' if (x < max(movie_data_monthGroup.show_id)) else 'bl
sns.barplot(x = movie_data_monthGroup.month_added.unique(), y = movie_data_month
plt.xlabel('Month', fontsize= 15, color = 'black')
plt.ylabel('Movies Count',fontsize= 15, color = 'black')
plt.xticks(fontsize = 15)
plt.title("Best month to Movies",fontsize=20, color = 'green')
```

```
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\1980719429.py:3: FutureWarnin
g:

Passing `palette` without assigning `hue` is deprecated and will be removed in v
0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effe
ct.

  sns.barplot(x = movie_data_monthGroup.month_added.unique(), y = movie_data_mont
hGroup.show_id, palette = cond_color_palette)
```

Out[48]: Text(0.5, 1.0, 'Best month to Movies')



Observations 💡

1. The data suggests that December is the optimal month for launching TV shows and July is the best motnth to release Movies.
2. These months seem to offer a favorable environment for TV show and Movie premieres.

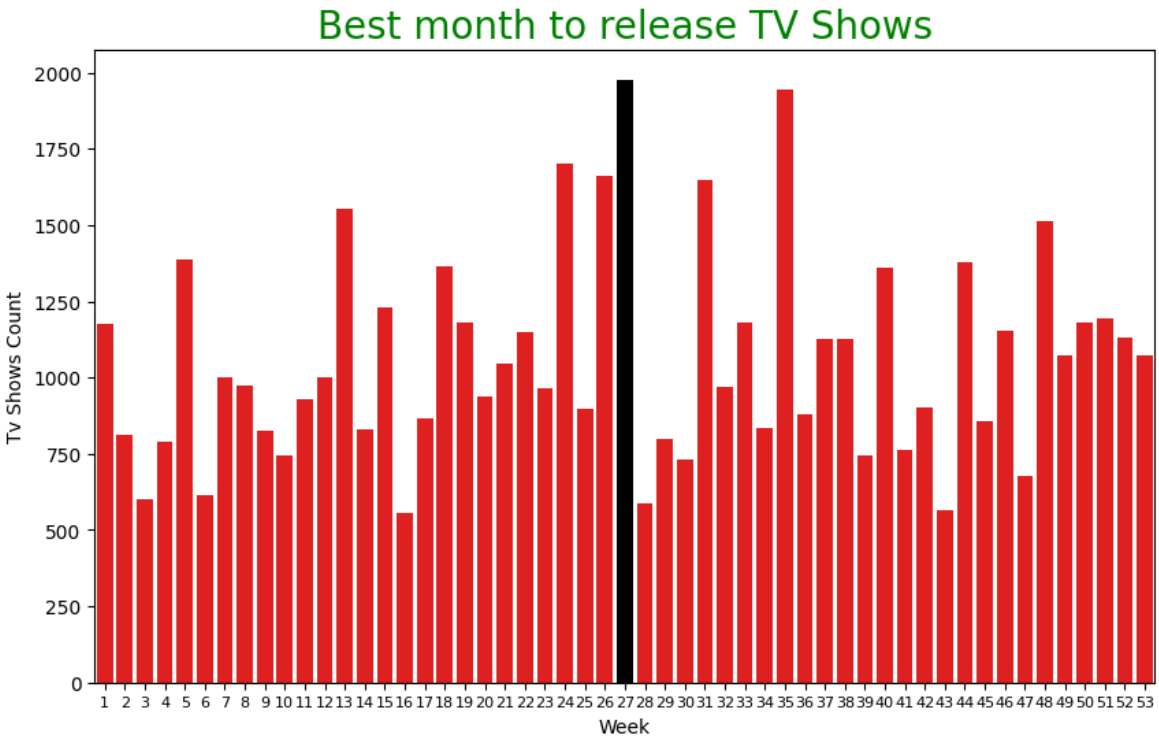
Week Wise

In [49]:
```
tv_data_weekGroup = tv_data.groupby('week_added')['show_id'].apply(lambda x : x.
```

In [50]:
```
plt.figure(figsize=(10, 6))
cond_color_palette = ['red' if (x < max(tv_data_weekGroup.show_id))
 else 'black' for x in tv_data_weekGroup.show_id]
sns.barplot(x = tv_data_weekGroup.week_added.unique(), y =
tv_data_weekGroup.show_id,
 palette = cond_color_palette)
plt.xlabel('Week', fontsize= 10, color = 'black')
plt.ylabel('Tv Shows Count',fontsize= 10, color = 'black')
plt.xticks(fontsize = 8)
plt.title("Best month to release TV Shows",fontsize=20, color = 'green')
```

