

```
#import important libraries

import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

import warnings
warnings.filterwarnings('ignore')

df = pd.read_csv('netflix1.csv')
df.head()
```

	show_id	type	title	director
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson
1	s3	TV Show	Ganglands	Julien Leclercq
2	s6	TV Show	Midnight Mass	Mike Flanagan
3	s14	Movie	Confessions of an Invisible Girl	Bruno Garotti
4	s8	Movie	Sankofa	Haile Gerima

	country	date_added	release_year	rating	duration
0	United States	9/25/2021	2020	PG-13	90 min
1	France	9/24/2021	2021	TV-MA	1 Season
2	United States	9/24/2021	2021	TV-MA	1 Season
3	Brazil	9/22/2021	2021	TV-PG	91 min
4	United States	9/24/2021	1993	TV-MA	125 min

	listed_in
0	Documentaries
1	Crime TV Shows, International TV Shows, TV Act...
2	TV Dramas, TV Horror, TV Mysteries
3	Children & Family Movies, Comedies
4	Dramas, Independent Movies, International Movies

```
# Display descriptive statistics for numeric columns
```

```
df.describe()
```

	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
```

```
# Display summary info about the DataFrame
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8790 entries, 0 to 8789
Data columns (total 10 columns):
#   Column          Non-Null Count  Dtype
---  -
0   show_id         8790 non-null   object
1   type            8790 non-null   object
2   title           8790 non-null   object
3   director        8790 non-null   object
4   country         8790 non-null   object
5   date_added      8790 non-null   object
6   release_year    8790 non-null   int64
7   rating          8790 non-null   object
8   duration        8790 non-null   object
9   listed_in      8790 non-null   object
dtypes: int64(1), object(9)
memory usage: 686.8+ KB
```

```
# Convert the column to datetime
```

```
df["date_added"] = pd.to_datetime(df["date_added"])
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8790 entries, 0 to 8789
Data columns (total 10 columns):
#   Column          Non-Null Count  Dtype
---  -
0   show_id         8790 non-null   object
1   type            8790 non-null   object
2   title           8790 non-null   object
3   director        8790 non-null   object
4   country         8790 non-null   object
5   date_added      8790 non-null   datetime64[ns]
6   release_year    8790 non-null   int64
7   rating          8790 non-null   object
8   duration        8790 non-null   object
9   listed_in      8790 non-null   object
dtypes: datetime64[ns](1), int64(1), object(8)
memory usage: 686.8+ KB
```

```
type_values = df["type"].value_counts()
type_values
```

```

type
Movie      6126
TV Show    2664
Name: count, dtype: int64

# Check for missing values
df.isnull().sum()

show_id      0
type         0
title        0
director     0
country      0
date_added   0
release_year 0
rating       0
duration     0
listed_in    0
dtype: int64

df['country'].unique()

array(['United States', 'France', 'Brazil', 'United Kingdom', 'India',
      'Germany', 'Pakistan', 'Not Given', 'China', 'South Africa',
      'Japan', 'Nigeria', 'Spain', 'Philippines', 'Australia',
      'Argentina', 'Canada', 'Hong Kong', 'Italy', 'New Zealand',
      'Egypt', 'Colombia', 'Mexico', 'Belgium', 'Switzerland',
      'Taiwan',
      'Bulgaria', 'Poland', 'South Korea', 'Saudi Arabia',
      'Thailand',
      'Indonesia', 'Kuwait', 'Malaysia', 'Vietnam', 'Lebanon',
      'Romania',
      'Syria', 'United Arab Emirates', 'Sweden', 'Mauritius',
      'Austria',
      'Turkey', 'Czech Republic', 'Cameroon', 'Netherlands',
      'Ireland',
      'Russia', 'Kenya', 'Chile', 'Uruguay', 'Bangladesh',
      'Portugal',
      'Hungary', 'Norway', 'Singapore', 'Iceland', 'Serbia',
      'Namibia',
      'Peru', 'Mozambique', 'Ghana', 'Zimbabwe', 'Israel', 'Finland',
      'Denmark', 'Paraguay', 'Cambodia', 'Georgia', 'Soviet Union',
      'Greece', 'West Germany', 'Iran', 'Venezuela', 'Slovenia',
      'Guatemala', 'Jamaica', 'Somalia', 'Croatia', 'Jordan',
      'Luxembourg', 'Senegal', 'Belarus', 'Puerto Rico', 'Cyprus',
      'Ukraine'], dtype=object)

df["country"].value_counts().head(10)

country
United States    3240

```

```

India          1057
United Kingdom 638
Pakistan       421
Not Given      287
Canada         271
Japan          259
South Korea    214
France         213
Spain         182
Name: count, dtype: int64

```

```
df['listed_in'].unique()
```

```

array(['Documentaries',
      'Crime TV Shows, International TV Shows, TV Action &
Adventure',
      'TV Dramas, TV Horror, TV Mysteries',
      'Children & Family Movies, Comedies',
      'Dramas, Independent Movies, International Movies',
      'British TV Shows, Reality TV', 'Comedies, Dramas',
      'Children & Family Movies, Comedies, Music & Musicals',
      'Dramas, International Movies',
      'Children & Family Movies, Music & Musicals',
      'Dramas, International Movies, Music & Musicals', 'Movies',
      'Comedies', 'Docuseries, Reality TV',
      'British TV Shows, Crime TV Shows, Docuseries',
      'Children & Family Movies', "Kids' TV",
      'Documentaries, International Movies',
      'Crime TV Shows, Docuseries, International TV Shows',
      'Comedies, International Movies, Romantic Movies',
      'Horror Movies, Sci-Fi & Fantasy', 'Thrillers',
      'International TV Shows, Spanish-Language TV Shows, TV Action &
Adventure',
      'TV Comedies', 'International TV Shows, TV Dramas, TV
Thrillers',
      'Reality TV', "Anime Series, Kids' TV",
      "Kids' TV, Korean TV Shows",
      'International TV Shows, Romantic TV Shows, TV Comedies',
      'International TV Shows, TV Action & Adventure, TV Comedies',
      'Crime TV Shows, International TV Shows, Spanish-Language TV
Shows',
      "Kids' TV, TV Comedies", 'Docuseries',
      'International TV Shows, TV Comedies',
      'Comedies, International Movies, Music & Musicals',
      'Comedies, International Movies',
      'Dramas, International Movies, Thrillers',
      'Action & Adventure, Dramas, International Movies',
      'Action & Adventure, Dramas',
      'Action & Adventure, Classic Movies, Dramas',
      'Dramas, Horror Movies, Thrillers',

```

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

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

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

'Action & Adventure, Dramas, Faith & Spirituality',
 'Action & Adventure, Comedies, Independent Movies',
 'Music & Musicals', 'Dramas, Independent Movies, Sports
 Movies',
 'Comedies, LGBTQ Movies, Music & Musicals',
 'Comedies, International Movies, Thrillers',
 'Children & Family Movies, Documentaries',
 'Music & Musicals, Romantic Movies', 'Romantic Movies',
 'Children & Family Movies, Classic Movies, Comedies',
 'Dramas, LGBTQ Movies, Romantic Movies',
 'Children & Family Movies, Comedies, Romantic Movies',
 'Comedies, Sports Movies', 'International Movies',
 'International TV Shows, Romantic TV Shows, TV Mysteries',
 'Action & Adventure, International Movies, Romantic Movies',
 'Cult Movies, Dramas, International Movies',
 'Action & Adventure, Sci-Fi & Fantasy, Sports Movies',
 'British TV Shows, International TV Shows, TV Dramas',
 'Children & Family Movies, Documentaries, International
 Movies',
 'Anime Features, International Movies',
 'British TV Shows, Classic & Cult TV, Kids' TV',
 'International TV Shows, TV Horror, TV Mysteries',
 'Documentaries, Faith & Spirituality, International Movies',
 'LGBTQ Movies, Thrillers',
 'Children & Family Movies, Dramas, Independent Movies',
 'Comedies, Music & Musicals, Romantic Movies',
 'Anime Features, Children & Family Movies',
 'TV Action & Adventure, TV Sci-Fi & Fantasy',
 'Action & Adventure, International Movies, Sci-Fi & Fantasy',
 'Classic & Cult TV, TV Action & Adventure, TV Horror',
 'International TV Shows, Korean TV Shows, TV Dramas',
 'Action & Adventure, Comedies, Romantic Movies',
 'Children & Family Movies, Comedies, International Movies',
 'International Movies, Sci-Fi & Fantasy',
 'International Movies, Sci-Fi & Fantasy, Thrillers',
 'Children & Family Movies, Dramas, Romantic Movies',
 'Comedies, Dramas, LGBTQ Movies',
 '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',
 'Anime Features, International Movies, Sci-Fi & Fantasy',
 'Dramas, Independent Movies, Music & Musicals',
 'Children & Family Movies, Documentaries, Sports Movies',
 'Independent Movies, Sci-Fi & Fantasy, Thrillers',
 'Anime Features, Music & Musicals, Sci-Fi & Fantasy',
 'International TV Shows, Korean TV Shows, TV Action &
 Adventure',

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

```

'Crime TV Shows, Docuseries, Science & Nature TV',
'Kids' TV, Spanish-Language TV Shows, Teen TV Shows",
'TV Horror, TV Mysteries, Teen TV Shows',
'Kids' TV, Reality TV, Science & Nature TV",
'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',
'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',
'TV Comedies, TV Mysteries',
'British TV Shows, Docuseries, TV Comedies',
'TV Comedies, TV Dramas, TV Mysteries',
'Crime TV Shows, TV Comedies, Teen TV Shows',
'Reality TV, Spanish-Language TV Shows',
"Crime TV Shows, Kids' TV, TV Comedies",
'Classic & Cult TV, TV Comedies',
'Stand-Up Comedy & Talk Shows, TV Mysteries, TV Sci-Fi &
Fantasy',
'TV Sci-Fi & Fantasy, TV Thrillers',
'British TV Shows, TV Horror, TV Thrillers', 'Sports Movies',
'International TV Shows, TV Horror, TV Thrillers',
'Crime TV Shows, TV Dramas, TV Horror',
'British TV Shows, Docuseries, Reality TV',
'Anime Series, Crime TV Shows, TV Thrillers',
"Classic & Cult TV, Kids' TV, Spanish-Language TV Shows",
'Romantic TV Shows, Spanish-Language TV Shows, TV Dramas',
'TV Action & Adventure, TV Comedies',
'Classic & Cult TV, TV Horror, TV Mysteries',
'Crime TV Shows, TV Comedies',
"Classic & Cult TV, Kids' TV, TV Comedies",
'Classic & Cult TV, TV Sci-Fi & Fantasy',
'Classic & Cult TV, Crime TV Shows, TV Dramas'], dtype=object)

```

