Netflix Data Exploration and Visualisation Project

1. Probelm Statment and Basic Metrics

Netflix stands as one of the leading platforms for media and video streaming, boasting a vast library of over 10,000 movies and TV shows. As of mid-2021, its global subscriber base surpassed 222 million. This tabular dataset encompasses comprehensive listings of all movies and TV shows offered on Netflix, including crucial details such as cast, directors, ratings, release year, duration, and more.

The objective of this business case is to analyze the dataset of movies and TV shows on Netflix to derive insights beneficial for decision-making regarding content production and business expansion strategies across various countries.

Basic Metrics Includes:

1. The dataset will be analyzed to determine the proportion of movies and TV shows.
2. Trends over time will be examined to detect any shifts in focus towards specific content types.
3. Popular genres among Netflix subscribers will be identified.
4. Genre preferences across different countries will be explored.
5. The most frequently featured directors and actors will be identified
6. Analysis will be conducted to assess whether specific directors or actors contribute to higher viewership or ratings
7. The distribution of content across different countries will be determined
8. Potential growth opportunities in untapped markets will be identified
9. The distribution of ratings (e.g., TV-G, TV-MA) and their impact on viewership will be analyzed.
10. The distribution of content duration (in minutes for movies or number of seasons for TV shows) will be examined.
11. The frequency of content additions over time will be analyzed

DATA DESCRIPTION: The data consists of the following attributes:

1. Show_id: Unique ID for every Movie / Tv Show
2. Type: Identifier - A Movie or TV Show
3. Title: Title of the Movie / Tv Show
4. Director: Director of the Movie
5. Cast: Actors involved in the movie/show
6. Country: Country where the movie/show was produced
7. Date_added: Date it was added on Netflix
8. Release_year: Actual Release year of the movie/show
9. Rating: TV Rating of the movie/show
10. Duration: Total Duration - in minutes or number of seasons

11. Listed_in: Genre
12. Description: The summary description

2. Basic EDA(Observations on Data)

In [2]:
```
#Import Libraries
```

In [58]:
```
# To enable plotting graphs in Jupyter notebook
%matplotlib inline
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
import geopandas as gpd
import warnings
```

In [59]:
```
# Load Netflix data present in CSV file
data = pd.read_csv("netflix.csv")
```

Shape of the Data

In [60]:
```
# Shape of data to check the number of rows and columns
print(data.shape)
```

```
(8807, 12)
```

In [61]:
```
# To get the column names
data.columns
```

Out[61]:
```
Index(['show_id', 'type', 'title', 'director', 'cast', 'country', 'date_added',
       'release_year', 'rating', 'duration', 'listed_in', 'description'],
      dtype='object')
```

Data types of all the attributes

In [62]:
```
#check the datatype of each variable
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
```

In [63]:
```
#To get the first 10 rows of data
data.head(10)
```

Out[63]:

	show_id	type	title	director	cast	country	date_added	release_year	rating
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA
5	s6	TV Show	Midnight Mass	Mike Flanagan	Kate Siegel, Zach Gilford, Hamish Linklater, H...	NaN	September 24, 2021	2021	TV-MA
6	s7	Movie	My Little Pony: A New Generation	Robert Cullen, José Luis Ucha	Vanessa Hudgens, Kimiko Glenn, James Marsden, ...	NaN	September 24, 2021	2021	PG
7	s8	Movie	Sankofa	Haile Gerima	Kofi Ghanaba, Oyafunmike Ogunlano, Alexandra D...	United States, Ghana, Burkina Faso, United Kin...	September 24, 2021	1993	TV-MA
8	s9	TV Show	The Great British Baking Show	Andy Devonshire	Mel Giedroyc, Sue Perkins, Mary Berry, Paul Ho...	United Kingdom	September 24, 2021	2021	TV-14
9	s10	Movie	The Starling	Theodore Melfi	Melissa McCarthy,	United States	September 24, 2021	2021	PG-13

show_id	type	title	director	cast	country	date_added	release_year	rating
				Chris O'Dowd, Kevin Kline, T				

Statistical summary

In [64]:
```
data.describe()
```

Out[64]:

	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

Missing value detection

In [65]:
```
#To check total number of null values
data.isna().sum()
```

Out[65]:
```
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
```

Among the 8807 records, the 'director' column accounts for 2634 null values, representing 30% of the total dataset. In comparison, both the 'cast' and 'country' columns contain 825 and 831 null values, respectively. Notably, the 'director' column exhibits a higher proportion of missing values compared to the others. Instead of eliminating these missing entries, it's essential to analyze the distribution of director data and explore methods for data imputation.

One approach to address missing values involves replacing them with the mean, median, or mode of the corresponding variable. While this strategy maintains the overall distribution, it may not be suitable for variables with skewed distributions or outliers. Hence, we have decided to replace

missing values in the 'director,' 'cast,' and 'country' columns with placeholder values.

In cases where missing values are minimal and randomly scattered, removing rows or columns with missing data may be appropriate. Therefore, we have chosen to drop entries with null values in the 'date_added' and 'rating' columns.

In [66]:
```
#Rather than filling missing values in the director,cast,country attributes with th
data.director.fillna("Unknown", inplace=True)
data.cast.fillna("No Cast", inplace=True)
data.country.fillna("Country Unavailable", inplace=True)
data.dropna(subset=["date_added", "rating","duration"], inplace=True)
data.head(10)
```

Out[66]:

	show_id	type	title	director	cast	country	date_added	release_year	ratin
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	No Cast	United States	September 25, 2021	2020	PG-
1	s2	TV Show	Blood & Water	Unknown	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	T M
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	Country Unavailable	September 24, 2021	2021	T M
3	s4	TV Show	Jailbirds New Orleans	Unknown	No Cast	Country Unavailable	September 24, 2021	2021	T M
4	s5	TV Show	Kota Factory	Unknown	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	T M
5	s6	TV Show	Midnight Mass	Mike Flanagan	Kate Siegel, Zach Gilford, Hamish Linklater, H...	Country Unavailable	September 24, 2021	2021	T M
6	s7	Movie	My Little Pony: A New Generation	Robert Cullen, José Luis Ucha	Vanessa Hudgens, Kimiko Glenn, James Marsden, ...	Country Unavailable	September 24, 2021	2021	P
7	s8	Movie	Sankofa	Haile Gerima	Kofi Ghanaba, Oyafunmike Ogunlano, Alexandra D...	United States, Ghana, Burkina Faso, United Kin...	September 24, 2021	1993	T M
8	s9	TV Show	The Great British Baking Show	Andy Devonshire	Mel Giedroyc, Sue Perkins, Mary Berry, Paul Ho...	United Kingdom	September 24, 2021	2021	TV-
9	s10	Movie	The Starling	Theodore Melfi	Melissa McCarthy,	United States	September 24, 2021	2021	PG-

show_id	type	title	director	cast	country	date_added	release_year	rati
				Chris O'Dowd, Kevin Kline, T				

Checking missing values after imputation

In [67]:
```
print(data.isnull().any())
```

```
show_id         False
type            False
title           False
director        False
cast            False
country         False
date_added      False
release_year    False
rating          False
duration        False
listed_in       False
description     False
dtype: bool
```

Statistical summary after missing values imputation

In [68]:
```
data.describe()
```

Out[68]:

	release_year
count	8790.000000
mean	2014.183163
std	8.825466
min	1925.000000
25%	2013.000000
50%	2017.000000
75%	2019.000000
max	2021.000000

3. Non-Graphical Analysis - Data Preprocessing

Non-Graphical Analysis involves examining the characteristics and distributions of variables, identifying patterns, and extracting insights from the data

In [43]:
```
# Non-graphical analysis using value counts and unique attributes
non_graphical_analysis = {}

# Value counts for columns with missing values
columns_with_missing_values = data.columns[data.isnull().any()]
for col in columns_with_missing_values:
    non_graphical_analysis[col] = data[col].value_counts(dropna=False)
```

```python
# Unique attributes for all columns
for col in data.columns:
    non_graphical_analysis[f'{col}_unique'] = data[col].unique()

# Print non-graphical analysis results
for key, value in non_graphical_analysis.items():
    print(f"{key}:\n{value}\n")
```

```
show_id_unique:
['s1' 's2' 's3' ... 's8805' 's8806' 's8807']

type_unique:
['Movie' 'TV Show']

title_unique:
['Dick Johnson Is Dead' 'Blood & Water' 'Ganglands' ... 'Zombieland'
 'Zoom' 'Zubaan']

director_unique:
['Kirsten Johnson' 'Unknown' 'Julien Leclercq' ... 'Majid Al Ansari'
 'Peter Hewitt' 'Mozez Singh']

cast_unique:
['No Cast'
 'Ama Qamata, Khosi Ngema, Gail Mabalane, Thabang Molaba, Dillon Windvogel, Natash
a Thahane, Arno Greeff, Xolile Tshabalala, Getmore Sithole, Cindy Mahlangu, Ryle D
e Morny, Greteli Fincham, Sello Maake Ka-Ncube, Odwa Gwanya, Mekaila Mathys, Sandi
Schultz, Duane Williams, Shamilla Miller, Patrick Mofokeng'
 'Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabiha Akkari, Sofia Lesaffre, Salim K
echiouche, Noureddine Farihi, Geert Van Rampelberg, Bakary Diombera'
 ...
 'Jesse Eisenberg, Woody Harrelson, Emma Stone, Abigail Breslin, Amber Heard, Bill
Murray, Derek Graf'
 'Tim Allen, Courteney Cox, Chevy Chase, Kate Mara, Ryan Newman, Michael Cassidy,
Spencer Breslin, Rip Torn, Kevin Zegers'
 'Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanana, Manish Chaudhary, Meghna Malik,
Malkeet Rauni, Anita Shabdish, Chittaranjan Tripathy']

country_unique:
['United States' 'South Africa' 'Country Unavailable' 'India'
 'United States, Ghana, Burkina Faso, United Kingdom, Germany, Ethiopia'
 'United Kingdom' 'Germany, Czech Republic' 'Mexico' 'Turkey' 'Australia'
 'United States, India, France' 'Finland' 'China, Canada, United States'
 'South Africa, United States, Japan' 'Nigeria' 'Japan'
 'Spain, United States' 'France' 'Belgium' 'United Kingdom, United States'
 'United States, United Kingdom' 'France, United States' 'South Korea'
 'Spain' 'United States, Singapore' 'United Kingdom, Australia, France'
 'United Kingdom, Australia, France, United States'
 'United States, Canada' 'Germany, United States'
 'South Africa, United States' 'United States, Mexico'
 'United States, Italy, France, Japan'
 'United States, Italy, Romania, United Kingdom'
 'Australia, United States' 'Argentina, Venezuela'
 'United States, United Kingdom, Canada' 'China, Hong Kong' 'Russia'
 'Canada' 'Hong Kong' 'United States, China, Hong Kong'
 'Italy, United States' 'United States, Germany'
 'United Kingdom, Canada, United States' ', South Korea' 'Ireland'
 'India, Nepal' 'New Zealand, Australia, France, United States' 'Italy'
 'Italy, Brazil, Greece' 'Argentina' 'Jordan' 'Colombia'
 'United States, Japan' 'Belgium, United Kingdom'
 'Switzerland, United Kingdom, Australia' 'Israel, United States'
 'Canada, United States' 'Brazil' 'Argentina, Spain' 'Taiwan'
 'United States, Nigeria' 'Bulgaria, United States'
 'Spain, United Kingdom, United States' 'United States, China'
 'United States, France' 'Spain, France, United Kingdom, United States'
 ', France, Algeria' 'Poland' 'Germany'
 'France, Israel, Germany, United States, United Kingdom' 'New Zealand'
 'Saudi Arabia' 'Thailand' 'Indonesia' 'Egypt, Denmark, Germany'
 'United States, Switzerland' 'Hong Kong, Canada, United States'
 'Kuwait, United States' 'France, Canada, United States, Spain'
 'France, Netherlands, Singapore' 'France, Belgium'
 'Ireland, United States, United Kingdom' 'Egypt' 'Malaysia' 'Israel'
```

'Australia, New Zealand' 'United Kingdom, Germany' 'Belgium, Netherlands'
'South Korea, Czech Republic' 'Australia, Germany' 'Vietnam'
'United Kingdom, Belgium' 'United Kingdom, Australia, United States'
'France, Japan, United States'
'United Kingdom, Germany, Spain, United States'
'United Kingdom, United States, France, Italy'
'United States, Germany, Canada'
'United States, France, Italy, United Kingdom'
'United States, United Kingdom, Germany, Hungary'
'United States, New Zealand' 'Sweden' 'China' 'Lebanon' 'Romania'
'Finland, Germany' 'Lebanon, Syria' 'Philippines' 'Iceland' 'Denmark'
'United States, India' 'Philippines, Singapore, Indonesia'
'China, United States, Canada' 'Lebanon, United Arab Emirates'
'Canada, United States, Denmark' 'United Arab Emirates'
'Mexico, France, Colombia' 'Netherlands' 'Germany, United States, France'
'United States, Bulgaria'
'United Kingdom, France, Germany, United States' 'Norway, Denmark'
'Syria, France, Lebanon, Qatar' 'United States, Czech Republic'
'Mauritius' 'Canada, South Africa' 'Austria' 'Mexico, Brazil'
'Germany, France' 'Mexico, United States'
'United Kingdom, France, Spain, United States' 'United States, Australia'
'United States, United Kingdom, France' 'United States, Russia'
'United States, United Kingdom, New Zealand' 'Australia, United Kingdom'
'Canada, Nigeria, United States'
'France, United States, United Kingdom, Canada' 'France, United Kingdom'
'India, United Kingdom' 'Canada, United States, Mexico'
'United Kingdom, Germany, United States'
'Czech Republic, United Kingdom, United States' 'China, United Kingdom'
'Italy, United Kingdom' 'China, Taiwan'
'United States, Brazil, Japan, Spain, India'
'United States, China, United Kingdom' 'Cameroon'
'Lebanon, Palestine, Denmark, Qatar' 'Japan, United States'
'Uruguay, Germany' 'Egypt, Saudi Arabia'
'United Kingdom, France, Poland, Germany, United States'
'Ireland, Switzerland, United Kingdom, France, United States'
'United Kingdom, South Africa, France'
'Ireland, United Kingdom, France, Germany' 'Russia, United States'
'United Kingdom, United States, France' 'United Kingdom,'
'United States, India, United Kingdom' 'Kenya' 'Spain, Argentina'
'India, United Kingdom, France, Qatar' 'Belgium, France'
'Argentina, Chile' 'United States, Thailand' 'Chile, Brazil'
'United States, Colombia' 'Canada, United States, United Kingdom'
'Uruguay' 'Luxembourg' 'United States, Cambodia, Romania' 'Bangladesh'
'Spain, Belgium, United States'
'United Kingdom, United States, Australia'
'Canada, United States, France' 'Portugal, United States'
'Portugal, Spain' 'India, United States' 'United Kingdom, Ireland'
'United Kingdom, Spain, United States' 'Hungary, United States'
'United States, South Korea' 'Canada, United States, Cayman Islands'
'India, France' 'France, Canada' 'Canada, Hungary, United States'
'Norway' 'Canada, United Kingdom, United States'
'United Kingdom, Germany, France, United States' 'Denmark, United States'
'Senegal' 'France, Algeria'
'United Kingdom, Finland, Germany, United States, Australia, Japan, France, Irela
nd'
'Philippines, Canada, United Kingdom, United States'
'Ireland, France, Iceland, United States, Mexico, Belgium, United Kingdom, Hong K
ong'
'Singapore' 'Kuwait' 'United States, France, Serbia'
'United States, Italy' 'Spain, Italy'
'United States, Ireland, United Kingdom, India'
'United Kingdom, Singapore' 'Hong Kong, United States'
'United States, Malta, France, United Kingdom'
'United States, China, Canada' 'Canada, United States, Ireland'