```
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\3564891889.py:4: FutureWarnin
g:

Passing `palette` without assigning `hue` is deprecated and will be removed in v
0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effe
ct.

  sns.barplot(x = tv_data_weekGroup.week_added.unique(), y =
```

Out[50]:
```
Text(0.5, 1.0, 'Best month to release TV Shows')
```

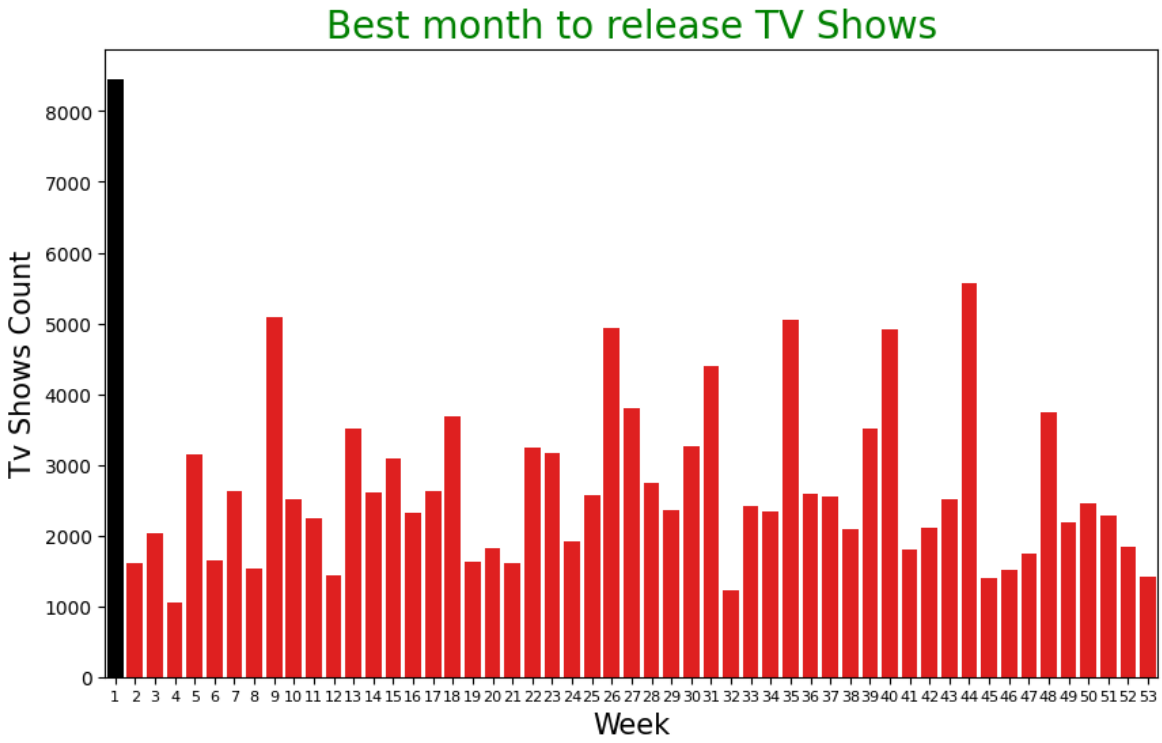


In [51]:
```
movie_data_weekGroup = movie_data.groupby('week_added')['show_id'].apply(lambda
```

In [52]:
```
plt.figure(figsize=(10, 6))
cond_color_palette = ['red' if (x < max(movie_data_weekGroup.show_id))  else 'bl
sns.barplot(x = movie_data_weekGroup.week_added.unique(), y = movie_data_weekGrc
plt.xlabel('Week', fontsize= 15, color = 'black')
plt.ylabel('Tv Shows Count',fontsize= 15, color = 'black')
plt.xticks(fontsize = 8)
plt.title("Best month to release TV Shows",fontsize=20, color = 'green')
```