```
df['listed_in'].value_counts()
```

```

listed_in
Dramas, International Movies      362
Documentaries                    359
Stand-Up Comedy                  334
Comedies, Dramas, International Movies  274
Dramas, Independent Movies, International Movies  252
...
TV Action & Adventure, TV Comedies      1
Romantic TV Shows, Spanish-Language TV Shows, TV Dramas  1
Classic & Cult TV, Kids' TV, Spanish-Language TV Shows  1
Anime Series, Crime TV Shows, TV Thrillers  1

```

```

British TV Shows, Docuseries, Reality TV 1
Name: count, Length: 513, dtype: int64

df.shape

(8790, 10)

# Split 'Country' into multiple columns
df_country_split = df['country'].str.split(',', expand=True)

# Split 'Listed_in' into multiple columns
df_listed_in_split = df['listed_in'].str.split(',', expand=True)

# Combine back into the original DataFrame
df = pd.concat([df, df_country_split, df_listed_in_split], axis=1)

# Display the result
print(df)

```

	show_id	type	director \	title	
0	s1	Movie	Dick Johnson	Is Dead	Kirsten
1	s3	TV Show	Leclercq	Ganglands	Julien
2	s6	TV Show	Flanagan	Midnight Mass	Mike
3	s14	Movie	Garotti	Confessions of an Invisible Girl	Bruno
4	s8	Movie	Gerima	Sankofa	Haile
...
8785	s8797	TV Show	Given	Yunus Emre	Not
8786	s8798	TV Show	Given	Zak Storm	Not
8787	s8801	TV Show	Given	Zindagi Gulzar Hai	Not
8788	s8784	TV Show	Given	Yoko	Not
8789	s8786	TV Show	Given	YOM	Not

	country	date_added	release_year	rating	duration \
0	United States	2021-09-25	2020	PG-13	90 min
1	France	2021-09-24	2021	TV-MA	1 Season
2	United States	2021-09-24	2021	TV-MA	1 Season
3	Brazil	2021-09-22	2021	TV-PG	91 min
4	United States	2021-09-24	1993	TV-MA	125 min
...

8785	Turkey	2017-01-17	2016	TV-PG	2 Seasons
8786	United States	2018-09-13	2016	TV-Y7	3 Seasons
8787	Pakistan	2016-12-15	2012	TV-PG	1 Season
8788	Pakistan	2018-06-23	2016	TV-Y	1 Season
8789	Pakistan	2018-06-07	2016	TV-Y7	1 Season

		listed_in	0
\			
0		Documentaries	United States
1	Crime TV Shows, International TV Shows, TV Act...		France
2	TV Dramas, TV Horror, TV Mysteries		United States
3	Children & Family Movies, Comedies		Brazil
4	Dramas, Independent Movies, International Movies		United States
...
8785	International TV Shows, TV Dramas		Turkey
8786	Kids' TV		United States
8787	International TV Shows, Romantic TV Shows, TV ...		Pakistan
8788	Kids' TV		Pakistan
8789	Kids' TV		Pakistan

	0		1	\
0	Documentaries		None	
1	Crime TV Shows	International TV Shows		
2	TV Dramas	TV Horror		
3	Children & Family Movies	Comedies		
4	Dramas	Independent Movies		
...	
8785	International TV Shows	TV Dramas		
8786	Kids' TV	None		
8787	International TV Shows	Romantic TV Shows		
8788	Kids' TV	None		
8789	Kids' TV	None		

	2
0	None
1	TV Action & Adventure
2	TV Mysteries
3	None
4	International Movies
...	...

8785	None
8786	None
8787	TV Dramas
8788	None
8789	None

[8790 rows x 14 columns]

Split 'Country' into separate rows

```
df_country_exploded =
df['country'].str.split(',').explode().reset_index(drop=True)
```

Split 'Listed_in' into separate rows

```
df_listed_in_exploded =
df['listed_in'].str.split(',').explode().reset_index(drop=True)
```

Combine back into a new DataFrame

```
df_exploded = pd.DataFrame({'country':
df_country_exploded, 'listed_in': df_listed_in_exploded})
```

Display the result

```
print(df_exploded)
```

	country	listed_in
0	United States	Documentaries
1	France	Crime TV Shows
2	United States	International TV Shows
3	Brazil	TV Action & Adventure
4	United States	TV Dramas
...
19289	NaN	International TV Shows
19290	NaN	Romantic TV Shows
19291	NaN	TV Dramas
19292	NaN	Kids' TV
19293	NaN	Kids' TV

[19294 rows x 2 columns]

```
df_exploded.shape
```

```
(19294, 2)
```

```
df_exploded.value_counts().head(10)
```

country	listed_in	
United States	International Movies	636
	Dramas	342
	Comedies	278
	Dramas	229
India	International Movies	196
United States	Action & Adventure	169

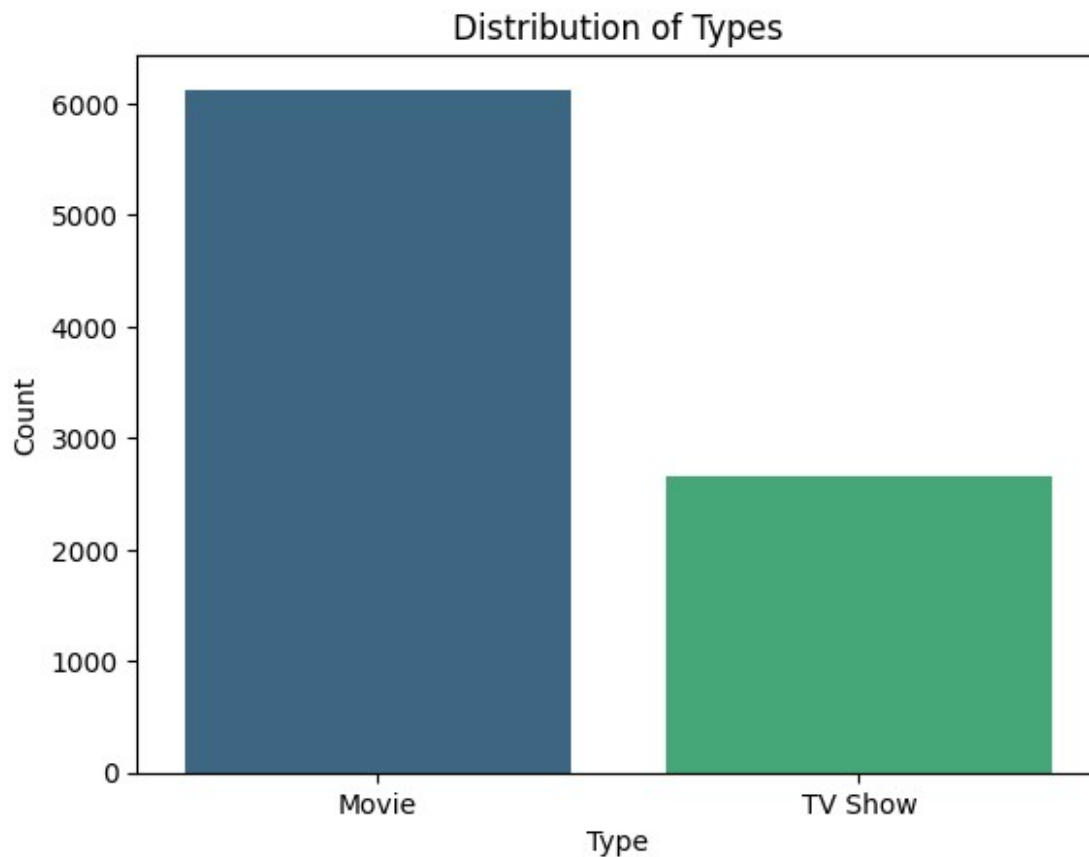
```

        Romantic Movies      151
        Independent Movies   146
United Kingdom  International Movies  143
United States  Children & Family Movies  128
Name: count, dtype: int64

# Create the count plots')
sns.barplot(x=type_values.index, y=type_values.values,
palette='viridis')
# Set the title and labels
plt.title('Distribution of Types')
plt.xlabel('Type')
plt.ylabel('Count')