'Lebanon, Canada, France' 'Japan, Canada, United States'
'Spain, France, Canada' 'Denmark, Singapore, Canada, United States'
'United States, France, Denmark' 'United States, China, Colombia'
'Spain, Thailand, United States' 'Mexico, Spain'
'Ireland, Luxembourg, Belgium' 'China, United States' 'Canada, Belgium'
'Canada, United Kingdom'
'Lebanon, United Arab Emirates, France, Switzerland, Germany'
'France, Belgium, Italy' 'Lebanon, United States, United Arab Emirates'
'Lebanon, France' 'France, Lebanon' 'France, Lebanon, United Kingdom'
'France, Norway, Lebanon, Belgium'
'Sweden, Czech Republic, United Kingdom, Denmark, Netherlands'
'United States, United Kingdom, India' 'Indonesia, Netherlands'
'Turkey, South Korea' 'Serbia, United States' 'Namibia'
'United Kingdom, Kenya' 'United Kingdom, France, Germany, Spain'
'United Kingdom, France, United States, Belgium, Luxembourg, China, Germany'
'Thailand, United States' 'United States, France, Canada, Belgium'
'United Kingdom, China' 'Germany, China, United Kingdom'
'Australia, New Zealand, United States'
'Hong Kong, Iceland, United States' 'France, Australia, Germany'
'United States, Belgium, Canada, France' 'South Africa, Angola'
'United States, Philippines'
'United States, United Kingdom, Canada, China'
'United States, Canada, United Kingdom' 'Turkey, United States'
'Peru, Germany, Norway' 'Mozambique' 'Brazil, France'
'China, Spain, South Korea, United States' 'Spain, Germany'
'Hong Kong, China' 'France, Belgium, Luxembourg, Cambodia,'
'United Kingdom, Australia' 'Belarus' 'Indonesia, United Kingdom'
'Switzerland, France, Belgium, United States' 'Ghana'
'Spain, France, Canada, United States' 'Chile, Italy'
'United Kingdom, Nigeria' 'Chile' 'France, Egypt' 'Egypt, France'
'France, Brazil, Spain, Belgium' 'Egypt, Algeria'
'Canada, South Korea, United States' 'Nigeria, United Kingdom'
'United States, France, Canada' 'Poland, United States'
'United Arab Emirates, Jordan, Lebanon, Saudi Arabia'
'United States, Mexico, Spain, Malta'
'Saudi Arabia, United Arab Emirates' 'Zimbabwe'
'United Kingdom, Germany, United Arab Emirates, New Zealand'
'Romania, United States' 'Canada, Nigeria'
'Saudi Arabia, Netherlands, Germany, Jordan, United Arab Emirates, United States'
'United Kingdom, Spain' 'Finland, France'
'United Kingdom, Germany, United States, France'
'India, United Kingdom, China, Canada, Japan, South Korea, United States'
'Italy, United Kingdom, France' 'United States, Mexico, Colombia'
'Turkey, India' 'Italy, Turkey' 'United Kingdom, United States, Japan'
'France, Belgium, United States' 'Puerto Rico, United States, Colombia'
'Uruguay, Argentina' 'United States, United Kingdom, Japan'
'United States, Argentina' 'United Kingdom, Italy'
'Ireland, United Kingdom'
'United Kingdom, France, Belgium, Canada, United States'
'Netherlands, Germany, Denmark, United Kingdom' 'Hungary'
'Austria, Germany' 'Taiwan, China'
'United Kingdom, United States, Ireland' 'South Korea, United States'
'Brazil, United Kingdom' 'Pakistan, United States'
'Romania, France, Switzerland, Germany' 'Romania, United Kingdom'
'France, Malta, United States' 'Cyprus'
'United Kingdom, France, Belgium, Ireland, United States'
'United States, Norway, Canada' 'Kenya, United States'
'France, South Korea, Japan, United States' 'Taiwan, Malaysia'
'Uruguay, Argentina, Germany, Spain'
'United States, United Kingdom, France, Germany, Japan'
'United States, France, Japan' 'United Kingdom, France, United States'
'Spain, France, United States' 'Indonesia, South Korea, Singapore'
'United States, Spain' 'Netherlands, Germany, Italy, Canada'
'Spain, Germany, Denmark, United States' 'Norway, Sweden'