```
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\1904362031.py:3: FutureWarnin
g:

Passing `palette` without assigning `hue` is deprecated and will be removed in v
0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effe
ct.

  sns.barplot(x = movie_data_weekGroup.week_added.unique(), y = movie_data_weekGr
oup.show_id, palette = cond_color_palette)
```

Out[52]:
```
Text(0.5, 1.0, 'Best month to release TV Shows')
```



Observations 💡

1. Data shows that 27th week is the best week to produce TV shows on netflix
2. 1st week is the best week to release Movies.

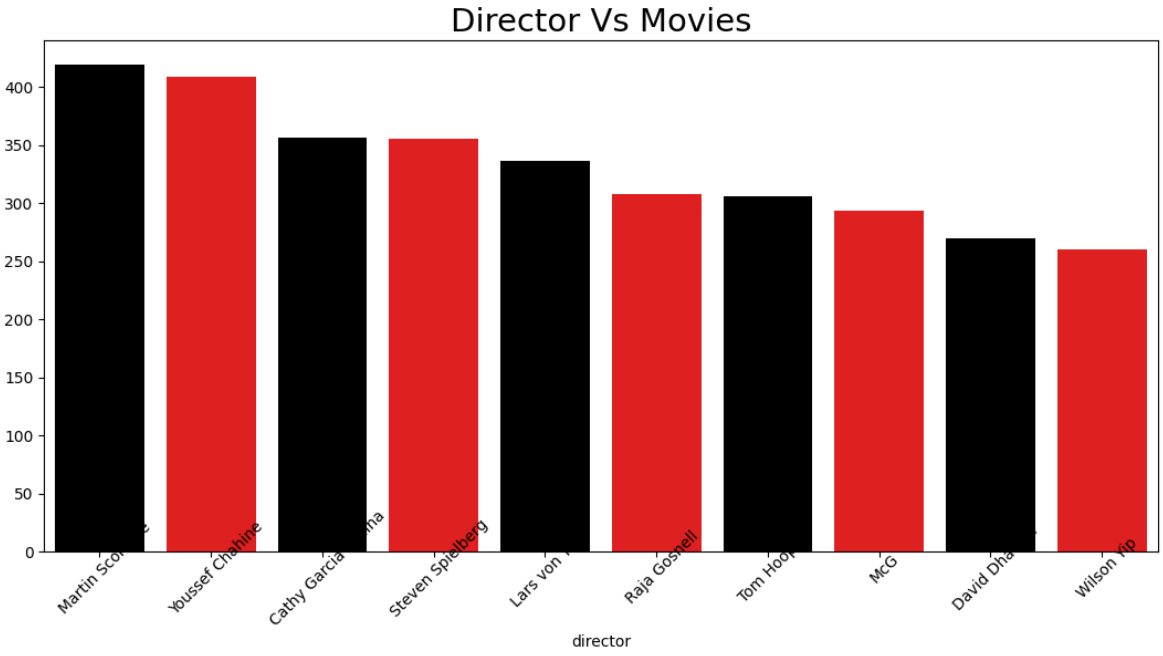
5. Analysis of actors/directors of Different Types of Shows / Movies.

In [53]:
```
movie_dir = movie_data.groupby('director')['show_id'].count().drop('Unknown').sc
movie_cast = movie_data.groupby('cast')['show_id'].count().drop('Unknown').sort_
tv_dir = tv_data.groupby('director')['show_id'].count().drop('Unknown').sort_val
tv_cast = tv_data.groupby('cast')['show_id'].count().drop('Unknown').sort_values
```

In [54]:
```
plt.figure(figsize=(13, 6))
sns.barplot(x= movie_dir.index, y = movie_dir.values, palette= netflix_color_pal
plt.xticks(rotation=45, wrap=True)
plt.title('Director Vs Movies', fontsize=21)
```

```
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\4136818985.py:2: FutureWarnin
g:

Passing `palette` without assigning `hue` is deprecated and will be removed in v
0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effe
ct.