# Show the plot
plt.show()

```



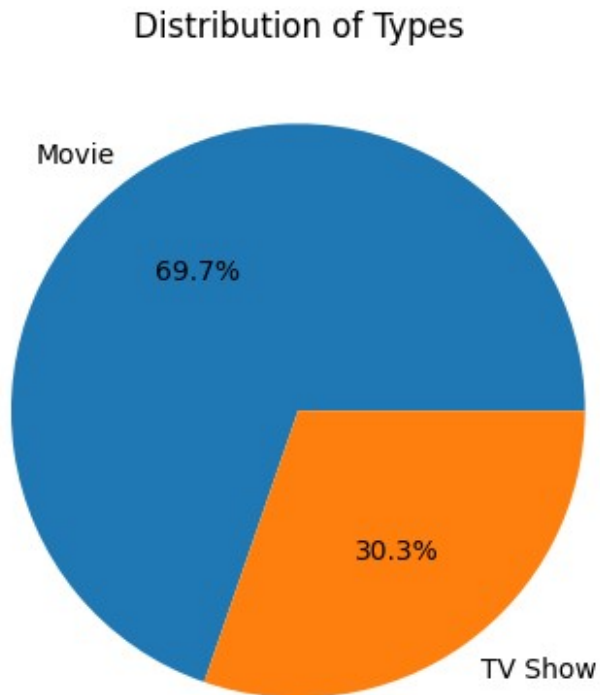
```

# Create a pie chart
plt.pie(type_values, labels=type_values.index, autopct='%1.1f%%')

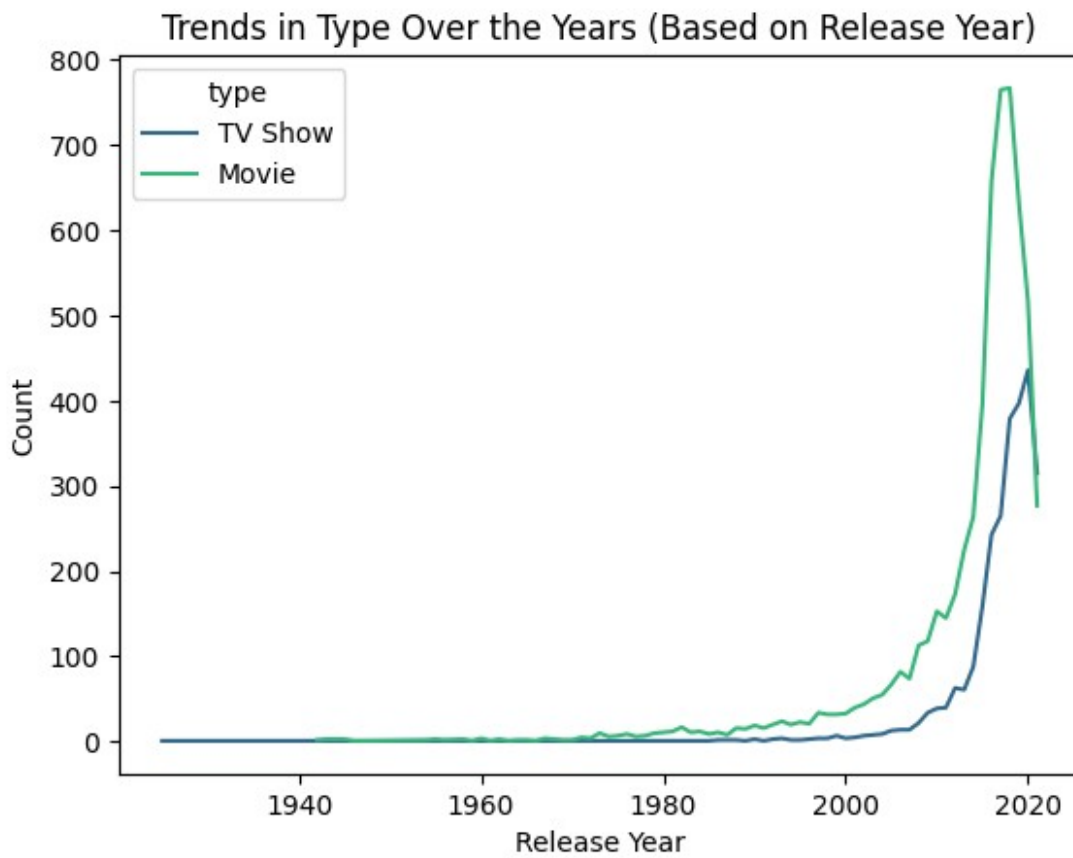
# Set the title
plt.title('Distribution of Types')

```

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



```
# Group by 'Release_year' and 'type', and count occurrences  
df_grouped = df.groupby(['release_year',  
                          'type']).size().reset_index(name='count')  
  
# Create a bar plot to visualize the trend  
sns.lineplot(x='release_year', y='count', hue='type', data=df_grouped,  
             palette='viridis')  
  
# Set the title and labels  
plt.title('Trends in Type Over the Years (Based on Release Year)')  
plt.xlabel('Release Year')  
plt.ylabel('Count')  
  
# Show the plot  
plt.show()
```



```
df["release_year"].value_counts()

release_year
2018      1146
2019      1030
2017      1030
2020       953
2016       901
...
1961         1
1959         1
1925         1
1966         1
1947         1
Name: count, Length: 74, dtype: int64

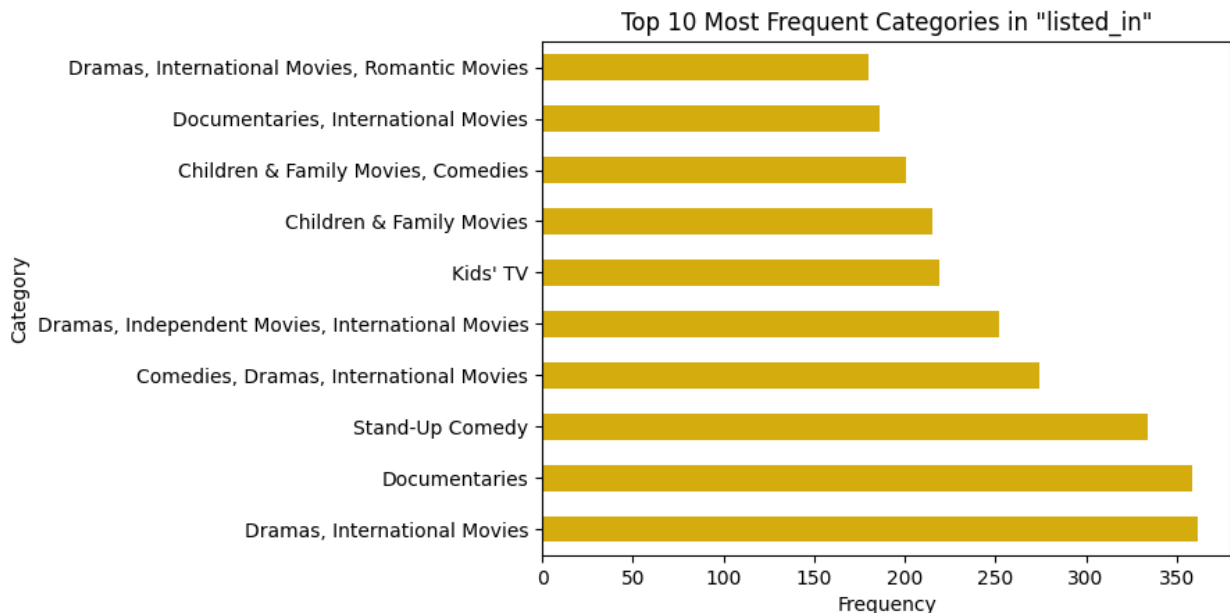
top10_listed_in = df['listed_in'].value_counts().head(10)

# Plot the result
top10_listed_in.plot(kind='barh', color='#d4ac0d')

# Add labels and title
plt.xlabel('Frequency')
```

```
plt.ylabel('Category')
plt.title('Top 10 Most Frequent Categories in "listed_in"')

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



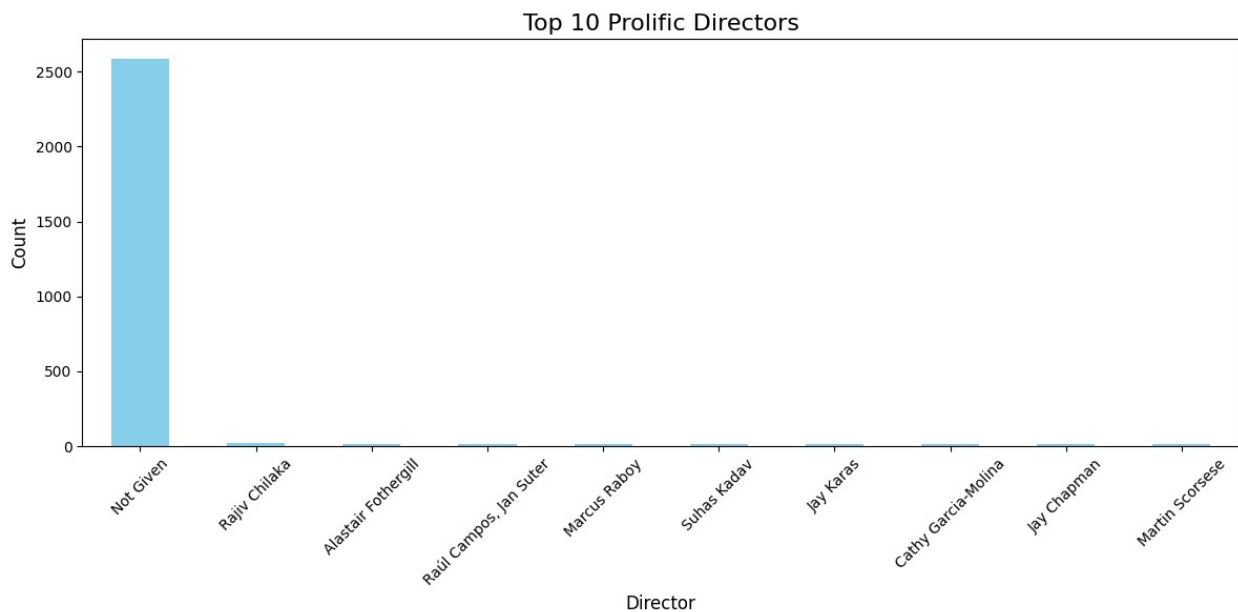
```
df['director'].value_counts()

director
Not Given                2588
Rajiv Chilaka             20
Alastair Fothergill       18
Raúl Campos, Jan Suter    18
Marcus Raboy              16
...
Mark Risley               1
Kirati Nakintanon         1
Christian De Vita         1
Abu Bakr Shawky           1
N. Chandra                1
Name: count, Length: 4528, dtype: int64

top10_directors = df['director'].value_counts().head(10)

# Plot the bar chart
top10_directors.plot(kind='bar', color='skyblue', figsize=(12, 6))
plt.title('Top 10 Prolific Directors', fontsize=16)
plt.xlabel('Director', fontsize=12)
plt.ylabel('Count', fontsize=12)
plt.xticks(rotation=45)
```

```
plt.tight_layout()
plt.show()
```



```
df['rating'].unique()
array(['PG-13', 'TV-MA', 'TV-PG', 'TV-14', 'TV-Y7', 'TV-Y', 'PG', 'TV-
G',
      'R', 'G', 'NC-17', 'NR', 'TV-Y7-FV', 'UR'], dtype=object)

# Count unique ratings and their occurrences
df['rating'].value_counts()

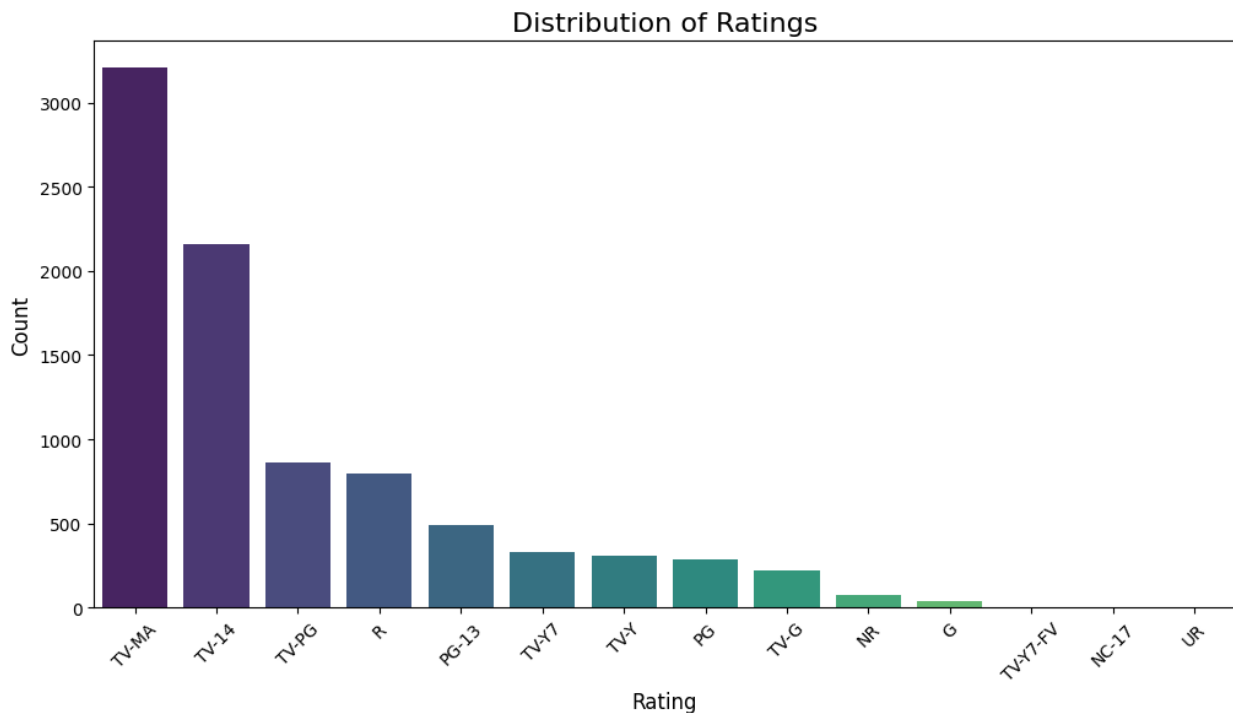
rating
TV-MA      3205
TV-14      2157
TV-PG       861
R           799
PG-13       490
TV-Y7       333
TV-Y        306
PG          287
TV-G        220
NR           79
G           41
TV-Y7-FV     6
NC-17        3
UR           3
Name: count, dtype: int64

# Plot the bar chart
plt.figure(figsize=(12, 6))
```

```

sns.barplot(x=rating.index, y=rating.values, palette='viridis')
plt.title('Distribution of Ratings', fontsize=16)
plt.xlabel('Rating', fontsize=12)
plt.ylabel('Count', fontsize=12)
plt.xticks(rotation=45)
plt.show()