'South Korea, Canada, United States, China' 'Argentina, Uruguay, Serbia'
'France, Japan' 'Mauritius, South Africa' 'United States, Poland'
'United Kingdom, United States, Germany, Denmark, Belgium, Japan'
'India, Germany' 'India, United Kingdom, Canada, United States'
'Philippines, United States' 'Romania, Bulgaria, Hungary'
'Uruguay, Guatemala' 'France, Senegal, Belgium' 'United Kingdom, Canada'
'Mexico, United States, Spain, Colombia' 'Canada, Norway'
'Singapore, United States' 'Finland, Germany, Belgium'
'United Kingdom, France' 'United States, Chile'
'United Kingdom, Japan, United States' 'Spain, United Kingdom'
'Argentina, United States, Mexico' 'United States, South Korea, Japan'
'Canada, Australia' 'United Kingdom, Hungary, Australia' 'Italy, Belgium'
'United States, United Kingdom, Germany' 'Switzerland'
'Singapore, Malaysia'
'France, Belgium, Luxembourg, Romania, Canada, United States'
'South Africa, Nigeria' 'Spain, France' 'United Kingdom, Hong Kong'
'Pakistan' 'Brazil, United States'
'Denmark, Brazil, France, Portugal, Sweden' 'India, Turkey'
'Malaysia, Singapore, Hong Kong' 'Philippines, Singapore'
'Australia, Canada' 'Taiwan, China, France, United States'
'Germany, Italy' 'Colombia, Peru, United Kingdom'
'Thailand, China, United States' 'Argentina, United States'
'Sweden, United States' 'Uruguay, Spain, Mexico'
'France, Luxembourg, Canada' 'Denmark, Spain' 'Chile, Argentina'
'United Kingdom, Belgium, Sweden' 'Canada, Brazil' 'Italy, France'
'Canada, Germany' 'Pakistan, United Arab Emirates' 'Ghana, United States'
'Mexico, Finland' 'United Arab Emirates, United Kingdom, India'
'Netherlands, Belgium' 'United States, Taiwan'
'Austria, Iraq, United States' 'United Kingdom, Malawi'
'Paraguay, Argentina' 'United Kingdom, Russia, United States'
'India, Pakistan' 'Indonesia, Singapore' 'Spain, Belgium'
'Iceland, Sweden, Belgium' 'Croatia' 'Uruguay, Argentina, Spain'
'United Kingdom, Ireland, United States'
'Canada, Germany, France, United States' 'United Kingdom, Japan'
'Norway, Denmark, Netherlands, Sweden' 'Hong Kong, China, United States'
'Ireland, Canada' 'Italy, Switzerland, France, Germany'
'Mexico, Netherlands' 'United States, Sweden' 'Germany, France, Russia'
'France, Iran, United States' 'United Kingdom, India'
'Russia, Poland, Serbia' 'Spain, Portugal' 'Peru' 'Mexico, Argentina'
'United Kingdom, Canada, United States, Cayman Islands'
'Indonesia, United States'
'United States, Israel, United Kingdom, Canada'
'Norway, Iceland, United States' 'Czech Republic, United States'
'United Kingdom, India, United States' 'United Kingdom, West Germany'
'India, Australia' 'United States,'
'Belgium, United Kingdom, United States' 'India, Germany, Austria'
'United States, Brazil, South Korea, Mexico, Japan, Germany'
'Spain, Mexico' 'China, Japan' 'Argentina, France'
'China, United States, United Kingdom'
'France, Luxembourg, United States' 'China, United States, Australia'
'Colombia, Mexico' 'United States, Canada, Ireland' 'Chile, Peru'
'Argentina, Italy' 'Canada, Japan, United States'
'United Kingdom, Canada, United States, Germany'
'Italy, Switzerland, Albania, Poland' 'United States, Japan, Canada'
'Cambodia' 'Italy, United States, Argentina'
'Saudi Arabia, Syria, Egypt, Lebanon, Kuwait'
'United States, Canada, Indonesia, United Kingdom, China, Singapore'
'Spain, Colombia'
'United Kingdom, South Africa, Australia, United States' 'Bulgaria'
'Argentina, Brazil, France, Poland, Germany, Denmark'
'United Kingdom, Spain, United States, Germany' 'Philippines, Qatar'
'Netherlands, Belgium, Germany, Jordan'
'United Arab Emirates, United States' 'Norway, Germany, Sweden'
'South Korea, China' 'Georgia' 'Soviet Union, India'

```
 'Australia, United Arab Emirates' 'Canada, Germany, South Africa'
 'South Korea, China, United States' 'India, Soviet Union' 'India, Mexico'
 'Georgia, Germany, France' 'United Arab Emirates, Romania'
 'India, Malaysia' 'Germany, Jordan, Netherlands'
 'Turkey, France, Germany, Poland' 'Greece, United States'
 'France, United Kingdom, United States' 'Norway, Germany'
 'France, Morocco' 'Cambodia, United States' 'United States, Denmark'
 'United States, Colombia, Mexico'
 'United Kingdom, Italy, Israel, Peru, United States'
 'Argentina, Uruguay, Spain, France'
 'United Kingdom, France, United States, Belgium'
 'France, Canada, China, Cambodia'
 'United Kingdom, France, Belgium, United States' 'Chile, France'
 'Netherlands, United States' 'France, United Kingdom, India'
 'Czech Republic, Slovakia' 'Singapore, France' 'Spain, Switzerland'
 'United States, Australia, China' 'South Africa, United States, Germany'
 'United States, United Kingdom, Australia' 'Spain, Italy, Argentina'
 'Chile, Spain, Argentina, Germany' 'West Germany'
 'Austria, Czech Republic' 'Lebanon, Qatar'
 'United Kingdom, Jordan, Qatar, Iran' 'France, South Korea, Japan'
 'Israel, Germany, France' 'Canada, Japan, Netherlands'
 'United States, Hungary' 'France, Germany' 'France, Qatar'
 'United Kingdom, Germany, Canada' 'Ireland, South Africa'
 'Chile, United States, France' 'Belgium, France, Netherlands'
 'United Kingdom, Ukraine, United States'
 'Germany, Australia, France, China' 'Norway, United States'
 'United States, Bermuda, Ecuador'
 'United States, Hungary, Ireland, Canada'
 'United Kingdom, Egypt, United States'
 'United States, France, United Kingdom' 'Spain, Mexico, France'
 'United States, South Africa' 'Hong Kong, China, Singapore'
 'South Africa, China, United States' 'Denmark, France, Poland'
 'New Zealand, United Kingdom' 'Netherlands, Denmark, South Africa'
 'Iran, France' 'United Kingdom, United States, France, Germany'
 'Australia, France' 'Ireland, United Kingdom, United States'
 'United Kingdom, France, Germany' 'Canada, Luxembourg'
 'Brazil, Netherlands, United States, Colombia, Austria, Germany'
 'France, Canada, Belgium' 'Canada, France'
 'Bulgaria, United States, Spain, Canada' 'Sweden, Netherlands'
 'France, United States, Mexico'
 'Australia, United Kingdom, United Arab Emirates, Canada'
 'Australia, Armenia, Japan, Jordan, Mexico, Mongolia, New Zealand, Philippines, S
outh Africa, Sweden, United States, Uruguay'
 'India, Iran' 'France, Belgium, Spain'
 'Denmark, Sweden, Israel, United States' 'United States, Iceland'
 'United Kingdom, Russia' 'United States, Israel, Italy, South Africa'
 'Netherlands, Denmark, France, Germany' 'South Korea, Japan'
 'United Kingdom, Pakistan' 'France, New Zealand'
 'United Kingdom, Czech Republic, United States, Germany, Bahamas'
 'China, Germany, India, United States' 'Germany, Sri Lanka'
 'United States, India, Bangladesh' 'United States, Canada, France'
 'Brazil, France, Germany' 'Germany, United States, Hong Kong, Singapore'
 'France, Germany, Switzerland'
 'Germany, France, Luxembourg, United Kingdom, United States'
 'United Kingdom, Canada, Italy' 'Czech Republic, France'
 'Taiwan, Hong Kong, United States, China' 'Germany, Australia'
 'United Kingdom, Poland, United States' 'Denmark, Zimbabwe'
 'United Kingdom, South Africa' 'Finland, Sweden, Norway, Latvia, Germany'
 'South Africa, United States, New Zealand, Canada'
 'United States, Italy, United Kingdom, Liechtenstein'
 'Denmark, France, Belgium, Italy, Netherlands, United States, United Kingdom'
 'United States, Australia, Mexico'
 'United Kingdom, Czech Republic, Germany, United States'
 'France, China, Japan, United States' 'United States, South Korea, China'
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'Germany, Belgium' 'Pakistan, Norway, United States'
'United States, Canada, Belgium, United Kingdom' 'Venezuela'
'Canada, France, Italy, Morocco, United States' 'Canada, Spain, France'
'United States, Indonesia' 'Spain, France, Italy'
'United Arab Emirates, United States, United Kingdom'
'United Kingdom, Israel, Russia' 'Spain, Cuba' 'United States, Brazil'
'United States, France, Mexico' 'United States, Nicaragua'
'United Kingdom, United States, Spain, Germany, Greece, Canada'
'Italy, Canada, France' 'United Kingdom, Denmark, Canada, Croatia'
'Italy, Germany' 'United States, France, United Kingdom, Japan'
'United States, United Kingdom, Denmark, Sweden'
'United States, United Kingdom, Italy'
'United States, France, Canada, Spain' 'Russia, United States, China'
'United States, Canada, Germany' 'Ireland, United States'
'United States, United Arab Emirates' 'United States, Ireland'
'Ireland, United Kingdom, Italy, United States' 'Poland,'
'Slovenia, Croatia, Germany, Czech Republic, Qatar'
'Canada, United Kingdom, Netherlands' 'United States, Spain, Germany'
'India, Japan' 'China, South Korea, United States'
'United Kingdom, France, Belgium' 'Canada, Ireland, United States'
'United Kingdom, United States, Dominican Republic'
'United States, Senegal' 'Germany, United Kingdom, United States'
'South Africa, Germany, Netherlands, France'
'Canada, United States, United Kingdom, France, Luxembourg'
'Ireland, United States, France' 'Germany, United States, Canada'
'United Kingdom, Germany, Canada, United States'
'United States, France, Canada, Lebanon, Qatar'
'Netherlands, Belgium, United Kingdom, United States'
'France, Belgium, China, United States' 'United States, Chile, Israel'
'United Kingdom, Norway, Denmark, Germany, Sweden'
'Norway, Denmark, Sweden' 'China, India, Nepal'
'Colombia, Mexico, United States' 'United Kingdom, South Korea'
'Denmark, China' 'United States, Greece, Brazil' 'South Korea, France'
'United States, Australia, Samoa, United Kingdom'
'Germany, United Kingdom' 'Argentina, Chile, Peru' 'Turkey, Azerbaijan'
'Poland, West Germany' 'Germany, United States, Sweden' 'Canada, Spain'
'United States, Cambodia' 'United States, Greece'
'Norway, United Kingdom, France, Ireland' 'United Kingdom, Poland'
'Israel, Sweden, Germany, Netherlands' 'Switzerland, France'
'Italy, India' 'United States, Botswana'
'Chile, Argentina, France, Spain, United States'
'United States, India, South Korea, China'
'Denmark, Germany, Belgium, United Kingdom, France'
'Denmark, Germany, Belgium, United Kingdom, France, Sweden'
'France, Switzerland, Spain, United States, United Arab Emirates'
'Brazil, India, China, United States'
'Denmark, France, United States, Sweden' 'Australia, Iraq'
'China, Morocco, Hong Kong' 'Canada, United States, Germany'
'United Kingdom, Thailand' 'Venezuela, Colombia'
'Colombia, United States' 'France, Germany, Czech Republic, Belgium'
'Switzerland, Vatican City, Italy, Germany, France'
'Portugal, France, Poland, United States'
'United States, New Zealand, Japan'
'United States, Netherlands, Japan, France' 'India, Switzerland'
'Canada, India' 'United States, Morocco' 'Singapore, Japan, France'
'Canada, Mexico, Germany, South Africa'
'United Kingdom, United States, Canada'
'Germany, France, United States, Canada, United Kingdom'
'United States, Uruguay' 'India, Canada'
'Ireland, Canada, United Kingdom, United States'
'United States, Germany, Australia' 'Australia, France, Ireland'
'Australia, India' 'United States, United Kingdom, Canada, Japan'
'Sweden, United Kingdom, Finland' 'Hong Kong, Taiwan'
'United States, United Kingdom, Spain, South Korea' 'Guatemala' 'Ukraine'

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 'Italy, South Africa, West Germany, Australia, United States'
 'United States, Germany, United Kingdom, Australia'
 'Italy, France, Switzerland' 'Canada, France, United States'
 'Switzerland, United States' 'Thailand, Canada, United States'
 'China, Hong Kong, United States' 'United Kingdom, New Zealand'
 'Czech Republic, United Kingdom, France'
 'Australia, United Kingdom, Canada' 'Jamaica, United States'
 'Australia, United Kingdom, United States, New Zealand, Italy, France'
 'France, United States, Canada'
 'United Kingdom, France, Canada, Belgium, United States'
 'Denmark, United Kingdom, Sweden' 'United States, Hong Kong'
 'United States, Kazakhstan'
 'Argentina, France, United States, Germany, Qatar'
 'United States, Germany, United Kingdom'
 'United States, Germany, United Kingdom, Italy'
 'United States, New Zealand, United Kingdom' 'Finland, United States'
 'Spain, France, Uruguay' 'France, Canada, United States'
 'United States, Canada, China'
 'Ireland, Canada, Luxembourg, United States, United Kingdom, Philippines, India'
 'United States, Czech Republic, United Kingdom' 'Israel, Germany'
 'Mexico, France'
 'Israel, Germany, Poland, Luxembourg, Belgium, France, United States'
 'Austria, United States' 'United Kingdom, Lithuania'
 'United States, Greece, United Kingdom'
 'United Kingdom, China, United States, India'
 'United States, Sweden, Norway' 'United Kingdom, United States, Morocco'
 'United States, United Kingdom, Morocco' 'Spain, Canada, United States'
 'United States, India, United Arab Emirates'
 'United Kingdom, Canada, France, United States' 'India, Germany, France'
 'Belgium, Ireland, Netherlands, Germany, Afghanistan'
 'France, Canada, Italy, United States, China'
 'Ireland, United Kingdom, Greece, France, Netherlands'
 'Denmark, Indonesia, Finland, Norway, United Kingdom, Israel, France, United Stat
es, Germany, Netherlands'
 'New Zealand, United States'
 'United States, Australia, South Africa, United Kingdom'
 'United States, Germany, Mexico'
 'Somalia, Kenya, Sudan, South Africa, United States'
 'United States, Canada, Japan, Panama' 'United Kingdom, Spain, Belgium'
 'Serbia, South Korea, Slovenia'
 'Denmark, United Kingdom, South Africa, Sweden, Belgium'
 'Germany, Canada, United States'
 'Ireland, Canada, United States, United Kingdom'
 'New Zealand, United Kingdom, Australia'
 'United Kingdom, Australia, Canada, United States'
 'Germany, United States, Italy' 'United States, Venezuela'
 'United Kingdom, Canada, Japan'
 'United Kingdom, United States, Czech Republic'
 'United Kingdom, China, United States' 'United Kingdom, Brazil, Germany'
 'United Kingdom, Namibia, South Africa, Zimbabwe, United States'
 'Canada, United States, India, United Kingdom'
 'Switzerland, United Kingdom, United States'
 'United Kingdom, India, Sweden'
 'United States, Brazil, India, Uganda, China'
 'Peru, United States, United Kingdom'
 'Germany, United States, United Kingdom, Canada'
 'Canada, India, Thailand, United States, United Arab Emirates'
 'United States, East Germany, West Germany'
 'France, Netherlands, South Africa, Finland'
 'Egypt, Austria, United States' 'Russia, Spain'
 'Croatia, Slovenia, Serbia, Montenegro' 'Japan, Canada'
 'United States, France, South Korea, Indonesia'
 'United Arab Emirates, Jordan']
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date_added_unique:
['September 25, 2021' 'September 24, 2021' 'September 23, 2021' ...
 'December 6, 2018' 'March 9, 2016' 'January 11, 2020']

release_year_unique:
[2020 2021 1993 2018 1996 1998 1997 2010 2013 2017 1975 1978 1983 1987
 2012 2001 2014 2002 2003 2004 2011 2008 2009 2007 2005 2006 1994 2015
 2019 2016 1982 1989 1990 1991 1999 1986 1992 1984 1980 1961 2000 1995
 1985 1976 1959 1988 1981 1972 1964 1945 1954 1979 1958 1956 1963 1970
 1973 1925 1974 1960 1966 1971 1962 1969 1977 1967 1968 1965 1946 1942
 1955 1944 1947 1943]

rating_unique:
['PG-13' 'TV-MA' 'PG' 'TV-14' 'TV-PG' 'TV-Y' 'TV-Y7' 'R' 'TV-G' 'G'
 'NC-17' 'NR' 'TV-Y7-FV' 'UR']

duration_unique:
['90 min' '2 Seasons' '1 Season' '91 min' '125 min' '9 Seasons' '104 min'
 '127 min' '4 Seasons' '67 min' '94 min' '5 Seasons' '161 min' '61 min'
 '166 min' '147 min' '103 min' '97 min' '106 min' '111 min' '3 Seasons'
 '110 min' '105 min' '96 min' '124 min' '116 min' '98 min' '23 min'
 '115 min' '122 min' '99 min' '88 min' '100 min' '6 Seasons' '102 min'
 '93 min' '95 min' '85 min' '83 min' '113 min' '13 min' '182 min' '48 min'
 '145 min' '87 min' '92 min' '80 min' '117 min' '128 min' '119 min'
 '143 min' '114 min' '118 min' '108 min' '63 min' '121 min' '142 min'
 '154 min' '120 min' '82 min' '109 min' '101 min' '86 min' '229 min'
 '76 min' '89 min' '156 min' '112 min' '107 min' '129 min' '135 min'
 '136 min' '165 min' '150 min' '133 min' '70 min' '84 min' '140 min'
 '78 min' '7 Seasons' '64 min' '59 min' '139 min' '69 min' '148 min'
 '189 min' '141 min' '130 min' '138 min' '81 min' '132 min' '10 Seasons'
 '123 min' '65 min' '68 min' '66 min' '62 min' '74 min' '131 min' '39 min'
 '46 min' '38 min' '8 Seasons' '17 Seasons' '126 min' '155 min' '159 min'
 '137 min' '12 min' '273 min' '36 min' '34 min' '77 min' '60 min' '49 min'
 '58 min' '72 min' '204 min' '212 min' '25 min' '73 min' '29 min' '47 min'
 '32 min' '35 min' '71 min' '149 min' '33 min' '15 min' '54 min' '224 min'
 '162 min' '37 min' '75 min' '79 min' '55 min' '158 min' '164 min'
 '173 min' '181 min' '185 min' '21 min' '24 min' '51 min' '151 min'
 '42 min' '22 min' '134 min' '177 min' '13 Seasons' '52 min' '14 min'
 '53 min' '8 min' '57 min' '28 min' '50 min' '9 min' '26 min' '45 min'
 '171 min' '27 min' '44 min' '146 min' '20 min' '157 min' '17 min'
 '203 min' '41 min' '30 min' '194 min' '15 Seasons' '233 min' '237 min'
 '230 min' '195 min' '253 min' '152 min' '190 min' '160 min' '208 min'
 '180 min' '144 min' '5 min' '174 min' '170 min' '192 min' '209 min'
 '187 min' '172 min' '16 min' '186 min' '11 min' '193 min' '176 min'
 '56 min' '169 min' '40 min' '10 min' '3 min' '168 min' '312 min'
 '153 min' '214 min' '31 min' '163 min' '19 min' '12 Seasons' '179 min'
 '11 Seasons' '43 min' '200 min' '196 min' '167 min' '178 min' '228 min'
 '18 min' '205 min' '201 min' '191 min']

listed_in_unique:
['Documentaries' 'International TV Shows, TV Dramas, TV Mysteries'
 'Crime TV Shows, International TV Shows, TV Action & Adventure'
 'Docuseries, Reality TV'
 'International TV Shows, Romantic TV Shows, TV Comedies'
 'TV Dramas, TV Horror, TV Mysteries' 'Children & Family Movies'
 'Dramas, Independent Movies, International Movies'
 'British TV Shows, Reality TV' 'Comedies, Dramas'
 'Crime TV Shows, Docuseries, International TV Shows'
 'Dramas, International Movies' 'Children & Family Movies, Comedies'
 'British TV Shows, Crime TV Shows, Docuseries' 'TV Comedies, TV Dramas'
 'Documentaries, International Movies'
 'Crime TV Shows, Spanish-Language TV Shows, TV Dramas' 'Thrillers'
 'International TV Shows, Spanish-Language TV Shows, TV Action & Adventure'
 'International TV Shows, TV Action & Adventure, TV Dramas'
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'Comedies, International Movies'
'Comedies, International Movies, Romantic Movies'
'Docuseries, International TV Shows, Reality TV'
'Comedies, International Movies, Music & Musicals' 'Comedies'
'Horror Movies, Sci-Fi & Fantasy' 'TV Comedies'
'British TV Shows, International TV Shows, TV Comedies'
'International TV Shows, TV Dramas, TV Thrillers' "Kids' TV"
'Dramas, International Movies, Thrillers'
'Action & Adventure, Dramas, International Movies'
"Kids' TV, TV Comedies" 'Action & Adventure, Dramas'
"Kids' TV, TV Sci-Fi & Fantasy"
'Action & Adventure, Classic Movies, Dramas'
'Dramas, Horror Movies, Thrillers'
'Action & Adventure, Horror Movies, Thrillers' 'Action & Adventure'
'Dramas, Thrillers' 'International TV Shows, TV Dramas'
'International TV Shows, TV Dramas, TV Sci-Fi & Fantasy'
'Action & Adventure, Anime Features, International Movies' 'Reality TV'
'Docuseries, International TV Shows'
'Documentaries, International Movies, Sports Movies'
'International TV Shows, Reality TV, Romantic TV Shows'
'British TV Shows, Docuseries, International TV Shows'
'Anime Series, International TV Shows'
'Comedies, Dramas, International Movies'
'Crime TV Shows, TV Comedies, TV Dramas'
'Action & Adventure, Comedies, Dramas' "Anime Series, Kids' TV"
'International Movies, Thrillers' "Kids' TV, Korean TV Shows"
'Documentaries, Sports Movies' 'Sci-Fi & Fantasy, Thrillers'
'Dramas, International Movies, Romantic Movies'
'Documentaries, Music & Musicals'
"Kids' TV, TV Comedies, TV Sci-Fi & Fantasy" "British TV Shows, Kids' TV"
'Docuseries, Science & Nature TV' 'Children & Family Movies, Dramas'
"Kids' TV, TV Dramas, Teen TV Shows"
'Crime TV Shows, International TV Shows, Spanish-Language TV Shows'
'Docuseries, International TV Shows, Spanish-Language TV Shows' 'Dramas'
'Comedies, Romantic Movies' 'Dramas, Romantic Movies'
'Comedies, Dramas, Independent Movies'
'Crime TV Shows, TV Action & Adventure, TV Comedies'
'Children & Family Movies, Music & Musicals'
'Action & Adventure, Classic Movies, Cult Movies'
'International TV Shows, TV Action & Adventure, TV Comedies'
'Action & Adventure, Sci-Fi & Fantasy' 'Action & Adventure, Comedies'
'Classic Movies, Comedies, Dramas' 'Comedies, Cult Movies'
'Comedies, Cult Movies, Music & Musicals' 'Comedies, Music & Musicals'
'TV Shows' 'Action & Adventure, International Movies'
'Anime Series, International TV Shows, Teen TV Shows'
'Action & Adventure, Children & Family Movies, Cult Movies'
'Comedies, Dramas, Romantic Movies'
'Comedies, Cult Movies, Sci-Fi & Fantasy' 'Classic Movies, Dramas'
'Action & Adventure, Children & Family Movies, Comedies'
'Dramas, Faith & Spirituality' 'Documentaries, LGBTQ Movies'
'Action & Adventure, Classic Movies' 'Docuseries'
'International TV Shows, TV Comedies' 'Dramas, Independent Movies'
'Action & Adventure, Comedies, International Movies'
'International TV Shows, Spanish-Language TV Shows, TV Dramas'
'Crime TV Shows, International TV Shows, TV Dramas'
'Action & Adventure, Horror Movies, International Movies'
'Comedies, International Movies, Sci-Fi & Fantasy'
'Action & Adventure, International Movies, Music & Musicals'
'Dramas, International Movies, Music & Musicals'
'Horror Movies, International Movies' 'Reality TV, Teen TV Shows'
'Crime TV Shows, TV Dramas, TV Mysteries'
'International TV Shows, Reality TV'
'International TV Shows, TV Comedies, TV Dramas'
'Dramas, Independent Movies, Romantic Movies' 'Horror Movies'

'Documentaries, LGBTQ Movies, Sports Movies'
'Horror Movies, International Movies, Thrillers'
'Action & Adventure, Anime Features'
'TV Dramas, TV Mysteries, TV Sci-Fi & Fantasy'
'International TV Shows, Spanish-Language TV Shows, TV Comedies'
'Children & Family Movies, Comedies, Music & Musicals'
'Comedies, Independent Movies'
'Anime Series, International TV Shows, Romantic TV Shows'
'Classic Movies, Dramas, Independent Movies'
'International TV Shows, Romantic TV Shows, Spanish-Language TV Shows'
'International TV Shows, TV Dramas, Teen TV Shows' 'Stand-Up Comedy'
'Action & Adventure, Anime Features, Children & Family Movies'
'International TV Shows, Romantic TV Shows, TV Dramas'
'International Movies, Music & Musicals'
'TV Action & Adventure, TV Dramas, TV Mysteries'
'Horror Movies, Independent Movies, International Movies'
'Comedies, Cult Movies, International Movies'
'Classic Movies, Dramas, International Movies' 'Movies'
'Crime TV Shows, Docuseries'
'Children & Family Movies, Comedies, Sci-Fi & Fantasy'
'Anime Series, International TV Shows, TV Thrillers'
'Action & Adventure, Horror Movies, Sci-Fi & Fantasy'
'Classic Movies, Comedies, Cult Movies' 'TV Dramas, Teen TV Shows'
'Action & Adventure, Sci-Fi & Fantasy, Thrillers'
'Children & Family Movies, Comedies, Dramas' 'Dramas, Sports Movies'
'Action & Adventure, Dramas, Sci-Fi & Fantasy'
'Action & Adventure, Comedies, Cult Movies'
'Dramas, Independent Movies, Thrillers' 'TV Dramas, TV Sci-Fi & Fantasy'
'Action & Adventure, International Movies, Thrillers'
'British TV Shows, International TV Shows, Reality TV'
'TV Action & Adventure, TV Dramas, Teen TV Shows' 'Anime Series'
'Crime TV Shows, TV Action & Adventure, TV Sci-Fi & Fantasy'
'Crime TV Shows, International TV Shows, TV Comedies'
'Stand-Up Comedy & Talk Shows, TV Comedies'
'Classic & Cult TV, TV Action & Adventure, TV Dramas'
'Children & Family Movies, Sports Movies'
'TV Action & Adventure, TV Sci-Fi & Fantasy'
'Anime Series, Stand-Up Comedy & Talk Shows' 'TV Dramas'
'Anime Features, Children & Family Movies, International Movies'
'Classic & Cult TV, Crime TV Shows, International TV Shows'
'Crime TV Shows, International TV Shows, Romantic TV Shows'
'Horror Movies, LGBTQ Movies'
'Action & Adventure, Dramas, Romantic Movies'
'Documentaries, International Movies, Music & Musicals'
'TV Comedies, TV Dramas, Teen TV Shows'
'Children & Family Movies, Comedies, Sports Movies'
'Children & Family Movies, Dramas, International Movies'
'Comedies, Documentaries, International Movies'
'Romantic TV Shows, TV Dramas' 'Anime Series, TV Horror, TV Thrillers'
'International Movies, Romantic Movies'
'TV Action & Adventure, TV Dramas, TV Sci-Fi & Fantasy'
"Kids' TV, Korean TV Shows, TV Comedies"
'British TV Shows, Crime TV Shows, International TV Shows'
'Crime TV Shows, TV Horror, TV Mysteries'
'Docuseries, International TV Shows, Science & Nature TV'
'British TV Shows, International TV Shows, TV Dramas'
"Kids' TV, TV Action & Adventure, TV Sci-Fi & Fantasy"
'International Movies, Romantic Movies, Thrillers'
'Action & Adventure, Cult Movies, International Movies'
'Action & Adventure, Comedies, Sci-Fi & Fantasy'
"International TV Shows, Kids' TV, TV Mysteries"
'Action & Adventure, Thrillers'
'Dramas, Faith & Spirituality, International Movies'
'Action & Adventure, Classic Movies, Comedies'

'Action & Adventure, Comedies, Sports Movies'
'Action & Adventure, Children & Family Movies, Classic Movies'
'Action & Adventure, Children & Family Movies, Dramas'
'Horror Movies, Thrillers' 'Action & Adventure, Romantic Movies'
'Dramas, Romantic Movies, Sci-Fi & Fantasy'
'Dramas, Music & Musicals, Romantic Movies'
'Anime Series, Crime TV Shows, International TV Shows'
'Reality TV, Romantic TV Shows'
'International Movies, Music & Musicals, Romantic Movies'
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'Crime TV Shows, TV Dramas'
'International TV Shows, Reality TV, Spanish-Language TV Shows'
'Crime TV Shows, TV Dramas, TV Thrillers' 'British TV Shows, Docuseries'
'International TV Shows, Korean TV Shows, TV Comedies'
'Action & Adventure, Anime Features, Classic Movies'
'TV Action & Adventure, TV Dramas, TV Horror'
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'Anime Series, Crime TV Shows, TV Horror' 'Anime Features, Documentaries'
'Comedies, Horror Movies'
'International TV Shows, Spanish-Language TV Shows, Stand-Up Comedy & Talk Shows'
'Children & Family Movies, Documentaries, International Movies'
'Romantic TV Shows, TV Comedies, TV Dramas'
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'Dramas, Independent Movies, LGBTQ Movies'
'Comedies, Independent Movies, LGBTQ Movies'
'Action & Adventure, Cult Movies, Sci-Fi & Fantasy'
'Cult Movies, Horror Movies' 'Action & Adventure, Dramas, Sports Movies'
'Anime Series, Romantic TV Shows, Teen TV Shows'
'Dramas, International Movies, LGBTQ Movies'
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'Dramas, International Movies, Sports Movies'
'Action & Adventure, Horror Movies'
'Documentaries, International Movies, LGBTQ Movies'
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'TV Action & Adventure, TV Horror, TV Sci-Fi & Fantasy'
'International TV Shows, TV Horror, TV Sci-Fi & Fantasy'
'Independent Movies, International Movies, Thrillers'
'Independent Movies, Thrillers' 'Documentaries, Dramas'
'Action & Adventure, Sports Movies'
'Dramas, International Movies, Sci-Fi & Fantasy'
'Comedies, Independent Movies, Romantic Movies'
'Horror Movies, Romantic Movies, Sci-Fi & Fantasy'
'International TV Shows, Stand-Up Comedy & Talk Shows'
'Action & Adventure, Anime Features, Horror Movies'
'Cult Movies, Dramas, Music & Musicals' 'TV Dramas, TV Thrillers'
'Crime TV Shows, International TV Shows, Korean TV Shows'
'TV Horror, TV Mysteries, TV Thrillers'
'Comedies, Horror Movies, International Movies'
'Crime TV Shows, Docuseries, TV Mysteries'
'Comedies, International Movies, Sports Movies'
'Classic Movies, Music & Musicals' 'Reality TV, TV Comedies, TV Horror'
'Children & Family Movies, Faith & Spirituality, Music & Musicals'
'International TV Shows, Korean TV Shows, Stand-Up Comedy & Talk Shows'
'Dramas, Music & Musicals'
'Docuseries, Science & Nature TV, TV Action & Adventure'
"British TV Shows, Kids' TV, TV Dramas"
'International TV Shows, Korean TV Shows, Romantic TV Shows'
'Horror Movies, Independent Movies'
"Anime Series, Kids' TV, TV Action & Adventure"
'Comedies, Dramas, Music & Musicals' 'TV Horror, Teen TV Shows'
'Comedies, LGBTQ Movies, Thrillers'

'Docuseries, Reality TV, Science & Nature TV'
'Crime TV Shows, Spanish-Language TV Shows, TV Action & Adventure'
'Romantic TV Shows, Teen TV Shows' 'TV Comedies, Teen TV Shows'
'Romantic TV Shows, TV Dramas, Teen TV Shows'
'Children & Family Movies, Sci-Fi & Fantasy'
'Romantic TV Shows, TV Action & Adventure, TV Dramas'
'Comedies, International Movies, LGBTQ Movies' 'Dramas, Sci-Fi & Fantasy'
"Kids' TV, TV Thrillers"
'TV Action & Adventure, TV Comedies, TV Sci-Fi & Fantasy'
'British TV Shows, Romantic TV Shows, TV Dramas'
'Anime Series, International TV Shows, Spanish-Language TV Shows'
'Docuseries, TV Comedies' 'Comedies, Romantic Movies, Sports Movies'
'TV Action & Adventure, TV Comedies, TV Dramas'
'Children & Family Movies, Dramas, Sports Movies'
'Action & Adventure, Dramas, Independent Movies'
'Spanish-Language TV Shows, TV Dramas' 'Dramas, LGBTQ Movies'
'TV Horror, TV Mysteries, TV Sci-Fi & Fantasy'
'Action & Adventure, Dramas, Faith & Spirituality'
'International TV Shows, TV Mysteries, TV Thrillers'
'British TV Shows, Classic & Cult TV, International TV Shows'
'Action & Adventure, Comedies, Independent Movies' 'Music & Musicals'
"British TV Shows, Kids' TV, TV Comedies"
'Docuseries, Spanish-Language TV Shows'
'Dramas, Independent Movies, Sports Movies'
'TV Dramas, TV Mysteries, TV Thrillers'
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'International TV Shows, TV Action & Adventure, TV Mysteries'
"Kids' TV, TV Comedies, Teen TV Shows"
'International TV Shows, TV Dramas, TV Horror'
'Comedies, International Movies, Thrillers'
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'International TV Shows, TV Horror, TV Mysteries'
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'Music & Musicals, Romantic Movies' 'Romantic Movies'
'Children & Family Movies, Classic Movies, Comedies'
'TV Action & Adventure, TV Dramas'
'Dramas, LGBTQ Movies, Romantic Movies'
'Children & Family Movies, Comedies, Romantic Movies'
'Comedies, Sports Movies' 'International Movies'
'International TV Shows, Romantic TV Shows, TV Mysteries'
'Stand-Up Comedy & Talk Shows'
'Action & Adventure, International Movies, Romantic Movies'
'Reality TV, TV Comedies' 'Cult Movies, Dramas, International Movies'
"Kids' TV, TV Dramas"
'Crime TV Shows, International TV Shows, TV Mysteries'
'Action & Adventure, Sci-Fi & Fantasy, Sports Movies'
'TV Dramas, TV Sci-Fi & Fantasy, TV Thrillers'
'Romantic TV Shows, TV Dramas, TV Sci-Fi & Fantasy'
'Docuseries, TV Sci-Fi & Fantasy' 'Anime Features, International Movies'
"British TV Shows, Classic & Cult TV, Kids' TV"
'British TV Shows, Reality TV, Romantic TV Shows'
'Documentaries, Faith & Spirituality, International Movies'
"Kids' TV, Reality TV, TV Dramas" 'LGBTQ Movies, Thrillers'
'TV Action & Adventure, TV Mysteries, TV Sci-Fi & Fantasy'
'Reality TV, Science & Nature TV'
"Kids' TV, TV Action & Adventure, TV Comedies"
'International TV Shows, Romantic TV Shows, TV Action & Adventure'
'Children & Family Movies, Dramas, Independent Movies'
'Comedies, Music & Musicals, Romantic Movies'
'International TV Shows, Korean TV Shows, Reality TV'
'Classic & Cult TV, TV Dramas, TV Sci-Fi & Fantasy'
'Anime Features, Children & Family Movies'
'Action & Adventure, International Movies, Sci-Fi & Fantasy'
'Crime TV Shows, TV Action & Adventure, TV Dramas'

'Classic & Cult TV, TV Action & Adventure, TV Horror'
'International TV Shows, Korean TV Shows, TV Dramas'
'International TV Shows, TV Action & Adventure, TV Horror'
'Action & Adventure, Comedies, Romantic Movies'
'International TV Shows, Korean TV Shows, TV Action & Adventure'
"Classic & Cult TV, Kids' TV, TV Action & Adventure"
'Anime Series, International TV Shows, TV Horror'
'International TV Shows, Korean TV Shows, TV Horror'
'Children & Family Movies, Comedies, International Movies'
'International Movies, Sci-Fi & Fantasy'
'International Movies, Sci-Fi & Fantasy, Thrillers'
'Children & Family Movies, Dramas, Romantic Movies'
'Anime Series, Romantic TV Shows' 'Comedies, Dramas, LGBTQ Movies'
'British TV Shows, International TV Shows, TV Action & Adventure'
'Docuseries, Science & Nature TV, TV Comedies'
'International TV Shows, Stand-Up Comedy & Talk Shows, TV Comedies'
'Children & Family Movies, Dramas, Music & Musicals'
'Action & Adventure, Independent Movies, International Movies'
'Action & Adventure, Children & Family Movies, Sci-Fi & Fantasy'
'Horror Movies, Independent Movies, Sci-Fi & Fantasy'
'TV Dramas, TV Sci-Fi & Fantasy, Teen TV Shows'
'Anime Features, International Movies, Sci-Fi & Fantasy'
'Dramas, Independent Movies, Music & Musicals'
"Kids' TV, TV Comedies, TV Dramas"
'Children & Family Movies, Documentaries, Sports Movies'
'Independent Movies, Sci-Fi & Fantasy, Thrillers'
'Anime Features, Music & Musicals, Sci-Fi & Fantasy'
'TV Comedies, TV Dramas, TV Sci-Fi & Fantasy'
'Crime TV Shows, TV Action & Adventure'
'Comedies, Faith & Spirituality, Romantic Movies'
"Kids' TV, TV Action & Adventure"
'Action & Adventure, Independent Movies'
'International TV Shows, Reality TV, TV Comedies'
'Docuseries, Reality TV, Teen TV Shows'
'Crime TV Shows, International TV Shows, Reality TV'
'Anime Series, Teen TV Shows'
'Crime TV Shows, Romantic TV Shows, TV Dramas'
'Anime Features, Romantic Movies'
'Horror Movies, Sci-Fi & Fantasy, Thrillers'
'International TV Shows, TV Comedies, TV Sci-Fi & Fantasy'
'International TV Shows, Romantic TV Shows'
'Anime Features, Music & Musicals'
'Anime Features, International Movies, Romantic Movies'
'International TV Shows, Romantic TV Shows, Teen TV Shows'
'Docuseries, Stand-Up Comedy & Talk Shows'
'Horror Movies, Independent Movies, Thrillers'
'TV Action & Adventure, TV Comedies, TV Horror'
'Documentaries, Stand-Up Comedy' "Kids' TV, Spanish-Language TV Shows"
"British TV Shows, Kids' TV, TV Thrillers"
"Kids' TV, TV Action & Adventure, TV Dramas"
'Anime Series, Crime TV Shows' 'Dramas, Sci-Fi & Fantasy, Thrillers'
'TV Comedies, TV Dramas, TV Horror'
'Children & Family Movies, Comedies, LGBTQ Movies'
'International TV Shows, TV Action & Adventure, TV Sci-Fi & Fantasy'
'Docuseries, TV Dramas'
'Horror Movies, International Movies, Romantic Movies'
'Crime TV Shows, Docuseries, Science & Nature TV'
'International Movies, Music & Musicals, Thrillers'
"Kids' TV, Spanish-Language TV Shows, Teen TV Shows"
'Comedies, Horror Movies, Independent Movies'
'Action & Adventure, International Movies, Sports Movies'
'Action & Adventure, Independent Movies, Sci-Fi & Fantasy'
'Horror Movies, LGBTQ Movies, Music & Musicals'
'Comedies, Music & Musicals, Sports Movies'

'TV Horror, TV Mysteries, Teen TV Shows' 'Romantic TV Shows, TV Comedies'
"Kids' TV, Reality TV, Science & Nature TV"
'International Movies, Romantic Movies, Sci-Fi & Fantasy'
'TV Comedies, TV Horror, TV Thrillers' 'TV Action & Adventure'
'International TV Shows, Spanish-Language TV Shows, TV Horror'
'Crime TV Shows, TV Action & Adventure, TV Thrillers'
'Music & Musicals, Stand-Up Comedy' 'British TV Shows, TV Comedies'
'TV Comedies, TV Sci-Fi & Fantasy, Teen TV Shows'
'TV Comedies, TV Sci-Fi & Fantasy'
'Romantic TV Shows, Spanish-Language TV Shows, TV Comedies'
'Crime TV Shows, International TV Shows, TV Sci-Fi & Fantasy'
'British TV Shows, International TV Shows, Romantic TV Shows'
"Crime TV Shows, Kids' TV"
'Horror Movies, International Movies, Sci-Fi & Fantasy'
'TV Comedies, TV Mysteries'
'Cult Movies, Horror Movies, Independent Movies'
'British TV Shows, Docuseries, TV Comedies' 'Comedies, Documentaries'
'Reality TV, Science & Nature TV, TV Action & Adventure'
'TV Comedies, TV Dramas, TV Mysteries'
'Crime TV Shows, TV Comedies, Teen TV Shows'
"Docuseries, Kids' TV, Science & Nature TV"
'Reality TV, Spanish-Language TV Shows'
'Action & Adventure, Anime Features, Sci-Fi & Fantasy'
"Crime TV Shows, Kids' TV, TV Comedies"
'Dramas, Faith & Spirituality, Independent Movies'
'Documentaries, Faith & Spirituality'
'British TV Shows, International TV Shows, Stand-Up Comedy & Talk Shows'
'Comedies, Dramas, Faith & Spirituality' 'Classic & Cult TV, TV Comedies'
'Dramas, Romantic Movies, Sports Movies'
'Stand-Up Comedy & Talk Shows, TV Mysteries, TV Sci-Fi & Fantasy'
'TV Sci-Fi & Fantasy, TV Thrillers'
'Comedies, Independent Movies, Music & Musicals'
'Comedies, Cult Movies, Independent Movies'
'Documentaries, Dramas, International Movies'
'British TV Shows, TV Horror, TV Thrillers'
'British TV Shows, Docuseries, Science & Nature TV'
'Children & Family Movies, Comedies, Cult Movies' 'Sports Movies'
'Sci-Fi & Fantasy' 'Comedies, LGBTQ Movies'
'Comedies, Independent Movies, Thrillers'
'Classic Movies, Cult Movies, Dramas'
'Action & Adventure, Children & Family Movies, Independent Movies'
'Action & Adventure, Documentaries, International Movies'
'Children & Family Movies, Independent Movies'
'Comedies, Cult Movies, Dramas'
'International TV Shows, TV Horror, TV Thrillers'
'Classic Movies, Thrillers' 'Crime TV Shows, TV Dramas, TV Horror'
'British TV Shows, Docuseries, Reality TV'
'Documentaries, LGBTQ Movies, Music & Musicals'
'Classic Movies, Dramas, Romantic Movies'
'Crime TV Shows, Romantic TV Shows, Spanish-Language TV Shows'
'Classic Movies, Cult Movies, Horror Movies'
'Anime Series, Crime TV Shows, TV Thrillers'
'Children & Family Movies, Classic Movies'
'Classic Movies, Comedies, International Movies'
'Comedies, Sci-Fi & Fantasy' 'Action & Adventure, Cult Movies, Dramas'
'Documentaries, Faith & Spirituality, Music & Musicals'
'British TV Shows, Classic & Cult TV, TV Comedies'
'International Movies, Sports Movies' 'International TV Shows'
"Classic & Cult TV, Kids' TV, Spanish-Language TV Shows"
'Romantic TV Shows, Spanish-Language TV Shows, TV Dramas'
'Children & Family Movies, Comedies, Faith & Spirituality'
'British TV Shows, Crime TV Shows, TV Dramas'
'Classic Movies, Dramas, Music & Musicals'
'Cult Movies, Horror Movies, Thrillers'