  sns.barplot(x= movie_dir.index, y = movie_dir.values, palette= netflix_color_pa
lette)
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\4136818985.py:2: UserWarning:
The palette list has fewer values (2) than needed (10) and will cycle, which may
produce an uninterpretable plot.
  sns.barplot(x= movie_dir.index, y = movie_dir.values, palette= netflix_color_pa
lette)
```

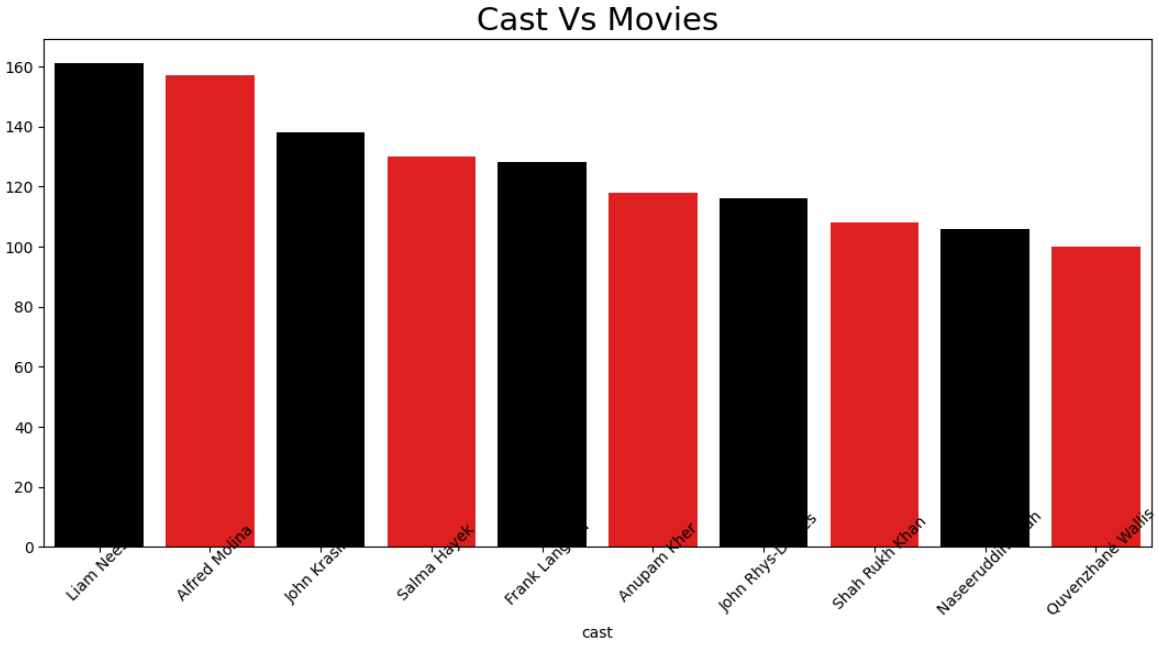
Out[54]: Text(0.5, 1.0, 'Director Vs Movies')



In [55]:
```
plt.figure(figsize=(13, 6))
sns.barplot(x= movie_cast.index, y = movie_cast.values, palette= netflix_color_p
plt.xticks(rotation=45, wrap=True)
plt.title('Cast Vs Movies', fontsize=21)
```

```
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\1877991372.py:2: FutureWarnin
g:

Passing `palette` without assigning `hue` is deprecated and will be removed in v
0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effe
ct.