```



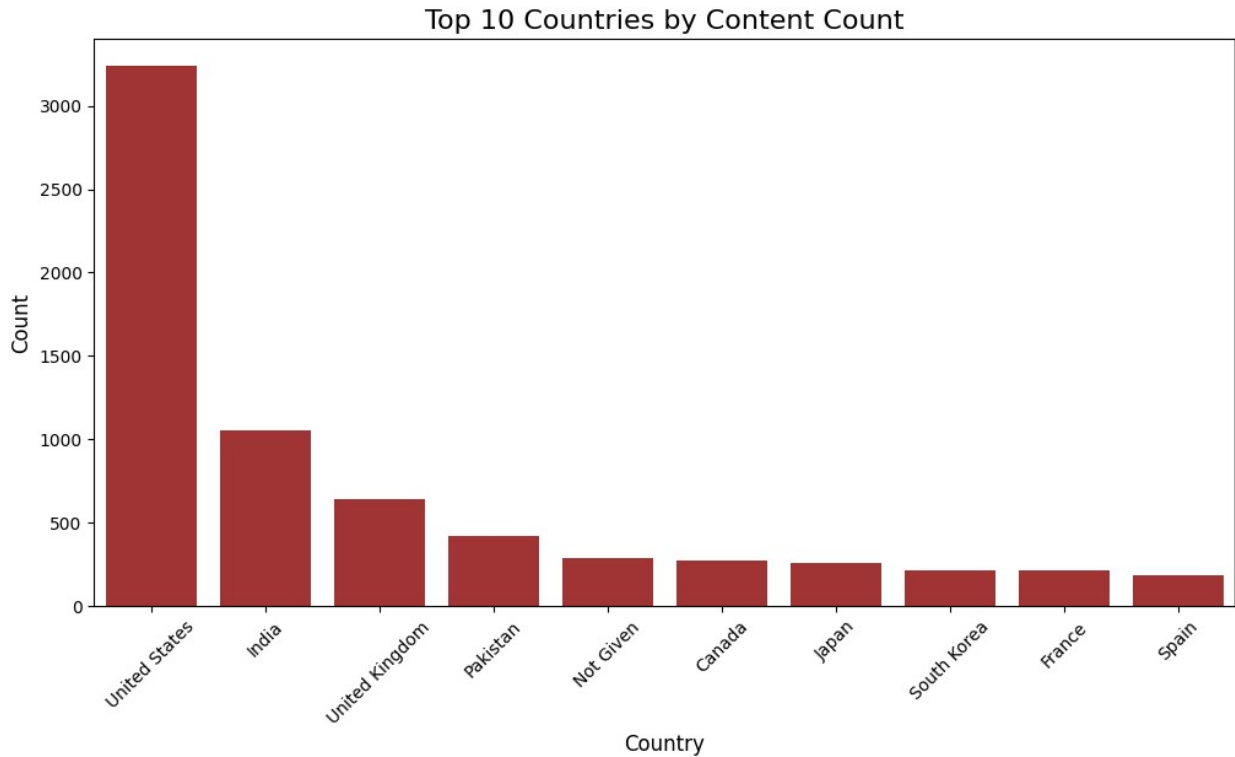
```

# Get the top 10 countries
top10_countries = df['country'].value_counts().head(10)

# Convert to DataFrame for seaborn compatibility
top10_countries_df = top10_countries.reset_index()
top10_countries_df.columns = ['Country', 'Count'] # Rename columns
for clarity

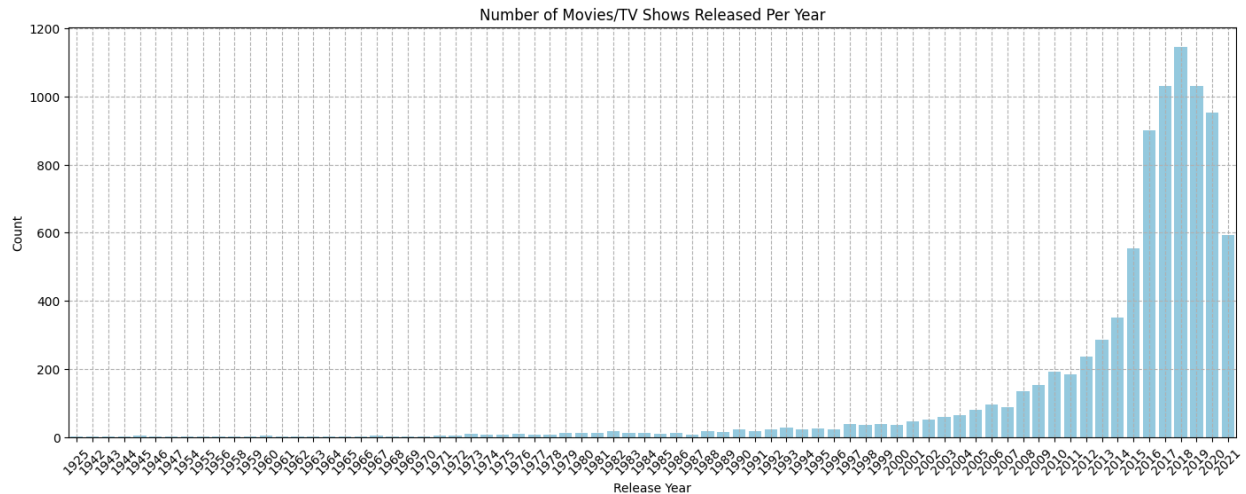
# Plot using seaborn
plt.figure(figsize=(12, 6))
sns.barplot(x='Country', y='Count', data=top10_countries_df,
color='#B22222')
plt.title('Top 10 Countries by Content Count', fontsize=16)
plt.xlabel('Country', fontsize=12)
plt.ylabel('Count', fontsize=12)
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.show()