```
 'Action & Adventure, Classic Movies, Sci-Fi & Fantasy'
 'TV Action & Adventure, TV Comedies'
 'Classic Movies, Comedies, Music & Musicals' 'Independent Movies'
 'Documentaries, Horror Movies'
 'Classic & Cult TV, TV Horror, TV Mysteries'
 'Comedies, Faith & Spirituality, International Movies'
 'Dramas, Horror Movies, Sci-Fi & Fantasy'
 'British TV Shows, TV Dramas, TV Sci-Fi & Fantasy'
 'Comedies, Cult Movies, Horror Movies'
 'Comedies, Cult Movies, Sports Movies' 'Classic Movies, Documentaries'
 'Action & Adventure, Faith & Spirituality, Sci-Fi & Fantasy'
 'Action & Adventure, Children & Family Movies'
 'International TV Shows, Reality TV, TV Action & Adventure'
 'Docuseries, Science & Nature TV, TV Dramas' 'Anime Features'
 'Action & Adventure, Horror Movies, Independent Movies'
 'Action & Adventure, Classic Movies, International Movies'
 'Cult Movies, Independent Movies, Thrillers'
 'Crime TV Shows, TV Comedies'
 'Classic Movies, Cult Movies, Documentaries'
 "Classic & Cult TV, Kids' TV, TV Comedies"
 'Classic Movies, Dramas, LGBTQ Movies'
 'Classic Movies, Dramas, Sports Movies' 'Action & Adventure, Cult Movies'
 'Action & Adventure, Comedies, Music & Musicals'
 'Classic Movies, Horror Movies, Thrillers'
 'Classic Movies, Comedies, Independent Movies'
 'Children & Family Movies, Classic Movies, Dramas'
 'Dramas, Faith & Spirituality, Sports Movies'
 'Classic Movies, Comedies, Romantic Movies'
 'Dramas, Horror Movies, Music & Musicals'
 'Classic Movies, Independent Movies, Thrillers'
 'Children & Family Movies, Faith & Spirituality'
 'Classic Movies, Comedies, Sports Movies'
 'Comedies, Dramas, Sports Movies'
 'Action & Adventure, Romantic Movies, Sci-Fi & Fantasy'
 'Classic & Cult TV, TV Sci-Fi & Fantasy'
 'Comedies, Cult Movies, LGBTQ Movies'
 'Comedies, Horror Movies, Sci-Fi & Fantasy'
 'Action & Adventure, Comedies, Horror Movies'
 'Classic & Cult TV, Crime TV Shows, TV Dramas'
 'Action & Adventure, Documentaries, Sports Movies'
 'International Movies, LGBTQ Movies, Romantic Movies'
 'Cult Movies, Dramas, Thrillers']