  sns.barplot(x= movie_cast.index, y = movie_cast.values, palette= netflix_color_
palette)
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\1877991372.py:2: UserWarning:
The palette list has fewer values (2) than needed (10) and will cycle, which may
produce an uninterpretable plot.
  sns.barplot(x= movie_cast.index, y = movie_cast.values, palette= netflix_color_
palette)
```

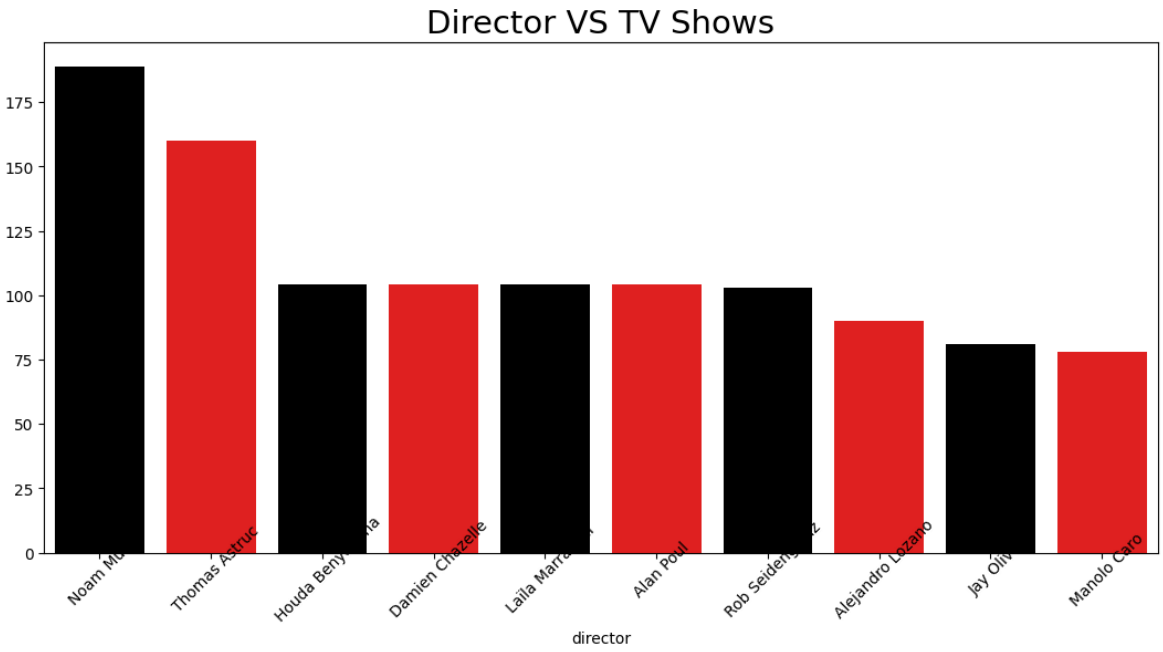
Out[55]: Text(0.5, 1.0, 'Cast Vs Movies')



In [56]:
```
plt.figure(figsize=(13, 6))
sns.barplot(x= tv_dir.index, y = tv_dir.values, palette= netflix_color_palette)
plt.xticks(rotation=45, wrap=True)
plt.title('Director VS TV Shows', fontsize=21)
```

```
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\510507701.py:2: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v
0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effe
ct.

  sns.barplot(x= tv_dir.index, y = tv_dir.values, palette= netflix_color_palette)
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\510507701.py:2: UserWarning:
The palette list has fewer values (2) than needed (10) and will cycle, which may
produce an uninterpretable plot.
  sns.barplot(x= tv_dir.index, y = tv_dir.values, palette= netflix_color_palette)
```

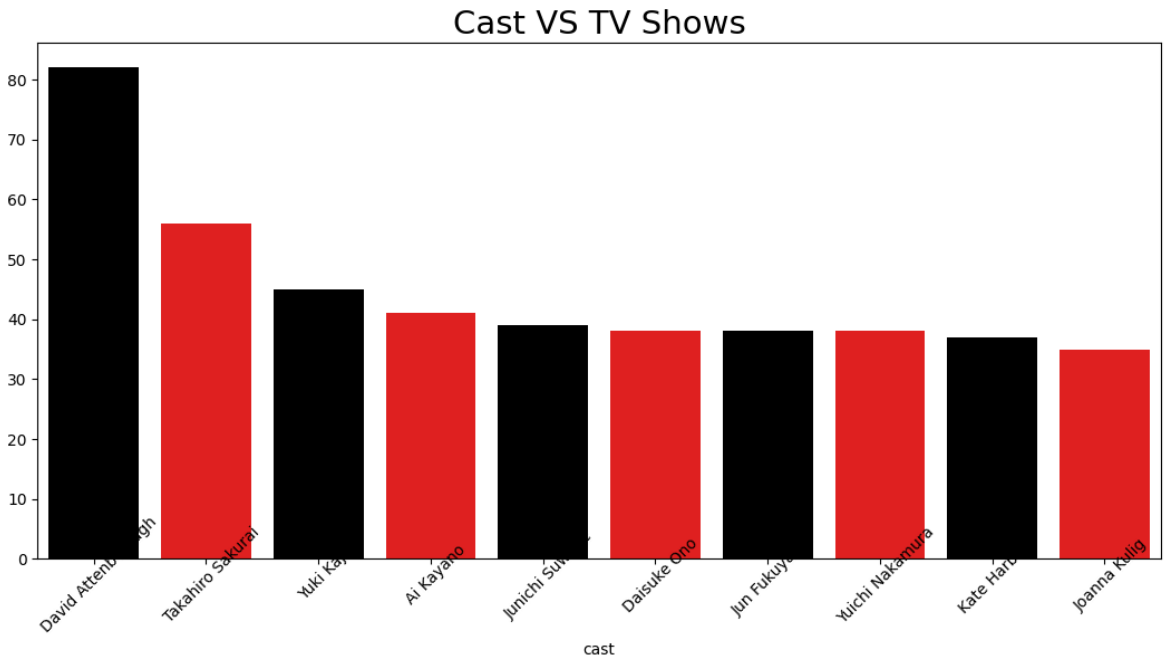
Out[56]: Text(0.5, 1.0, 'Director VS TV Shows')



In [57]:
```
plt.figure(figsize=(13, 6))
sns.barplot(x= tv_cast.index, y = tv_cast.values, palette= netflix_color_palette
plt.xticks(rotation=45, wrap=True)
plt.title('Cast VS TV Shows', fontsize=21)
```