```



```
# Count the number of movies/TV shows released each year
release_year_counts = df['release_year'].value_counts()# Sort by year

# Plot the data
plt.figure(figsize=(17, 6)) # Set figure size
sns.barplot(x=release_year_counts.index, y=release_year_counts.values,
color='skyblue')
plt.title('Number of Movies/TV Shows Released Per Year')
plt.xlabel('Release Year')
plt.ylabel('Count')
plt.xticks(rotation=45)
plt.grid(linestyle = '--')
plt.show()
```

```
df_movies = df[df['type']=='Movie']
df_tv_shows = df[df['type']=='TV Show']

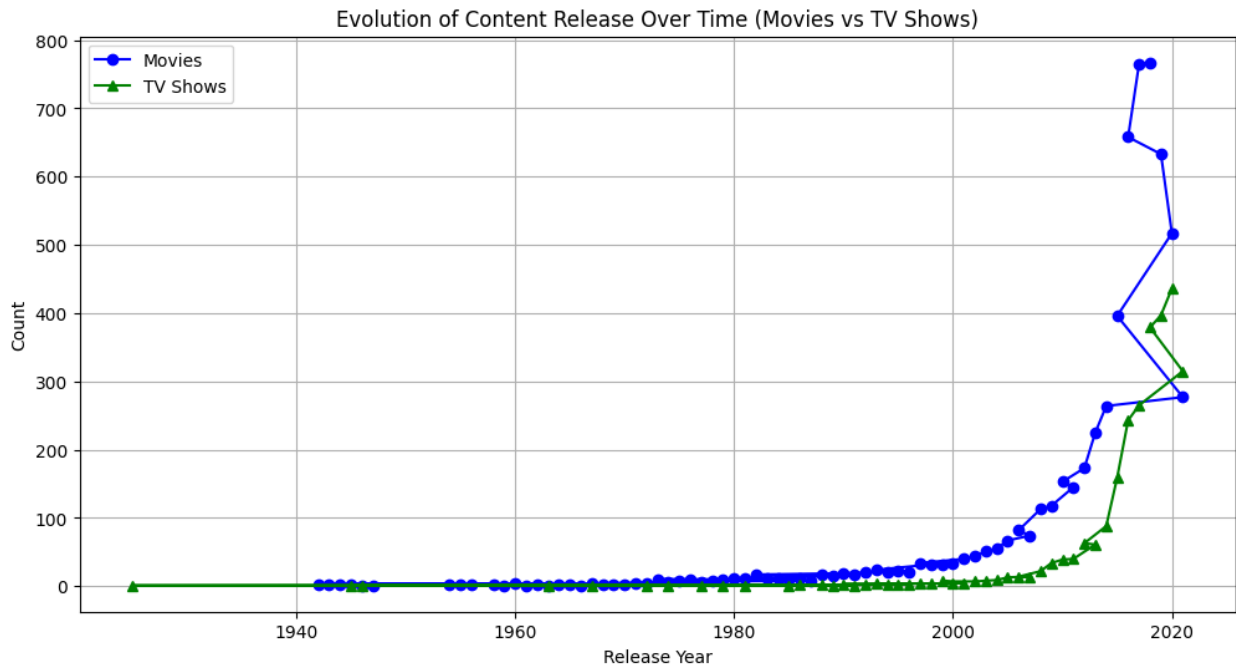
movies_per_year = df_movies["release_year"].value_counts()
tv_shows_per_year = df_tv_shows["release_year"].value_counts()

# Plot the data
plt.figure(figsize=(12, 6))

# Plot for Movies and TV Shows
plt.plot(movies_per_year.index, movies_per_year.values, marker='o',
label='Movies', color='blue')
plt.plot(tv_shows_per_year.index, tv_shows_per_year.values,
marker='^', label='TV Shows', color='green')

# Add Titles and Labels
plt.title('Evolution of Content Release Over Time (Movies vs TV
Shows)')
plt.xlabel('Release Year')
plt.ylabel('Count')
plt.legend()
plt.grid(True)

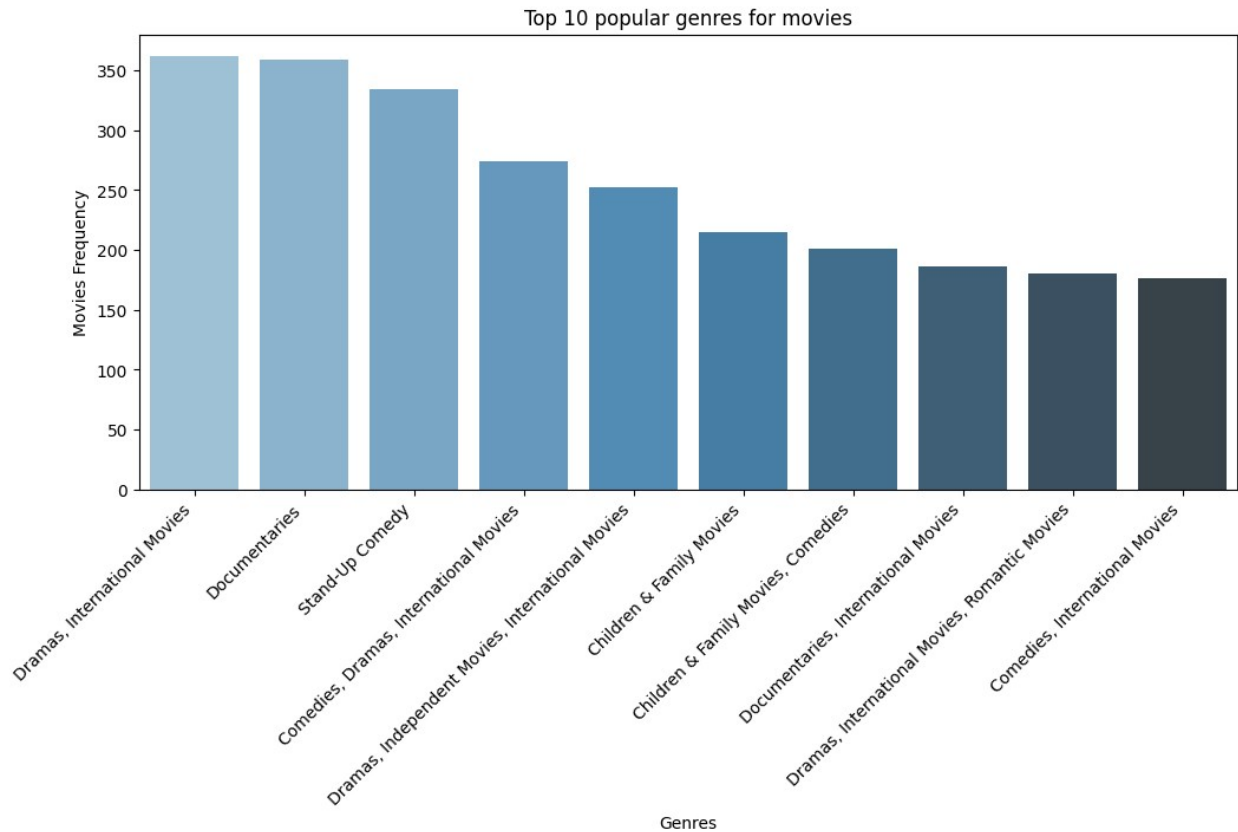
plt.show()
```



```
# Get the top 10 most popular movie genres
popular_movie_genre=df[df['type']=='Movie'].groupby("listed_in").size(
).sort_values(ascending=False)[:10]

plt.figure(figsize=(12, 5))
sns.barplot(x=popular_movie_genre.index, y=popular_movie_genre.values,
palette='Blues_d')
plt.xticks(rotation=45, ha='right')

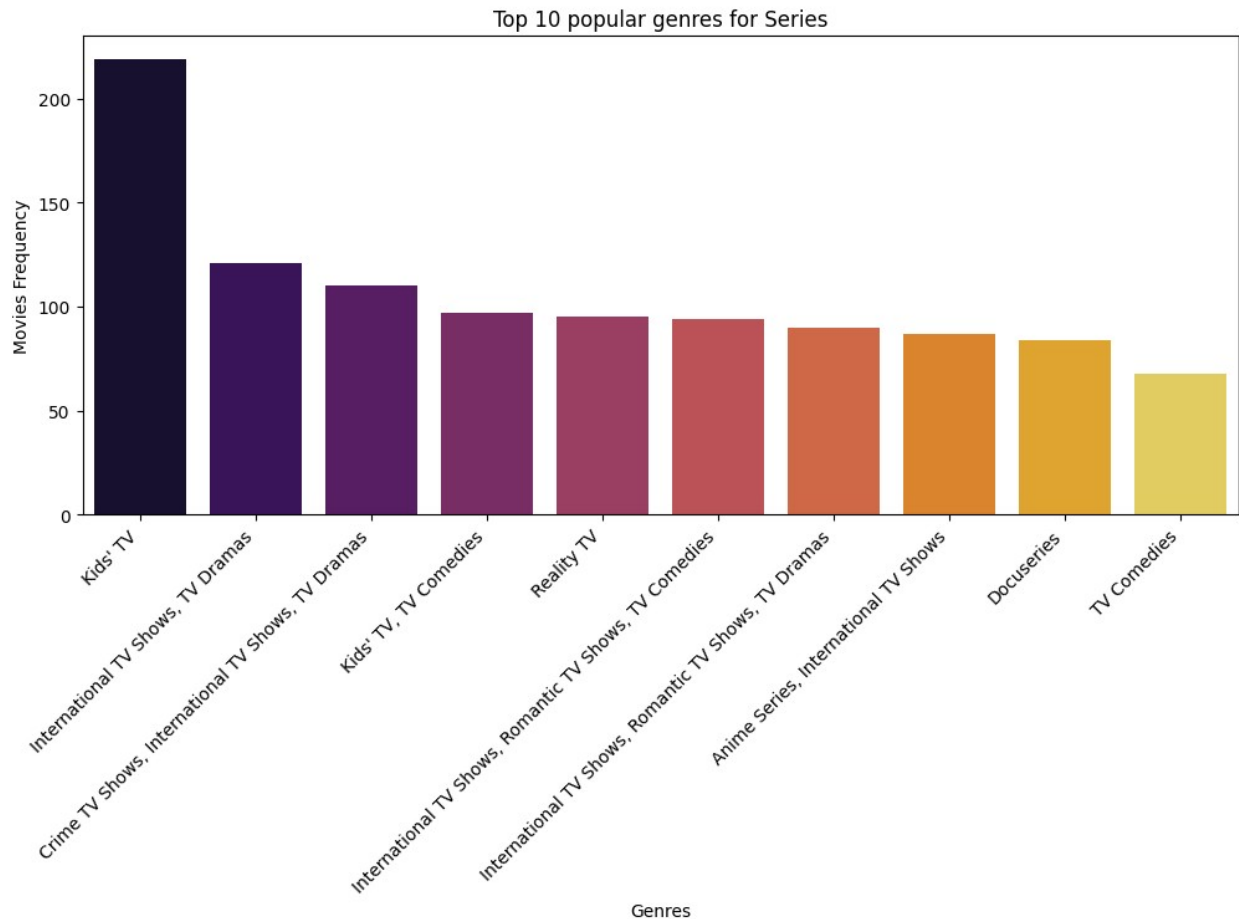
# Add labels and title
plt.xlabel("Genres")
plt.ylabel("Movies Frequency")
plt.title("Top 10 popular genres for movies")
plt.show()
```



```
# Get the top 10 most popular series genres

popular_series_genre=df[df['type']=='TV
Show'].groupby("listed_in").size().sort_values(ascending=False)[:10]
plt.figure(figsize=(12, 5))
sns.barplot(x=popular_series_genre.index,
y=popular_series_genre.values, palette='inferno')
plt.xticks(rotation=45, ha='right')

# Add labels and title
plt.xlabel("Genres")
plt.ylabel("Movies Frequency")
plt.title("Top 10 popular genres for Series")
plt.show()
```



```
df['date_added'].value_counts()
```

```
date_added
```

```
2020-01-01    110
```

```
2019-11-01     91
```

```
2018-03-01     75
```

```
2019-12-31     74
```

```
2018-10-01     71
```

```
...
```

```
2015-12-02      1
```

```
2016-09-22      1
```

```
2016-09-17      1
```

```
2017-05-04      1
```

```
2021-09-20      1
```

```
Name: count, Length: 1713, dtype: int64
```

```
df_month = df['date_added'].dt.month
```

```
0      9
```

```
1      9
```

```
2      9
```