description_unique:
['As her father nears the end of his life, filmmaker Kirsten Johnson stages his de
ath in inventive and comical ways to help them both face the inevitable.'
 'After crossing paths at a party, a Cape Town teen sets out to prove whether a pr
ivate-school swimming star is her sister who was abducted at birth.'
 'To protect his family from a powerful drug lord, skilled thief Mehdi and his exp
ert team of robbers are pulled into a violent and deadly turf war.'
 ...
 'Looking to survive in a world taken over by zombies, a dorky college student tea
ms with an urban roughneck and a pair of grifter sisters.'
 'Dragged from civilian life, a former superhero must train a new crop of youthful
saviors when the military preps for an attack by a familiar villain.'
 "A scrappy but poor boy worms his way into a tycoon's dysfunctional family, while
facing his fear of music and the truth about his past."]
```

The direcor,cast,country,listed_in columns contains nested values where multiple values are listed within a single entry separated by commas. Nested values may contain redundant or inconsistent information, which can lead to inaccuracies in analysis results and hinder decision-making processes.Visualizing untreated nested values also be challenging.

Standard visualization techniques may not effectively represent the hierarchical relationships within the data, limiting the ability to gain insights from visualizations.

One common approach to handle such nested values is to split and stack them into separate rows,

In [44]:
```
data_copy = data.copy()
# Converting the 'date_added' column to datetime format
data_copy["date_added"] = pd.to_datetime(data_copy['date_added'], format='%B %d, %Y
# Extracting month, month name, and year from the 'date_added' column
data_copy['month_added'] = data_copy['date_added'].dt.month
data_copy['month_name_added'] = data_copy['date_added'].dt.month_name()
data_copy['year_added'] = data_copy['date_added'].dt.year
#create new directors data frame, that  associates each director with the titles of
directors_df = pd.DataFrame()
#The explode() function is then used to transform these lists into separate rows
directors_df['Director'] = data['director'].str.split(',').explode()
#Ignoring unknown directors as part of the data preprocessing
directors_df = directors_df[directors_df .Director != 'Unknown']
titles_directors = data['title'].repeat(data['director'].str.count(',') + 1).reset_
titles_directors.index = range(len(titles_directors))  # Resetting index to avoid d
directors_df['title'] = titles_directors
directors_df.head()
```

Out[44]:

	Director	title
0	Kirsten Johnson	Dick Johnson Is Dead
2	Julien Leclercq	Ganglands
5	Mike Flanagan	Midnight Mass
6	Robert Cullen	My Little Pony: A New Generation
6	José Luis Ucha	My Little Pony: A New Generation

In [45]:
```
#create new cast data frame, that  associates each cast with the titles of the movi
cast_df = pd.DataFrame()
#The explode() function is then used to transform these lists into separate rows
cast_df['Actor'] = data['cast'].str.split(',').explode()
#Ignoring unknown cast as part of the data preprocessing
cast_df = cast_df[cast_df.Actor != 'No Cast']
titles_cast = data['title'].repeat(data['cast'].str.count(',') + 1).reset_index(drc
titles_cast.index = range(len(titles_cast))  # Resetting index to avoid duplicate l
cast_df['title'] = titles_cast
cast_df.shape
```

Out[45]:
```
(64016, 2)
```

In [46]:
```
#Explore the country to identify the trends
country_df = pd.DataFrame()
#The explode() function is then used to transform these lists into separate rows
country_df['Country'] = data['country'].str.split(',').explode()
#Ignoring "No country Specified"  as part of the data preprocessing
country_df = country_df[country_df.Country != 'Country Unavailable']
titles_country = data['title'].repeat(data['country'].str.count(',') + 1).reset_inc
titles_country.index = range(len(titles_country))  # Resetting index to avoid dupli
country_df['title'] = titles_country
country_df.shape
```

Out[46]:
```
(10004, 2)
```

In [47]:
```
data['listed_in'] = data['listed_in'].fillna("No Genre specified")
listed_in_df = pd.DataFrame()
#The explode() function is then used to transform these lists into separate rows
listed_in_df['listed_in'] = data['listed_in'].str.split(',').explode()
#Ignoring unknown directors as part of the data preprocessing
cast_df = cast_df[cast_df.Actor != 'No Genre specified']
titles_listed = data['title'].repeat(data['listed_in'].str.count(',') + 1).reset_ir
titles_listed.index = range(len(titles_listed))  # Resetting index to avoid duplica
listed_in_df['title'] = titles_listed
listed_in_df.shape
```

Out[47]:
```
(19294, 2)
```

In [48]:
```
# Merge all these dataframes into one dataframe 'data' by Title
data_df = pd.merge(directors_df, cast_df, on='title')
data_df = pd.merge(data_df, country_df, on='title')
data_df = pd.merge(data_df, listed_in_df, on='title')

data = data.drop(['director', 'cast', 'country', 'listed_in','description'], axis=1
data = pd.merge(data_df,data, on = 'title')

data.head(50)
```

Out[48]:

	Director	title	Actor	Country	listed_in	show_id	type	date_added	release_y
0	Andy Devonshire	Sankofa	Winslow Fegley	United States	Documentaries	s8	Movie	September 24, 2021	19
1	Andy Devonshire	Sankofa	Winslow Fegley	United States	International Movies	s8	Movie	September 24, 2021	19
2	Andy Devonshire	Sankofa	Winslow Fegley	United States	Crime TV Shows	s8	Movie	September 24, 2021	19
3	Andy Devonshire	Sankofa	Winslow Fegley	United States	Spanish-Language TV Shows	s8	Movie	September 24, 2021	19
4	Andy Devonshire	Sankofa	Winslow Fegley	United States	TV Dramas	s8	Movie	September 24, 2021	19
5	Andy Devonshire	Sankofa	Winslow Fegley	United States	Thrillers	s8	Movie	September 24, 2021	19
6	Andy Devonshire	Sankofa	Winslow Fegley	Ghana	Documentaries	s8	Movie	September 24, 2021	19
7	Andy Devonshire	Sankofa	Winslow Fegley	Ghana	International Movies	s8	Movie	September 24, 2021	19
8	Andy Devonshire	Sankofa	Winslow Fegley	Ghana	Crime TV Shows	s8	Movie	September 24, 2021	19
9	Andy Devonshire	Sankofa	Winslow Fegley	Ghana	Spanish-Language TV Shows	s8	Movie	September 24, 2021	19
10	Andy Devonshire	Sankofa	Winslow Fegley	Ghana	TV Dramas	s8	Movie	September 24, 2021	19
11	Andy Devonshire	Sankofa	Winslow Fegley	Ghana	Thrillers	s8	Movie	September 24, 2021	19
12	Andy Devonshire	Sankofa	Winslow Fegley	Burkina Faso	Documentaries	s8	Movie	September 24, 2021	19
13	Andy Devonshire	Sankofa	Winslow Fegley	Burkina Faso	International Movies	s8	Movie	September 24, 2021	19
14	Andy Devonshire	Sankofa	Winslow Fegley	Burkina Faso	Crime TV Shows	s8	Movie	September 24, 2021	19
15	Andy Devonshire	Sankofa	Winslow Fegley	Burkina Faso	Spanish-Language TV Shows	s8	Movie	September 24, 2021	19
16	Andy Devonshire	Sankofa	Winslow Fegley	Burkina Faso	TV Dramas	s8	Movie	September 24, 2021	19
17	Andy Devonshire	Sankofa	Winslow Fegley	Burkina Faso	Thrillers	s8	Movie	September 24, 2021	19
18	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	Documentaries	s8	Movie	September 24, 2021	19
19	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	International Movies	s8	Movie	September 24, 2021	19
20	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	Crime TV Shows	s8	Movie	September 24, 2021	19
21	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	Spanish-Language TV	s8	Movie	September 24, 2021	19

	Director	title	Actor	Country	listed_in	show_id	type	date_added	release_y
					Shows				
22	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	TV Dramas	s8	Movie	September 24, 2021	19
23	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	Thrillers	s8	Movie	September 24, 2021	19
24	Andy Devonshire	Sankofa	Winslow Fegley	Germany	Documentaries	s8	Movie	September 24, 2021	19
25	Andy Devonshire	Sankofa	Winslow Fegley	Germany	International Movies	s8	Movie	September 24, 2021	19
26	Andy Devonshire	Sankofa	Winslow Fegley	Germany	Crime TV Shows	s8	Movie	September 24, 2021	19
27	Andy Devonshire	Sankofa	Winslow Fegley	Germany	Spanish-Language TV Shows	s8	Movie	September 24, 2021	19
28	Andy Devonshire	Sankofa	Winslow Fegley	Germany	TV Dramas	s8	Movie	September 24, 2021	19
29	Andy Devonshire	Sankofa	Winslow Fegley	Germany	Thrillers	s8	Movie	September 24, 2021	19
30	Andy Devonshire	Sankofa	Winslow Fegley	Ethiopia	Documentaries	s8	Movie	September 24, 2021	19
31	Andy Devonshire	Sankofa	Winslow Fegley	Ethiopia	International Movies	s8	Movie	September 24, 2021	19
32	Andy Devonshire	Sankofa	Winslow Fegley	Ethiopia	Crime TV Shows	s8	Movie	September 24, 2021	19
33	Andy Devonshire	Sankofa	Winslow Fegley	Ethiopia	Spanish-Language TV Shows	s8	Movie	September 24, 2021	19
34	Andy Devonshire	Sankofa	Winslow Fegley	Ethiopia	TV Dramas	s8	Movie	September 24, 2021	19
35	Andy Devonshire	Sankofa	Winslow Fegley	Ethiopia	Thrillers	s8	Movie	September 24, 2021	19
36	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	Documentaries	s8	Movie	September 24, 2021	19
37	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	International Movies	s8	Movie	September 24, 2021	19
38	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	Crime TV Shows	s8	Movie	September 24, 2021	19
39	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	Spanish-Language TV Shows	s8	Movie	September 24, 2021	19
40	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	TV Dramas	s8	Movie	September 24, 2021	19
41	Andy Devonshire	Sankofa	Winslow Fegley	United Kingdom	Thrillers	s8	Movie	September 24, 2021	19
42	Andy Devonshire	Sankofa	Winslow Fegley	United States	Documentaries	s8	Movie	September 24, 2021	19

	Director	title	Actor	Country	listed_in	show_id	type	date_added	release_y
43	Andy Devonshire	Sankofa	Winslow Fegley	United States	International Movies	s8	Movie	September 24, 2021	19
44	Andy Devonshire	Sankofa	Winslow Fegley	United States	Crime TV Shows	s8	Movie	September 24, 2021	19
45	Andy Devonshire	Sankofa	Winslow Fegley	United States	Spanish-Language TV Shows	s8	Movie	September 24, 2021	19
46	Andy Devonshire	Sankofa	Winslow Fegley	United States	TV Dramas	s8	Movie	September 24, 2021	19
47	Andy Devonshire	Sankofa	Winslow Fegley	United States	Thrillers	s8	Movie	September 24, 2021	19
48	Andy Devonshire	Sankofa	Winslow Fegley	Germany	Documentaries	s8	Movie	September 24, 2021	19
49	Andy Devonshire	Sankofa	Winslow Fegley	Germany	International Movies	s8	Movie	September 24, 2021	19

In [21]:
```
data.shape
```

Out[21]:
```
(289309, 11)
```

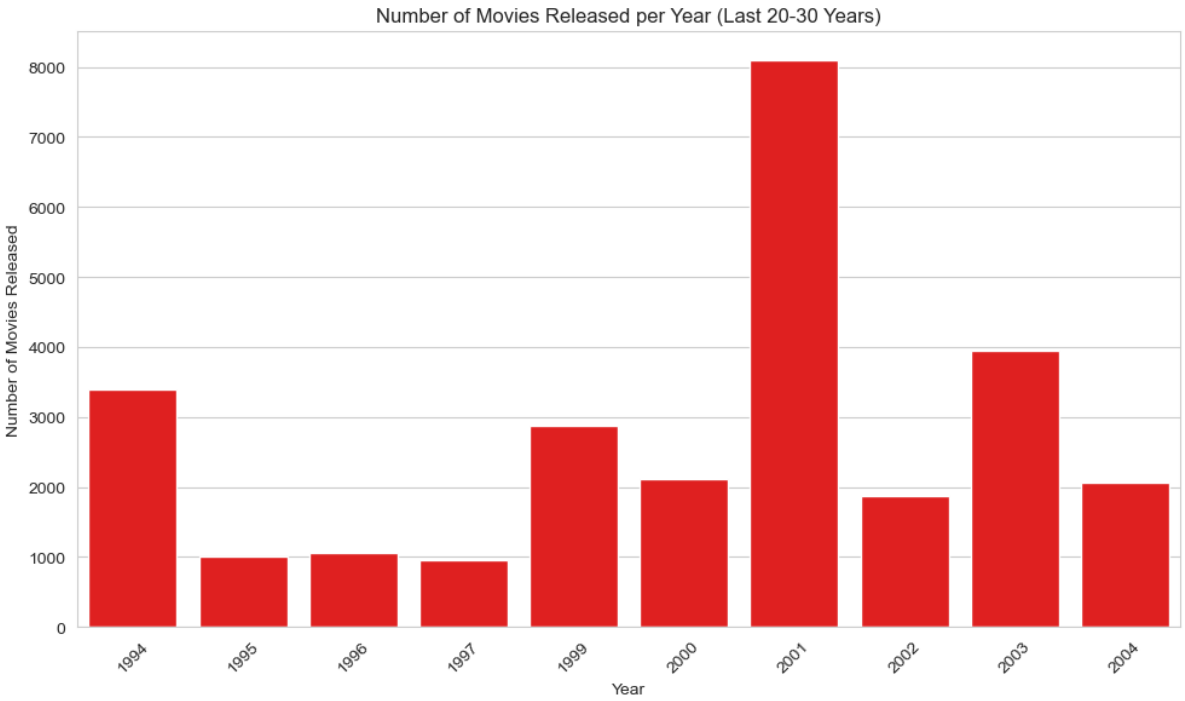
4. Visual Analysis - Univariate, Bivariate after pre-processing of the data

Univariate analysis involves examining the distribution and characteristics of a single variable in isolation.Following data pre-processing, univariate analysis facilitates a visual understanding of the distinct properties and behaviors of individual variables.

4.1 Analysis of Movies Released per Year Over the Last 20-30 Years

In this analysis, we consider two content types: "Movie" and "TV Show." We aim to visualize the number of movies released per year over the past 20 to 30 years.

In [49]:
```
# Convert 'type' attribute to category type
data['type'] = data['type'].astype('category')
#Filter the dataset to include only the last 20-30
current_year = pd.Timestamp.now().year
relevant_years = range(current_year - 30, current_year - 20 + 1)
movies_last_20_30_years = data[(data['type'] == 'Movie') & (data['release_year'].is
# Group the filtered data by the release year and count the number of movies in eac
movies_per_year = movies_last_20_30_years.groupby('release_year').size().reset_inde
# Plot the distribution of the number of movies released per year
plt.figure(figsize=(10, 6))
sns.barplot(data=movies_per_year, x='release_year', y='count',color = 'red')
plt.xlabel('Year')
plt.ylabel('Number of Movies Released')
plt.title('Number of Movies Released per Year (Last 20-30 Years)')
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
```

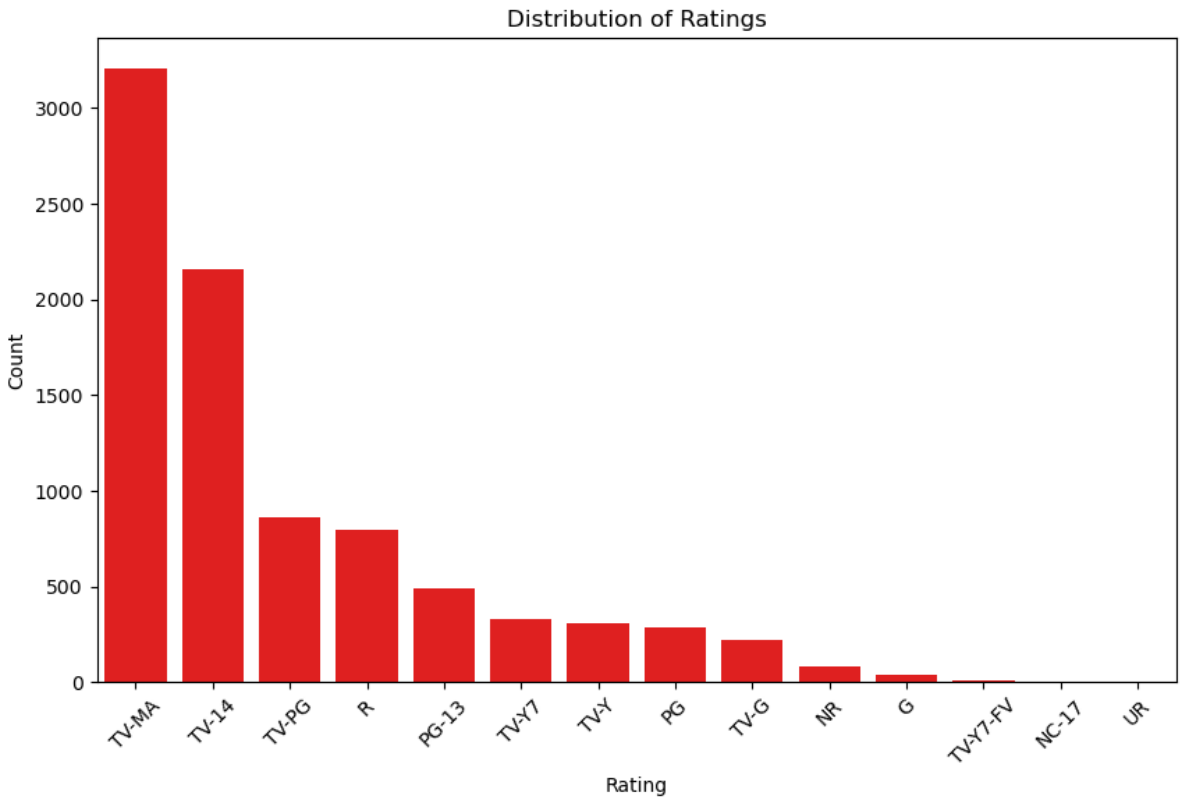


Insights:

Year 2001 witnessed a notable surge in movie releases, indicating a potential trend or anomaly in film production during that period.

4.1.1 Distribution of ratings for movies and TV shows : Count Plot.

In [23]:
```
plt.figure(figsize=(10, 6))
sns.countplot(data=data_copy, x='rating', order=data_copy['rating'].value_counts().
plt.title('Distribution of Ratings')
plt.xlabel('Rating')
plt.ylabel('Count')
plt.xticks(rotation=45)
plt.show()
```



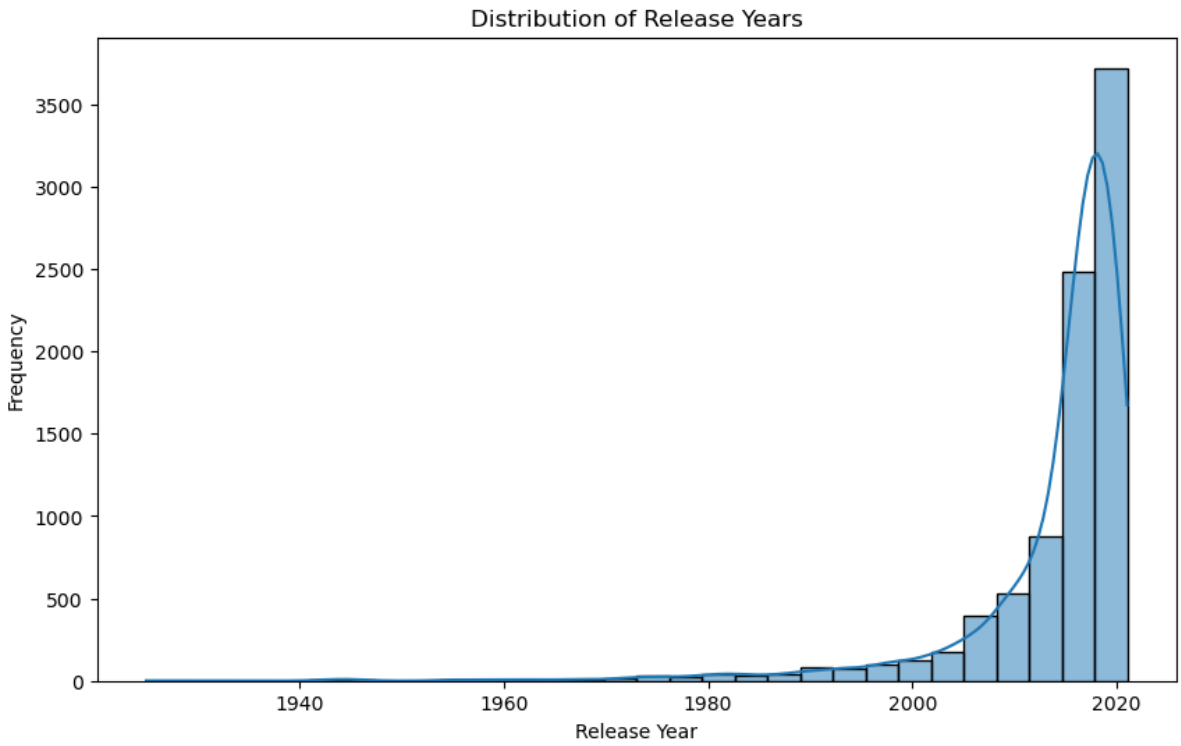
Insights:

The audience prefers TV-MA and TV-14 shows more and the least preferred rating shows are G. Most of the content watched by the audience is for a mature audience. The TV-MA rating is a type of rating given by the TV parental guidelines to a television program.

The second largest type of rating watched by the audience is TV-14 which is inappropriate for children younger than age 14. The conclusion is drawn here is most of the audience is of mature age

4.1.2 Distribution of release years for movies and TV shows :Histogram for for univariate analysis

In [24]:
```
plt.figure(figsize=(10, 6))
#Sets the number of bins (or bars) to be used in the histogram
#kernel density estimation (KDE) overlay on top of the histogram, providing a smoot
sns.histplot(data=data_copy, x='release_year', bins=30, kde=True)
plt.title('Distribution of Release Years')
plt.xlabel('Release Year')
plt.ylabel('Frequency')
plt.show()
```



Insights:

The majority of the movies and TV shows were released in the year 2021

4.2 Analyzing the comparison between TV shows and movies.

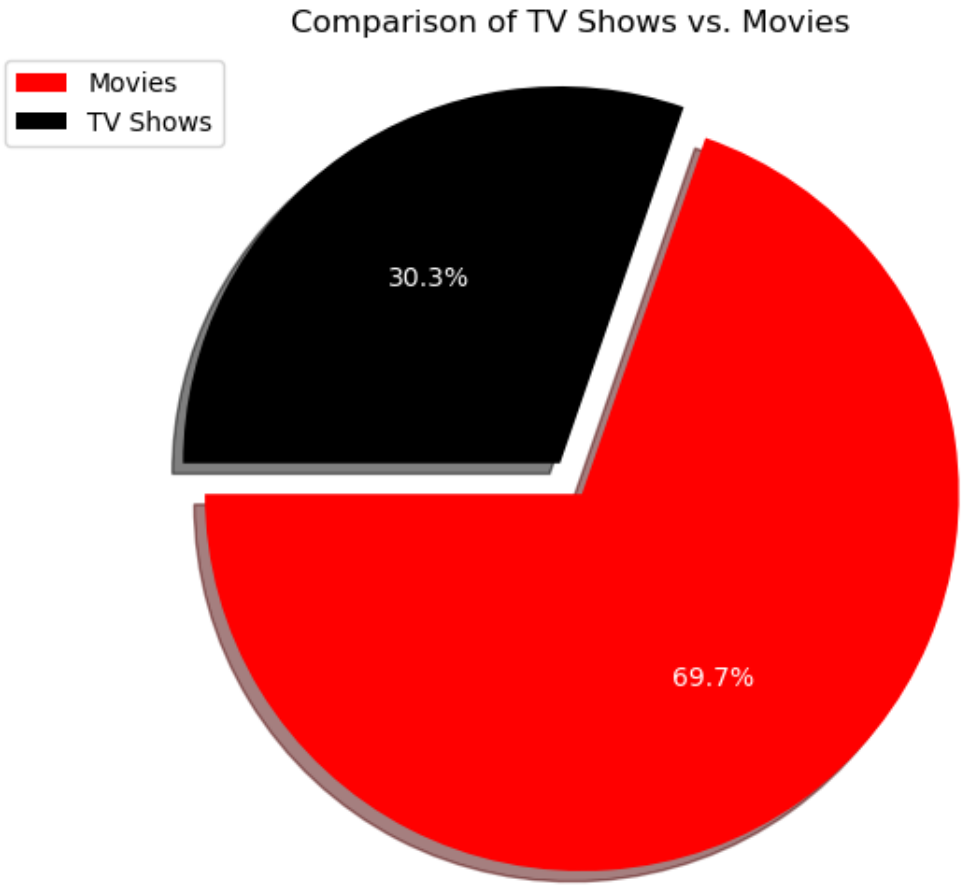
In [25]:
```
# Analyze the distribution of content type (Movie/TV Show)
# Analyze the distribution of content type (Movie/TV Show)
content_type_distribution = data['type'].value_counts()