```
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\517816581.py:2: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v
0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effe
ct.

  sns.barplot(x= tv_cast.index, y = tv_cast.values, palette= netflix_color_palett
e)
C:\Users\LOKESH\AppData\Local\Temp\ipykernel_22112\517816581.py:2: UserWarning:
The palette list has fewer values (2) than needed (10) and will cycle, which may
produce an uninterpretable plot.
  sns.barplot(x= tv_cast.index, y = tv_cast.values, palette= netflix_color_palett
e)
```

Out[57]: Text(0.5, 1.0, 'Cast VS TV Shows')



Observations 💡

From the above plots it is known that:

1. Best director for movies is 'Martin Scorsense'
2. Best actor for movies is 'Liam Neeson'
3. Best director for tv shows is 'Noam Murro'
4. Best actor for tv shows is 'David Attenborough

6. Which Genre movies are More Popular or Produced more

In [58]:
```
plt.figure(figsize=(25,15))
text = str(list(df['listed_in'])).replace(',', '').replace('[', '').replace("'",
```

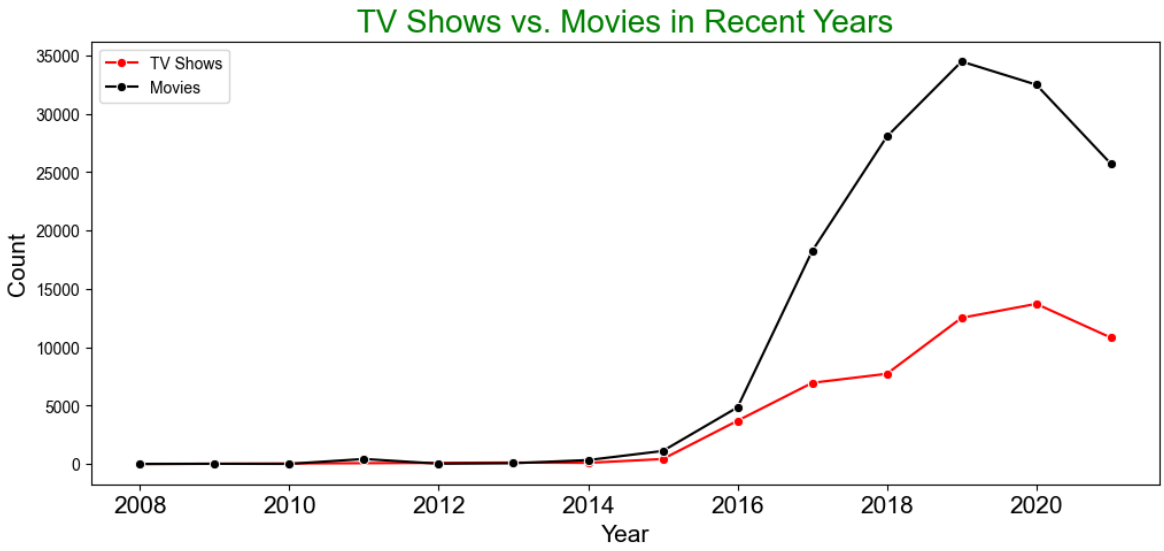
```
# word cloud image
wordcloud = WordCloud(stopwords=STOPWORDS, max_words=100, background_color='whit