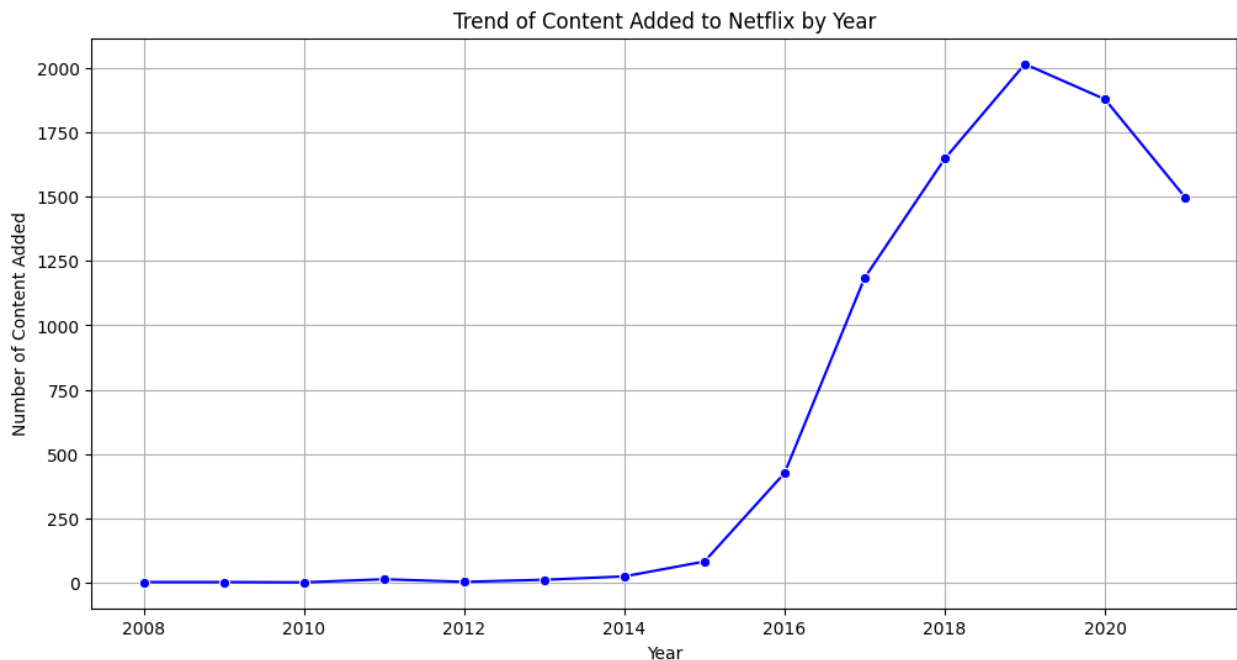
```
3      9
```

```
4          9
      ..
8785      1
8786      9
8787     12
8788      6
8789      6
Name: date_added, Length: 8790, dtype: int32
```

```
# Extract year and month from 'Date_added'
df['Year_added'] = df['date_added'].dt.year
df['Month_added'] = df['date_added'].dt.month

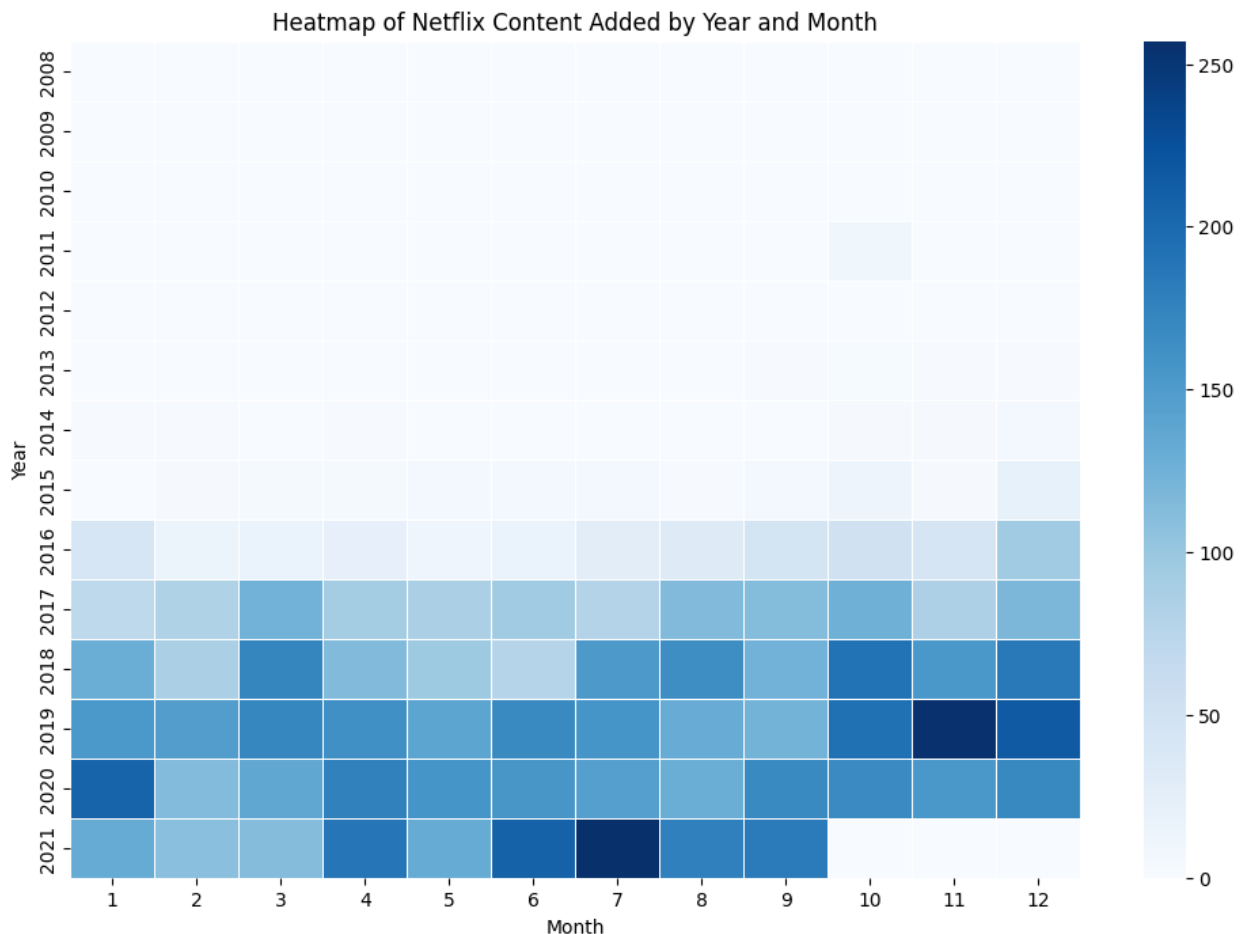
# Group by year and count the number of additions
content_per_year = df['Year_added'].value_counts().sort_index()

# Plot the trend of content additions by year
plt.figure(figsize=(12, 6))
sns.lineplot(x=content_per_year.index, y=content_per_year.values,
marker='o', color='blue')
plt.title('Trend of Content Added to Netflix by Year')
plt.xlabel('Year')
plt.ylabel('Number of Content Added')
plt.grid(True)
plt.show()
```



```
# Analyze trends by year and month
content_per_month_year = df.groupby(['Year_added',
'Month_added']).size().unstack(fill_value=0)

# Heatmap for monthly trends
plt.figure(figsize=(12, 8))
sns.heatmap(content_per_month_year, cmap='Blues', linewidths=0.5)
plt.title('Heatmap of Netflix Content Added by Year and Month')
plt.xlabel('Month')
plt.ylabel('Year')
plt.show()
```