# Define labels for the pie chart
labels = ['Movies', 'TV Shows']

# Define colors for the pie chart
colors = ['red', 'black']

# Define explode to emphasize a category
explode = (0.1, 0)

# Plotting the comparison of TV shows vs. movies using a pie chart with percentages
plt.figure(figsize=(8, 6))
plt.pie(content_type_distribution, labels=labels, autopct='%1.1f%%', colors=colors,
plt.title('Comparison of TV Shows vs. Movies')
plt.legend(loc='upper left')
plt.axis('equal')  # Equal aspect ratio ensures that pie is drawn as a circle
plt.show()
```



Insights:

Movie titles constitute a significantly larger proportion (69.7%) compared to TV show titles (30.3%) in the dataset

4.2.1 Duration Distribution for Movies and TV Shows : BoxPlot

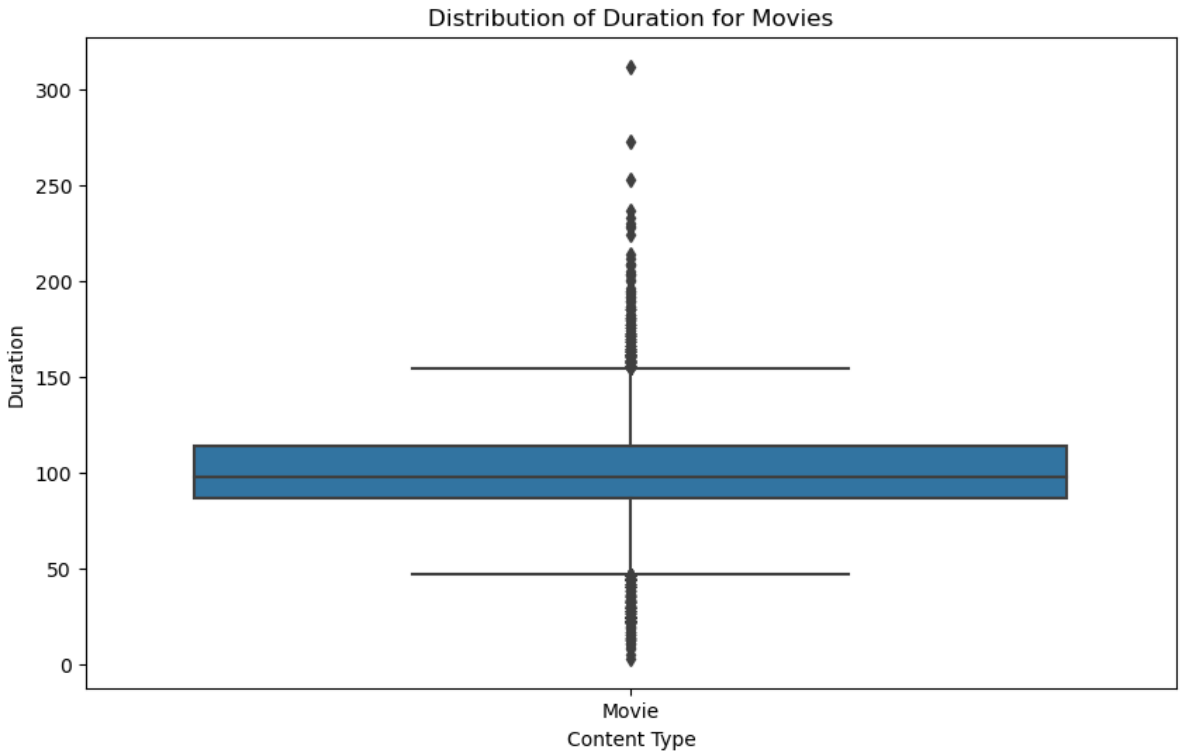
By examining the distribution of movie lengths and TV show durations, we can better understand the content available on Netflix.

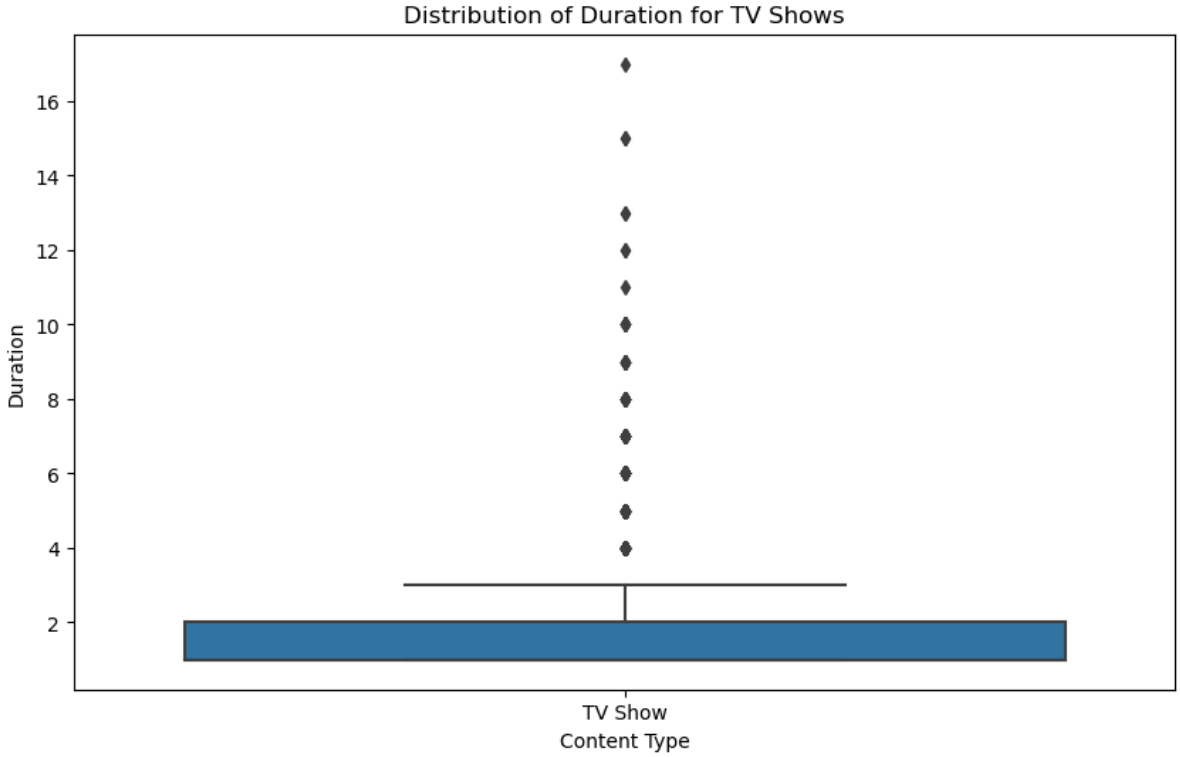
In [29]:
```
warnings.filterwarnings("ignore")
# Convert 'duration' column to string type
df_movies['duration'] = df_movies['duration'].astype(str)
# Extracting and converting the duration for movies
df_movies['duration'] = df_movies['duration'].str.extract('(\d+)', expand=False).as
# Creating a boxplot for movie duration
plt.figure(figsize=(10, 6))
sns.boxplot(data=df_movies, x='type', y='duration')
plt.xlabel('Content Type')
plt.ylabel('Duration')
plt.title('Distribution of Duration for Movies')
plt.show()

df_tv_shows['duration'] = df_tv_shows['duration'].astype(str)
# Extracting and converting the duration for TV shows
df_tv_shows['duration'] = df_tv_shows['duration'].str.extract('(\d+)', expand=False

# Creating a boxplot for TV show duration
plt.figure(figsize=(10, 6))
sns.boxplot(data=df_tv_shows, x='type', y='duration')
plt.xlabel('Content Type')
```