plt.imshow(wordcloud)
plt.axis('off')
plt.savefig('country.png')
plt.show()
```

Observations 💡

From the above word cloud , "International movies" are produced more on netflix and next to it will be TV shows

7. Does Netflix has More Focus on TV Shows than Movies in recent years

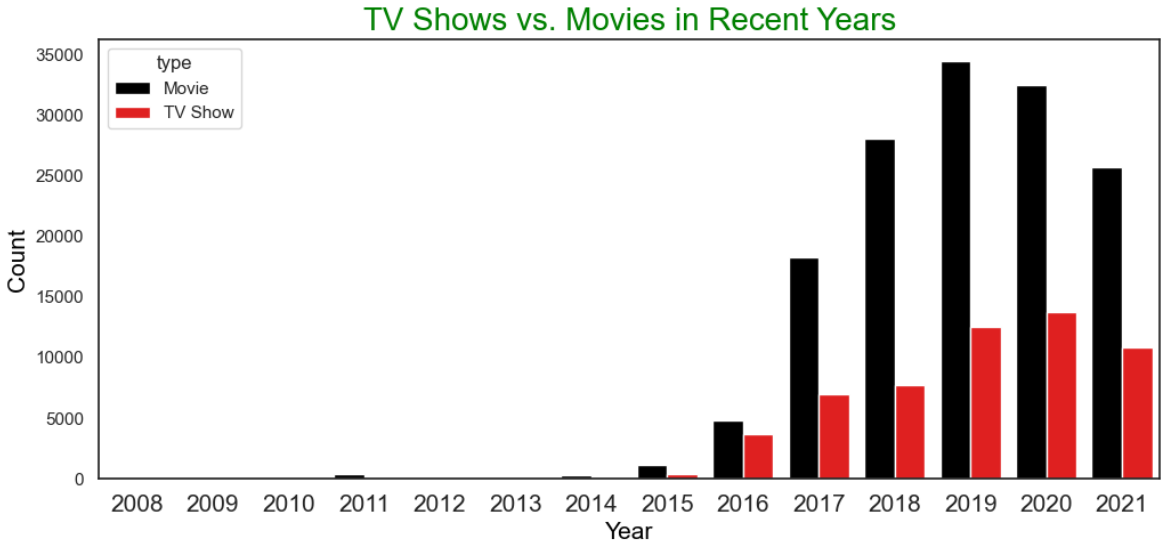
In [59]:
```
grpd_tv_data = tv_data.groupby('year_added')['show_id'].count().reset_index()
grpd_movie_data = movie_data.groupby('year_added')['show_id'].count().reset_inde
plt.figure(figsize=(12,5))
sns.lineplot(x = grpd_tv_data.year_added , y = grpd_tv_data.show_id, color='red'
sns.lineplot(x = grpd_movie_data.year_added , y = grpd_movie_data.show_id, color
sns.set_theme(style='white')
plt.xlabel('Year', fontsize= 15, color = 'black')
plt.ylabel('Count',fontsize= 15, color = 'black')
plt.xticks(fontsize = 15)
plt.title("TV Shows vs. Movies in Recent Years",fontsize=20, color ='green')
plt.show()
```



Observations 💡

The above line plot shows a parallel Growth of TV Shows and Movies Until 2016, followed by exponential movie expansion.

In [60]:
```
grpd_data = df.groupby(['year_added','type'])['show_id'].count().reset_index()
plt.figure(figsize=(12,5))
cols = sns.color_palette(['black','red'])
sns.barplot(x = grpd_data.year_added , y = grpd_data.show_id, hue=
grpd_data.type, palette = cols )
sns.set_theme(style='white')
plt.xlabel('Year', fontsize= 15, color = 'black')
plt.ylabel('Count',fontsize= 15, color = 'black')
plt.xticks(fontsize = 15)
plt.title("TV Shows vs. Movies in Recent Years",fontsize=20, color ='green')
plt.show()
```



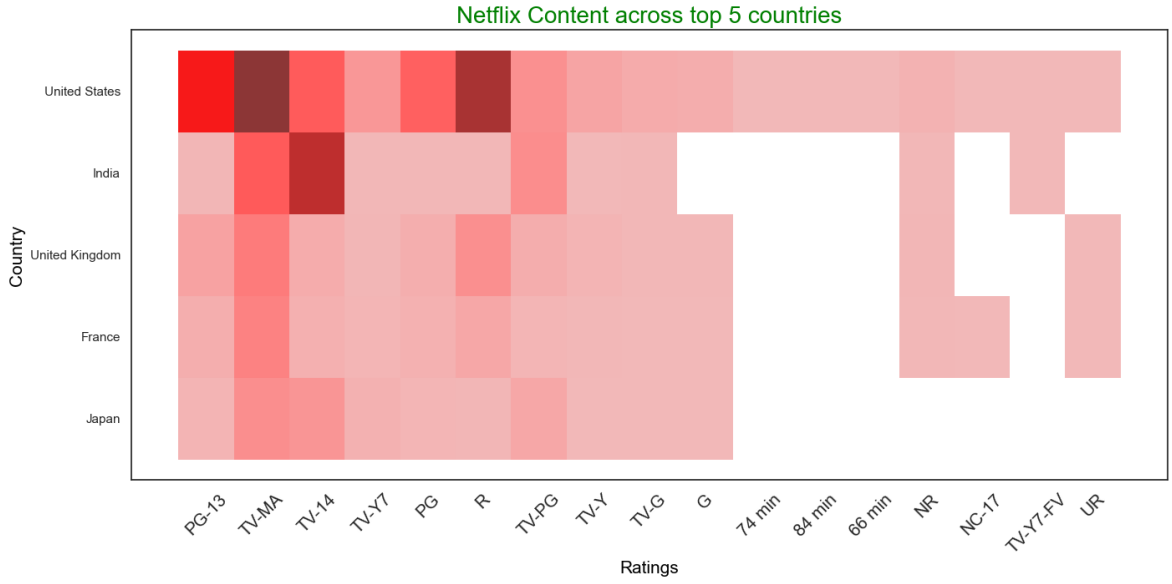
Observations 💡