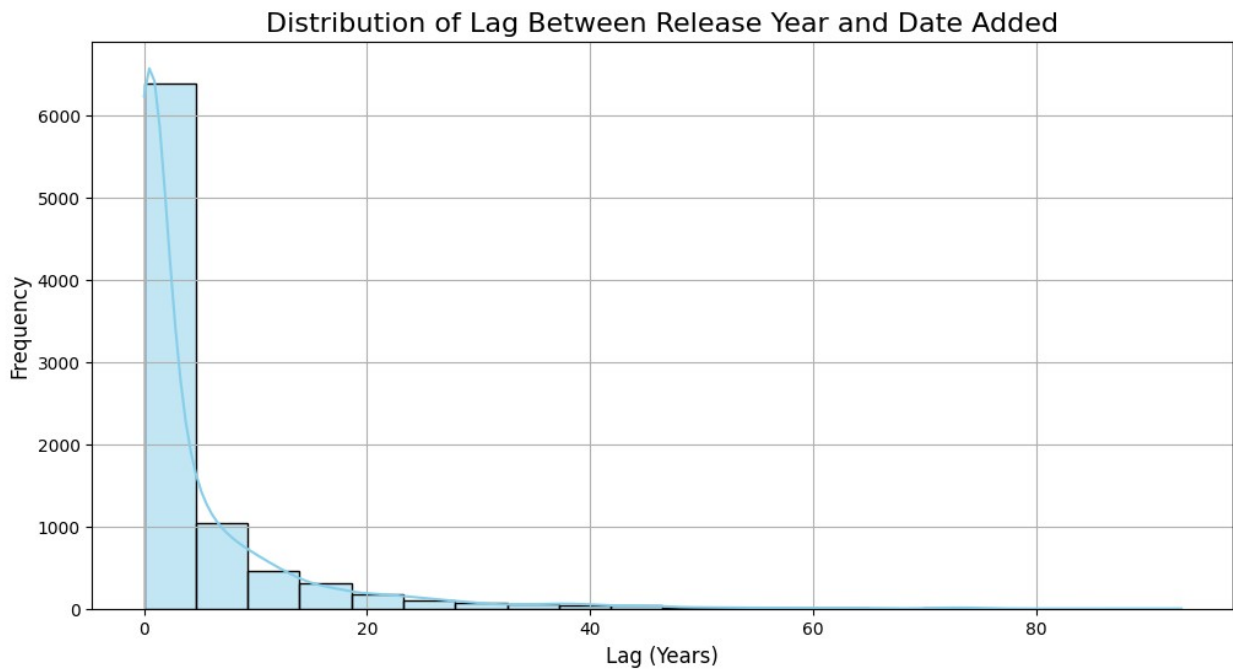
```
# Extract year from 'Date_added' and calculate lag
df['Year_added'] = df['date_added'].dt.year
df['Lag'] = df['Year_added'] - df['release_year']

# Plot the distribution of the lag
plt.figure(figsize=(12, 6))
sns.histplot(df['Lag'], bins=20, kde=True, color='skyblue')
plt.title('Distribution of Lag Between Release Year and Date Added',
```

```

fontsize=16)
plt.xlabel('Lag (Years)', fontsize=12)
plt.ylabel('Frequency', fontsize=12)
plt.grid(True)
plt.show()

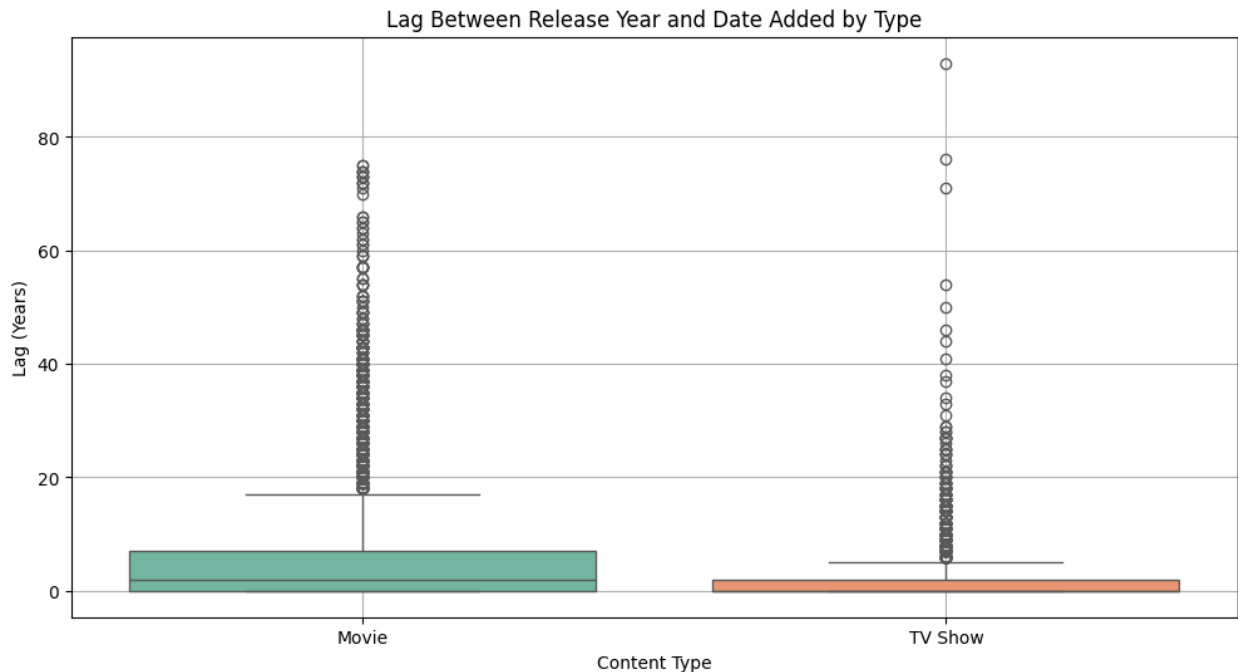
```



```

# Boxplot for lag by type (Movies vs TV Shows)
plt.figure(figsize=(12, 6))
sns.boxplot(x='type', y='Lag', data=df, palette='Set2')
plt.title('Lag Between Release Year and Date Added by Type')
plt.xlabel('Content Type')
plt.ylabel('Lag (Years)')
plt.grid(True)
plt.show()

```



```
df['duration'].value_counts()
```

```
duration
1 Season      1787
2 Seasons     417
3 Seasons     198
90 min        152
94 min        146
```

```
...
191 min        1
17 Seasons     1
10 min         1
312 min        1
11 Seasons     1
Name: count, Length: 220, dtype: int64
```

```
df['duration'] = df['duration'].fillna('0') # Fill missing values for safety
```

```
# Separate data for Movies and TV Shows
```

```
movies = df[df['type'] == 'Movie']
tv_shows = df[df['type'] == 'TV Show']
```

```
# Extract numeric duration for Movies
```

```
movies['duration_minutes'] = movies['duration'].str.extract('(\d+)').astype(float)
```

```
# Extract numeric duration for TV Shows
```

```
tv_shows['duration_seasons'] = tv_shows['duration'].str.extract('(\d+)')
```



```

d+')).astype(float)

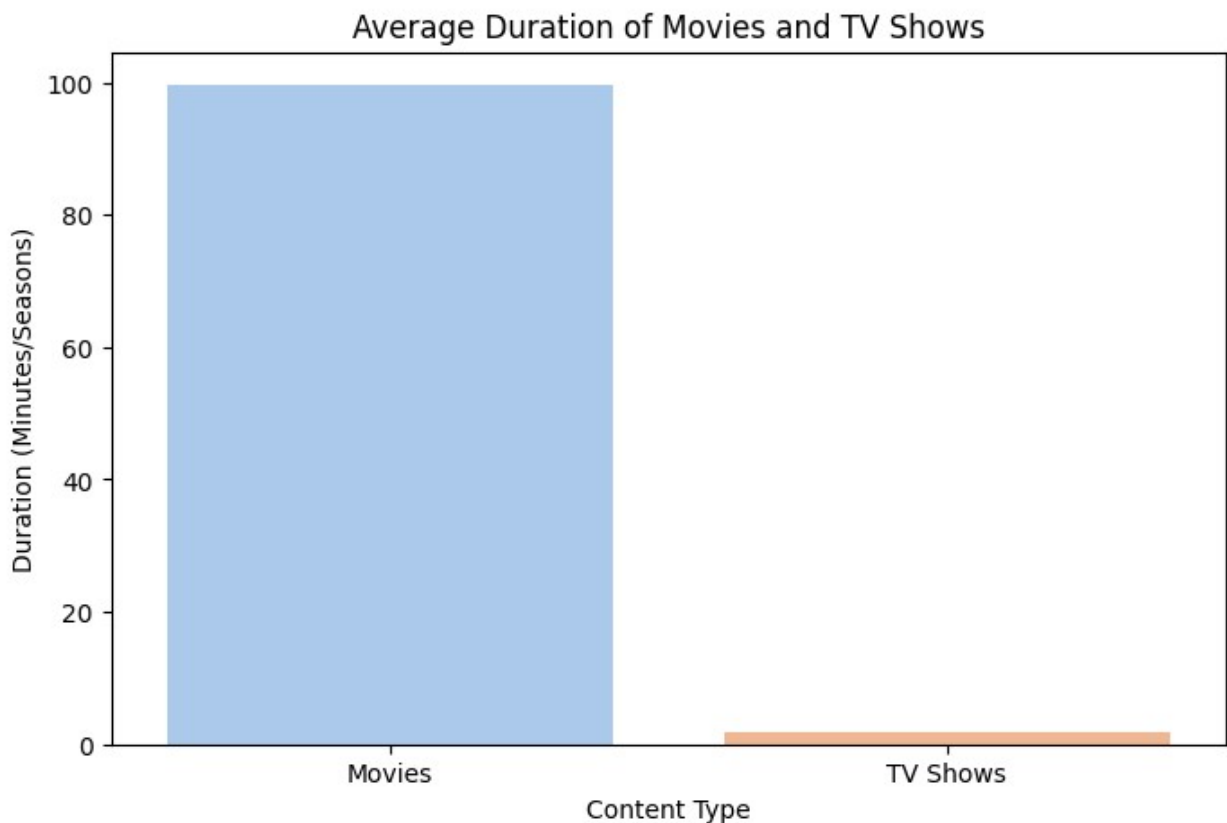
# Calculate average duration
average_movie_duration = movies['duration_minutes'].mean()
average_tv_show_seasons = tv_shows['duration_seasons'].mean()

# Print results
print(f"Average Movie Duration: {average_movie_duration:.2f} minutes")
print(f"Average TV Show Duration: {average_tv_show_seasons:.2f} seasons")

# Visualization
plt.figure(figsize=(8, 5))
sns.barplot(x=['Movies', 'TV Shows'], y=[average_movie_duration, average_tv_show_seasons], palette='pastel')
plt.title('Average Duration of Movies and TV Shows')
plt.ylabel('Duration (Minutes/Seasons)')
plt.xlabel('Content Type')
plt.show()

Average Movie Duration: 99.59 minutes
Average TV Show Duration: 1.75 seasons