```
plt.ylabel('Duration')
plt.title('Distribution of Duration for TV Shows')
plt.show()
```





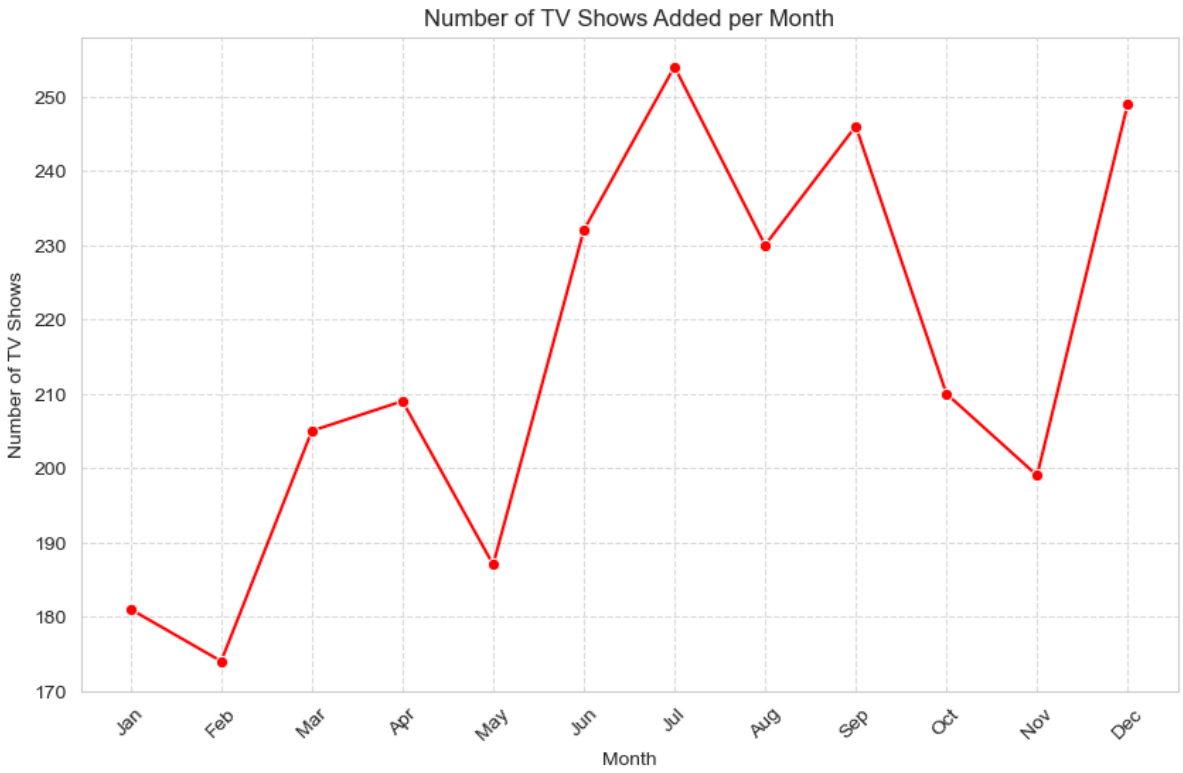
Insights:

we can see that most movies fall within a reasonable duration range, with few outliers exceeding approximately 2.5 hours. This suggests that most movies on Netflix are designed to fit within a standard viewing time.

For TV shows, the box plot reveals that most shows have one to four seasons, with very few outliers having longer durations. This aligns with the earlier trends, indicating that Netflix focuses on shorter series formats.

4.3 Analyzing the best time for launching a TV show.

In [30]:
```
# We've opted not to utilize the cast and director variables in this analysis. Ther
# Filter the dataset to include only TV shows
tv_shows_data = data_copy[data_copy['type'] == 'TV Show'].copy()
# Convert 'Date_added' column to datetime format
tv_shows_data['date_added'] = pd.to_datetime(tv_shows_data['date_added'], format='%
#tv_shows_data['date_added'] = pd.to_datetime(tv_shows_data['date_added'],format='%
tv_shows_data['year_added'] = tv_shows_data['date_added'].dt.year
tv_shows_data['month_added'] = tv_shows_data['date_added'].dt.month
# Create a DataFrame with the count of TV shows added per month
df_month = pd.DataFrame(tv_shows_data['month_added'].value_counts()).reset_index().
# Convert month number to month name
df_month['month'] = df_month['month'].replace({1: 'Jan', 2: 'Feb', 3: 'Mar', 4: 'Ap
# Define the order of months
month_order = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct'
# Convert 'month' to categorical data with the specified order
df_month['month'] = pd.Categorical(df_month['month'], categories=month_order, order
# Set the style for seaborn
sns.set_style("whitegrid")
# Plot the distribution of TV shows added per month
plt.figure(figsize=(10, 6))
sns.lineplot(data=df_month, x='month', y='count', marker='o', color='red')
plt.title('Number of TV Shows Added per Month')
plt.xlabel('Month')
plt.ylabel('Number of TV Shows')
plt.xticks(rotation=45)
plt.grid(True, linestyle='--', alpha=0.7)
plt.show()
```



Insights:

The majority of TV shows were added during the months of July, December, and September.

4.3.1 Analyzing the correlation between genres : HeatMap

Analyzing the correlation between genres can reveal interesting relationships between different types of content.

In [127…

```
# Extracting unique genres from the 'listed_in' column
genres = listed_in_df['listed_in'].unique()
genes = genres[:10]
# Create a new DataFrame to store the genre data
genre_data = pd.DataFrame(index=genes, columns=genes, dtype=float)  # Using genes c
# Fill the genre data DataFrame with zeros
genre_data.fillna(0, inplace=True)  # Corrected from listed_in_df.fillna to genre_d
for genre in genres:
    # Fill the diagonal with 1 (each genre is perfectly correlated with itself)
    genre_data.loc[genre, genre] = 1

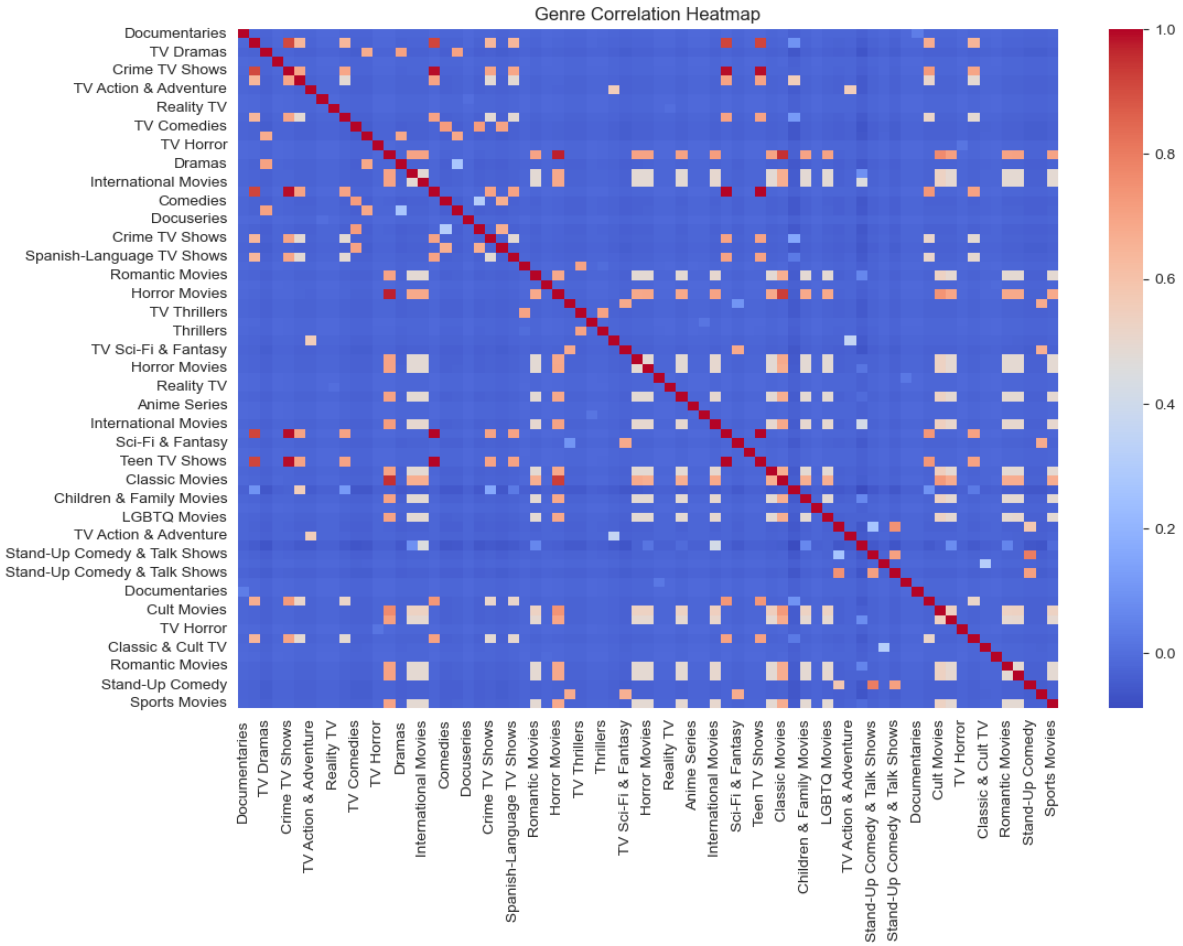
    # Iterate again to compare this genre with other genres
    for other_genre in genres:
        # Skip if it's the same genre
        if genre == other_genre:
            continue

        # For example, you might compare how many times genre appears with other_ge
        count = listed_in_df[listed_in_df['listed_in'].str.contains(genre) & listed

        # Fill the values in the DataFrame
        genre_data.loc[genre, other_genre] = count
        genre_data.loc[other_genre, genre] = count  # Since it's symmetric
# Create a correlation matrix using the genre data
correlation_matrix = genre_data.corr()
# Create the heatmap
plt.figure(figsize=(12, 8))
sns.heatmap(correlation_matrix, annot=False, cmap='coolwarm')

# Customize the plot
plt.title('Genre Correlation Heatmap')
plt.xticks(rotation=90)
plt.yticks(rotation=0)

# Show the plot
plt.show()
```



Insights :

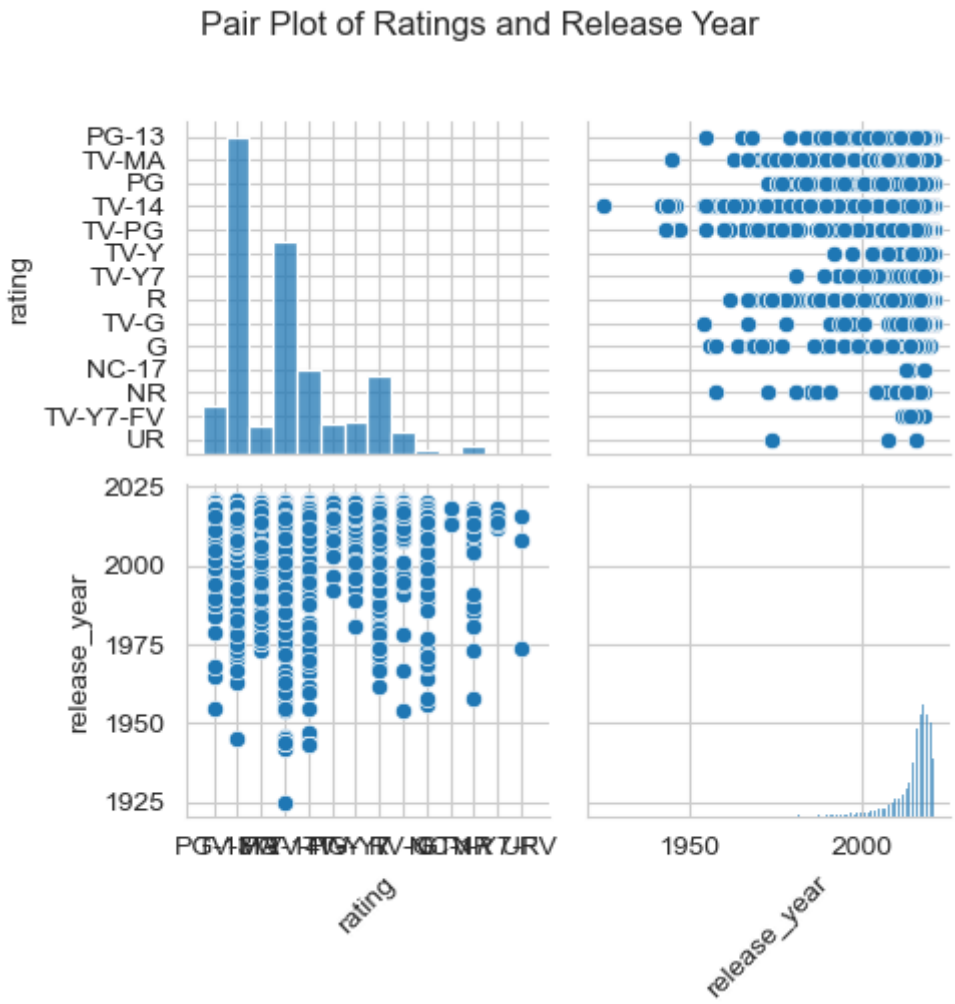
By analyzing the heatmap, we can identify strong positive correlations between specific genres, such as TV Dramas, TV Action and Adventure, International Movies etc..

4.3.2 Analyzing the relationship between the ratings of content and the year it was released

In [95]:
```
# Set the size of the figure
plt.figure(figsize=(16, 8))
# Assuming 'rating' and 'release_year' are columns in your DataFrame
pairplot = sns.pairplot(data=data, vars=['rating', 'release_year'])
# Set title
plt.suptitle('Pair Plot of Ratings and Release Year', y=1.02)
# Rotate x-axis labels
for ax in pairplot.axes.flatten():
    ax.set_xlabel(ax.get_xlabel(), rotation = 45)