1. The Movie Boom (2016-2019): Between 2016 and 2019, the movie industry witnessed an exponential upswing.

2. Consistent TV Shows: TV shows, on the other hand, held their ground with a steady pace.
3. The Decline of Movies (Post-2019): The drop in movie production after 2019 raises intriguing questions like Market Saturation, Return on Investment et

8. Understanding What Content is available in Different Countries

In [61]:
```
# Getting top 5 countries with content on netflix
top_countries =list(df.country.value_counts().drop('Unknown')[:5].index)
plt.figure(figsize=(16,7))
sns.histplot(data=
df[df['country'].isin(top_countries)], x="rating", y= 'country', color = 'red')
sns.set_theme(style='dark')
plt.xlabel('Ratings', fontsize= 15, color = 'black')
plt.ylabel('Country',fontsize= 15, color = 'black')
plt.xticks(rotation = 45, fontsize = 15)
plt.title("Netflix Content across top 5 countries",fontsize=20, color = 'green')
plt.show()
```



Observations 💡

```
The above heatmap shows the ratings across top 5 countries.
Netflix content with rating 'TV-MA' is mostly avaible in United
States
Where as 'TV-14' is the top availabe rated content in India.
India has no G, NC-17, UR content availabe where as Japan has no
NR, NC-17 , TV-Y7-FV and UR rated content availabe
```

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

In [62]:
```
df['days_to_add']=df['date_added']-df['release_year']
df['days_to_add'].mode()[0]
```

Out[62]: `Timedelta('547 days 00:00:00')`

Observations 💡

An average of 547 days are taken to add a movie or a tv show to netflix after its relase. (Considering each show or movie is released on jan 1 of the respective release year as the exact date of release is not availabe