```



```

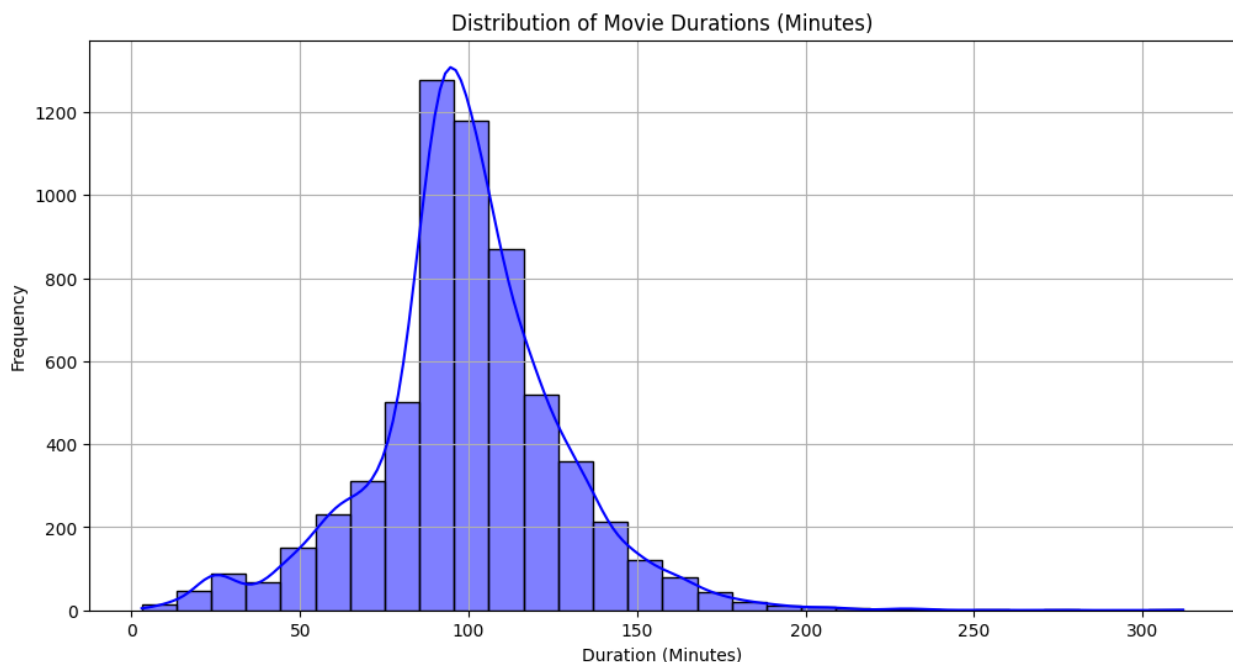
# Identify short and long content
short_films = movies[movies['duration_minutes'] < 40]
long_movies = movies[movies['duration_minutes'] > 180]
long_tv_shows = tv_shows[tv_shows['duration_seasons'] > 10]

# Print insights
print(f"Number of Short Films (<40 min): {len(short_films)}")
print(f"Number of Long Movies (>180 min): {len(long_movies)}")

# Plot distributions for movies
plt.figure(figsize=(12, 6))
sns.histplot(movies['duration_minutes'], bins=30, kde=True,
color='blue')
plt.title('Distribution of Movie Durations (Minutes)')
plt.xlabel('Duration (Minutes)')
plt.ylabel('Frequency')
plt.grid(True)
plt.show()

```

Number of Short Films (<40 min): 169
 Number of Long Movies (>180 min): 47
 Number of Long TV Shows (>10 seasons): 8



```

print(f"Number of Long TV Shows (>10 seasons): {len(long_tv_shows)}")
# Plot distributions for TV shows
plt.figure(figsize=(12, 6))
sns.histplot(tv_shows['duration_seasons'], bins=15, kde=True,

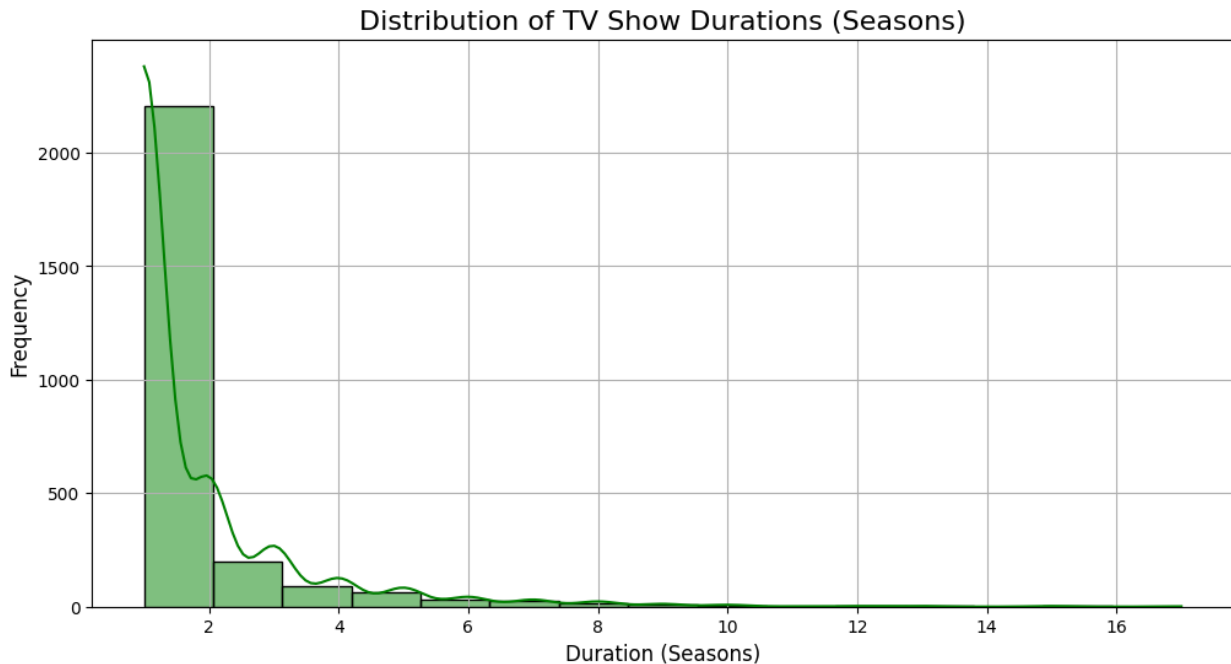
```

```

color='green')
plt.title('Distribution of TV Show Durations (Seasons)', fontsize=16)
plt.xlabel('Duration (Seasons)', fontsize=12)
plt.ylabel('Frequency', fontsize=12)
plt.grid(True)
plt.show()

```

Number of Long TV Shows (>10 seasons): 8



```

# Separate Movies and TV Shows
movies = df[df['type'] == 'Movie']
tv_shows = df[df['type'] == 'TV Show']

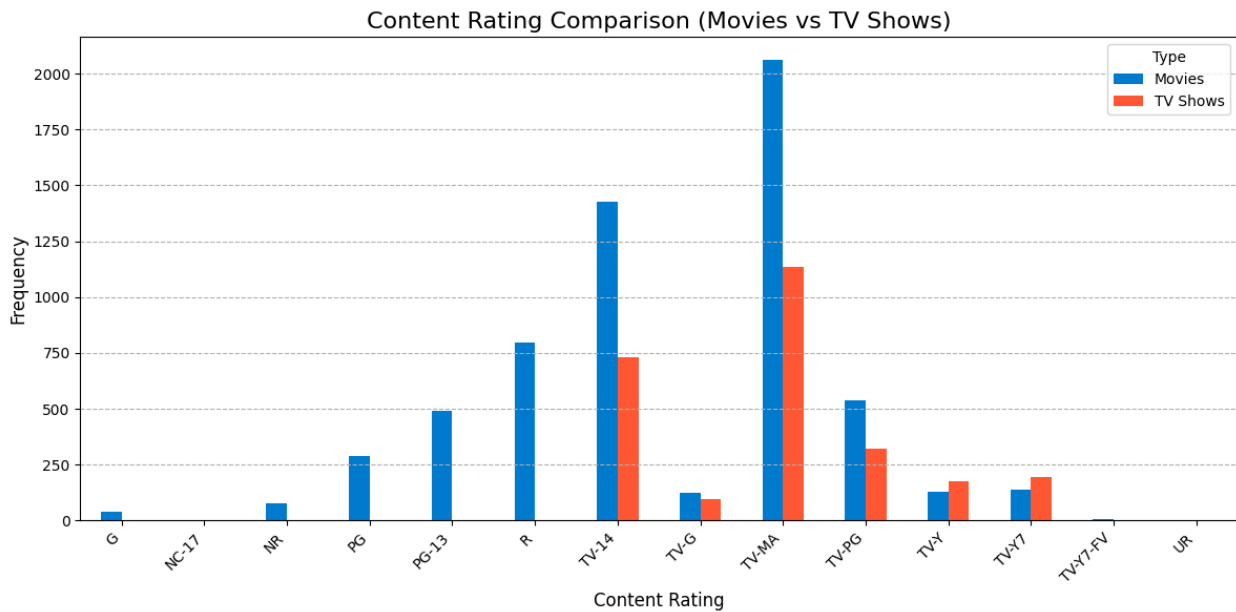
# Count ratings for Movies
movie_ratings = movies['rating'].value_counts()

# Count ratings for TV Shows
tv_show_ratings = tv_shows['rating'].value_counts()

# Combine into one DataFrame for comparison
ratings_comparison = pd.DataFrame({'Movies': movie_ratings, 'TV Shows':
tv_show_ratings})
# Plot side-by-side bar chart
ratings_comparison.plot(kind='bar', figsize=(12, 6), color=['#007ACC',
'#FF5733'])
plt.title('Content Rating Comparison (Movies vs TV Shows)',
fontsize=16)
plt.xlabel('Content Rating', fontsize=12)
plt.ylabel('Frequency', fontsize=12)

```

```
plt.xticks(rotation=45, ha='right')
plt.legend(title='Type')
plt.grid(axis='y', linestyle='--')
plt.tight_layout()
plt.show()
```



```
# TV-MA (Mature Audiences):
# TV-14:Typically for audiences 14 and older.
# TV-PG (Parental Guidance):
# TV-Y7:Designed for children aged 7 and older.
# TV-Y (Young Children):
# TV-G (General Audience):
# PG-13 (Parents Strongly Cautioned):
# PG (Parental Guidance):
# G (General Audience):
# R (Restricted):
# NC-17:No one under 17 is admitted.
# NR (Not Rated):
# UR (Unrated):
# TV-Y7-FV (Fantasy Violence):
```

Cell In[211], line 1
TV-MA (Mature Audiences):

SyntaxError: invalid syntax. Perhaps you forgot a comma?