# Adjust layout to prevent overlap
plt.tight_layout()
# Show the plot
plt.show()
```

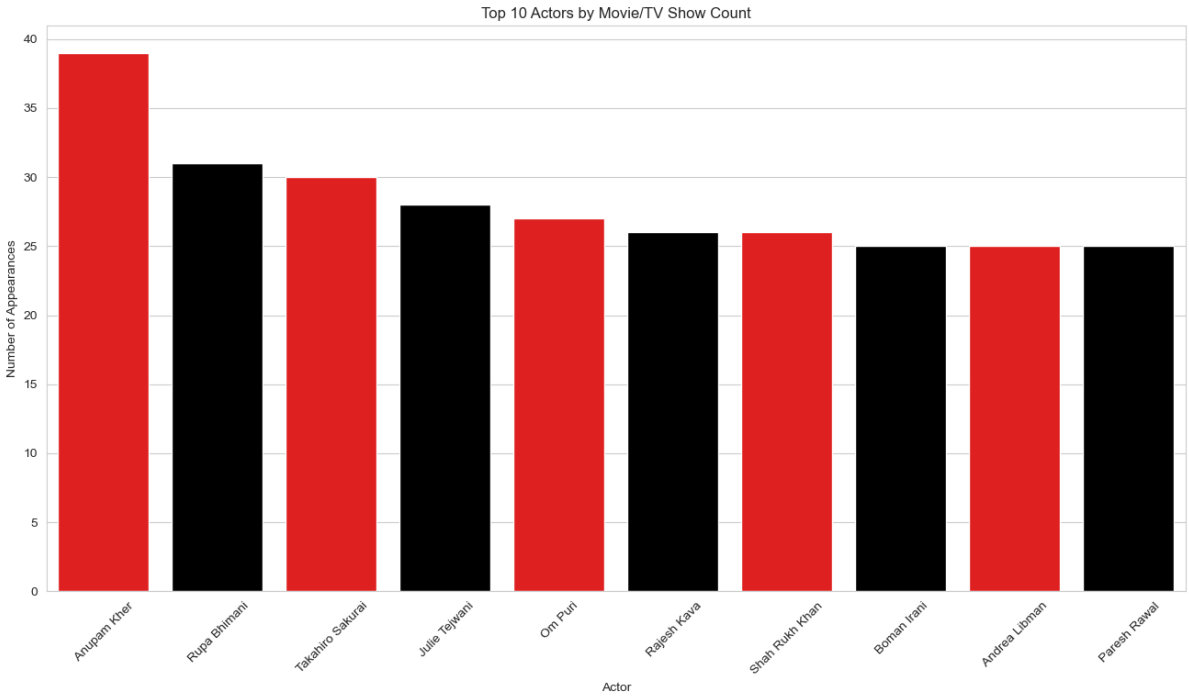
```
<Figure size 1600x800 with 0 Axes>
```



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

4.4.1 Identify the top 10 actors who have made the most appearances in both movies and TV shows.

In [72]:
```
# Count the occurrences of each actor
actor_counts = cast_df['Actor'].value_counts()
# Select the top 10 actors
top_10_cast = actor_counts.head(10)
# Filter the data for the top 10 actors
data_top_10 = data[data['Actor'].isin(top_10_cast.index)]
plt.figure(figsize=(16, 8))
sns.barplot(x=top_10_cast.index, y=top_10_cast.values, palette=colors)
plt.xlabel('Actor')
plt.ylabel('Number of Appearances')
plt.xticks(rotation=45)
plt.title('Top 10 Actors by Movie/TV Show Count')
plt.show()
```

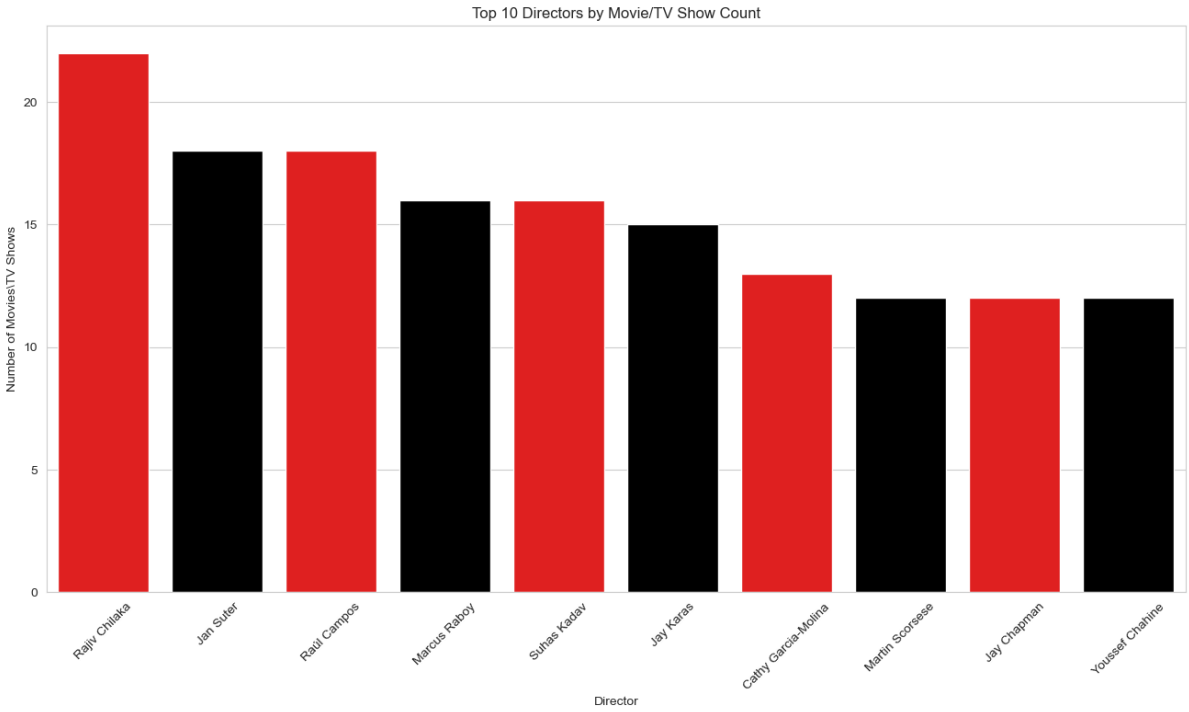


Insights:

The bar chart indicates that Anupam Kher holds the highest number of appearances in both movies and TV shows..

4.4.2 Identify the top 10 directors who have directed the highest number of movies or TV shows.

In [61]:
```
# Count the occurrences of each director
director_counts = directors_df['Director'].value_counts()
# Select the top 10 directors
top_10_directors = director_counts.head(10)
# Filter the data for the top 10 directors
top_10_data = data[data['Director'].isin(top_10_directors.index)]
plt.figure(figsize=(16, 8))
sns.barplot(x=top_10_directors.index, y=top_10_directors.values, palette=colors)
plt.xlabel('Director')
plt.ylabel('Number of Movies\TV Shows')
plt.xticks(rotation=45)
plt.title('Top 10 Directors by Movie/TV Show Count')
plt.show()
```

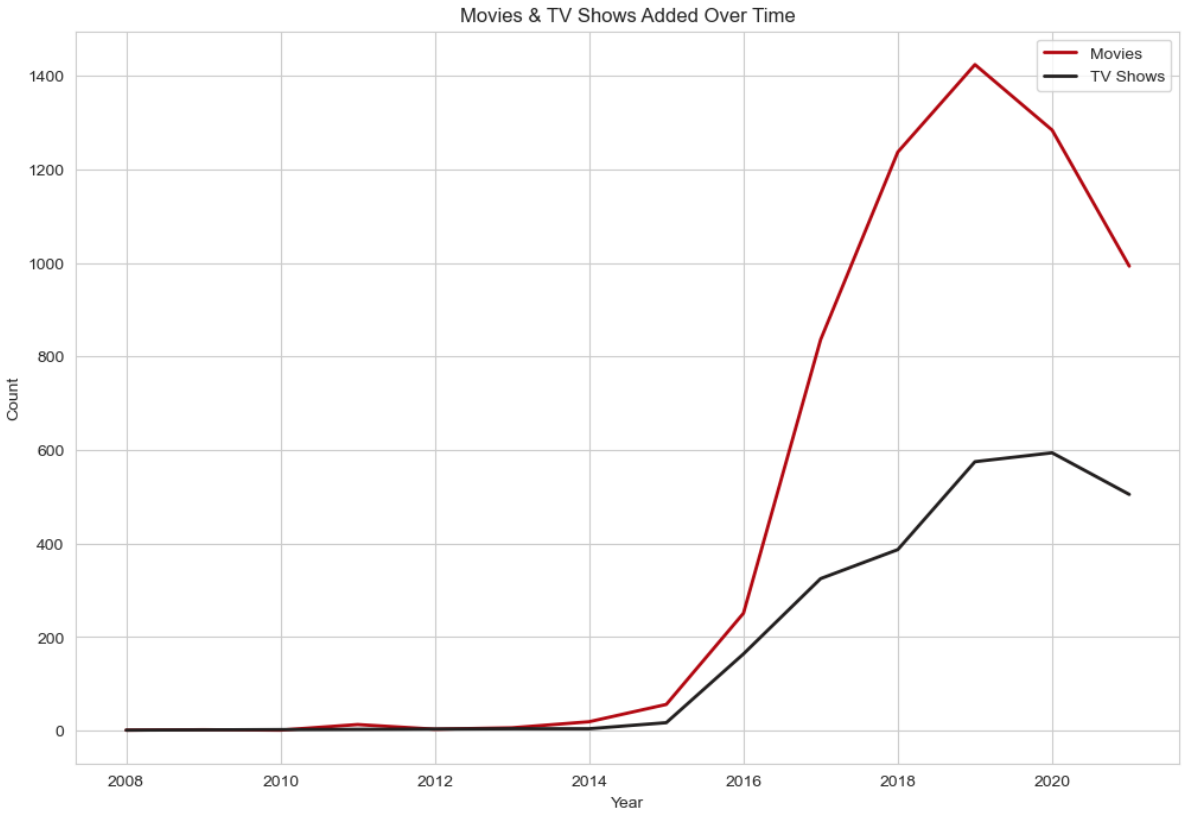


Insights:

According to the bar chart, Rajiv Chilaka emerges as the director with the highest number of movies or TV shows within the Netflix library's top 10.

4.5. Analyzing the Preference of TV Shows/Movies in Recent Years

In [52]:
```
# Filter the DataFrame to include only Movies and TV Shows
df_movies = data_copy[data_copy['type'] == 'Movie']
df_tv_shows = data_copy[data_copy['type'] == 'TV Show']
# Group the data by year and count the number of Movies and TV Shows
# added in each year
movies_count = df_movies['year_added'].value_counts().sort_index()
tv_shows_count = df_tv_shows['year_added'].value_counts().sort_index()
# Create a line chart to visualize the trends over time
plt.figure(figsize=(12,8))
plt.plot(movies_count.index, movies_count.values, color='#b20710', label='Movies',
plt.plot(tv_shows_count.index, tv_shows_count.values, color='#221f1f', label='TV Sh
# Customize the plot
plt.xlabel('Year')
plt.ylabel('Count')
plt.title('Movies & TV Shows Added Over Time')
plt.legend()
# Show the plot
plt.show()
```



The line chart shows how many movies and TV shows were added to Netflix over time. It helps us see how the amount of content has changed over the years, with different lines for movies and TV shows.

Insights:

Netflix experienced significant growth beginning in 2015, and we can observe that it added more movies than TV shows over the years.

4.6. Exploring the Variety of Content Offered Across Various Countries

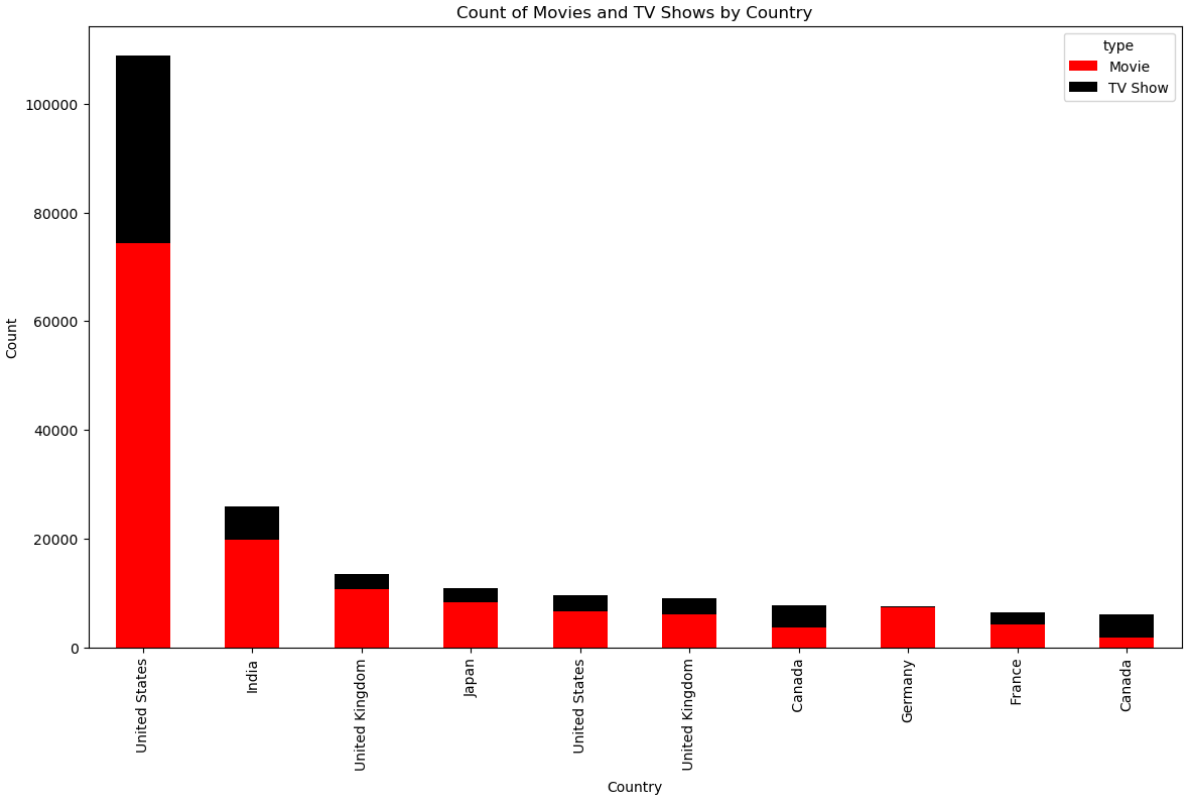
In [28]:
```
# Group the data by country and type, then count the number of entries in each grou
country_type_counts = data.groupby(['Country', 'type']).size().unstack(fill_value=0

# Sum the counts across movie and TV show types to get the total count for each cou
country_type_counts['Total'] = country_type_counts.sum(axis=1)

# Sort the data by the total count in descending order
country_type_counts = country_type_counts.sort_values(by='Total', ascending=False).

# Remove the 'Total' column for plotting
country_type_counts.drop(columns='Total', inplace=True)
# Plotting the stacked bar chart
plt.figure(figsize=(12, 8))
country_type_counts.plot(kind='bar', stacked=True, figsize=(14, 8), color=['red', '
plt.title('Count of Movies and TV Shows by Country')
plt.xlabel('Country')
plt.ylabel('Count')
plt.xticks(rotation=90)
plt.show()
```

```
<Figure size 1200x800 with 0 Axes>
```



Insights:

The stacked bar chart highlights that the United States stands out as the leading country in Netflix's popularity,when examining the diverse range of content available across different countries

5.Missing Value & Outlier check (Treatment optional)

What are Missing values?

In a dataset, we often see the presence of empty cells, rows, and columns, also referred to as Missing values. They make the dataset inconsistent and unable to work on. Many machine learning algorithms return an error if parsed with a dataset containing null values. Detecting and treating missing values is essential while analyzing and formulating data for any purpose.

Detecting missing values

There are several ways to detect missing values in Python. isnull() function is widely used for the same purpose.dataframe.isnull().values.any() allows us to find whether we have any null values in the dataframe.

In [9]:
```
print('\nColumns with missing value:')
print(data.isnull().any())
```

```
Columns with missing value:
show_id         False
type            False
title           False
director         True
cast             True
country          True
date_added       True
release_year    False
rating           True
duration         True
listed_in       False
description     False
dtype: bool
```

From the info, we know that there are 8807 entries and 12 columns to work with for this EDA. There are a few columns that contain null values, “director,” “cast,” “country,” “date_added,” “ratng.”

dataframe.isnull().sum() this functon displays the total number of null values in each column

In [10]:
```
data.T.apply(lambda x: x.isnull().sum(), axis = 1)
```

Out[10]:
```
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
```

There are a total of 4307 null values across the entire dataset with 2634 missing points under "director", 825 under "cast", 831 under "country", 11 under "date_added", 4 under "ratng" and 3 under “duration ”. We will have to handle all null data points before we can dive into EDA and modelling.

What is an outlier?

In a random sampling from a population, an outlier is defined as an observation that deviates abnormally from the standard data. In simple words, an outlier is used to define those data values which are far away from the general values in a dataset. An outlier can be broken down into out-of-line data.

For example, let us consider a row of data [10,15,22,330,30,45,60]. In this dataset, we can easily conclude that 330 is way off from the rest of the values in the dataset, thus 330 is an outlier. It was easy to figure out the outlier in such a small dataset, but when the dataset is huge, we need various methods to determine whether a certain value is an outlier or necessary information.

Why do we need to treat outliers?

Outliers can lead to vague or misleading predictions while using machinelearning models. Specific models like linear regression, logistic regression, and support vector machines are susceptible to outliers. Outliers decrease the mathematical power of these models, and thus the output of the models becomes unreliable. However, outliers are highly subjective to the dataset. Some outliers may portray extreme changes in the data as well

Visual Detection

Box plots are a simple way to visualize data through quantiles and detect outliers. IQR(Interquartile Range) is the basic mathematics behind boxplots. The top and bottom whiskers can be understood as the boundaries of data, and any data lying outside it will be an outlier.

Note : Please section 4.2.1 for outlier visualizaton

Remedies to the outliers and missing values

Imputation is a treatment method for missing value by filling it in using certain techniques.

Can use mean, mode, or use predicƟve modelling. In this case study, we will discuss the use of the fillna funcƟon from Pandas for this imputaƟon. Drop rows containing missing values. Can use the dropna funcƟon from Pandas

In [ ]:
```
data.director.fillna("No Director", inplace=True)
data.cast.fillna("No Cast", inplace=True)
data.country.fillna("Country Unavailable", inplace=True)
data.dropna(subset=["date_added", "raƟng"], inplace=True)
```

6. Business Insights :

With the help of this article, we have been able to learn about

1. Quantity: Our analysis revealed that Netflix had added more movies than TV shows, aligning with the expectation that movies dominate their content library.

2. Content Addition: July emerged as the month when Netflix adds the most content, closely followed by December, indicating a strategic approach to content release.

3. Genre Correlation: Strong positive associations were observed between various genres, such as TV dramas and international TV shows, romantic and international TV shows, and independent movies and dramas. These correlations provide insights into viewer preferences and content interconnections.

4. Movie Lengths: The analysis of movie durations indicated a peak around the 1960s, followed by a stabilization around 100 minutes, highlighting a trend in movie lengths over time.

5. TV Show Episodes: Most TV shows on Netflix have one season, suggesting a preference for shorter series among viewers.

6. Common Themes: Words like love, life, family, and adventure were frequently found in titles and descriptions, capturing recurring themes in

Netflix content.

7. Rating Distribution: The distribution of ratings over the years offers insights into the evolving content landscape and audience reception.

8. Data-Driven Insights: Our data analysis journey showcased the power of data in unravelling the mysteries of Netflix's content landscape, providing valuable insights for viewers and content creators.

9. Continued Relevance: As the streaming industry evolves, understanding these patterns and trends becomes increasingly essential for navigating the dynamic landscape of Netflix and its vast library.

10. Happy Streaming: We hope this blog has been an enlightening and entertaining journey into the world of Netflix, and we encourage you to explore the captivating stories within its ever-changing content offerings. Let the data guide your streaming adventures!

7. RECOMMENDATIONS

1.Netflix has to focus on TV Shows also because there are people who will like to see tv shows rather than movies

2. By approaching the top director we can plan some more movies/tv shows in order to increase the popularity

3. Not only reaching top director we can also see the director with less no of movies and having high rating as there may be some financial

4. Issues or anything so inorder to get good content netflix can reach to them and netflix can produce the movie and give the director a chance.

5. We have seen most no of international movies genre so need to give priority to other geners like hooro,comedy..etc

6. In TV Shows we may focus on thriller genre which will be helpfull for having more no of seasons

7. Most of the movies released in ott is in a year 2019 so we need to go on increasing this value in order to attract people by showing that

8. Getting subscription is usefull as netflix is releasing more movies per year

9. Mainly the release in ott should focus on the festival holidays, year end and week ends which is to be mainly focussed #### Some movies can be released directly into ott which has some positive talk which may help in improving subscriptions

10 Should focus on a actor who has immense following and make use of it by doing a TV Shows or web series

11 Advertisement in the country which has very less movies released should be increased and attract people of that country by making their native TV Shows

In [ ]: