

```
In [3]: import numpy as np
import pandas as pd

df = pd.read_csv("netflix_titles.csv")
df
```

Out[3]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	
	0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
	1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
	2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...
	3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
	4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train l...
	...	...	...	...	...	...	...	...	...	...	...	...	...
	8802	s8803	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	November 20, 2019	2007	R	158 min	Cult Movies, Dramas, Thrillers	A political cartoonist, a crime reporter and a...
	8803	s8804	TV Show	Zombie Dumb	NaN	NaN	NaN	July 1, 2019	2018	TV-Y7	2 Seasons	Kids' TV, Korean TV Shows, TV Comedies	While living alone in a spooky town, a young g...
	8804	s8805	Movie	Zombieland	Ruben Fleischer	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	United States	November 1, 2019	2009	R	88 min	Comedies, Horror Movies	Looking to survive in a world taken over by zo...
	8805	s8806	Movie	Zoom	Peter Hewitt	Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...	United States	January 11, 2020	2006	PG	88 min	Children & Family Movies, Comedies	Dragged from civilian life, a former superhero...
	8806	s8807	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan...	India	March 2, 2019	2015	TV-14	111 min	Dramas, International Movies, Music & Musicals	A scrappy but poor boy worms his way into a ty...

8807 rows × 12 columns

```
In [4]: df.head()
```

Out[4]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	
	0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
	1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
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	3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
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```
In [5]: df.shape
```

(8807, 12)

```
In [6]: df.describe()
```

	release_year
count	8807.000000
mean	2014.180198
std	8.819312
min	1925.000000
25%	2013.000000
50%	2017.000000
75%	2019.000000
max	2021.000000

```
In [7]: df.info()
```

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

```
In [8]: df.isnull().sum()
```

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

```
In [10]: country_counts = df['country'].value_counts()
country_counts
```

United States	2818
India	972
United Kingdom	419
Japan	245
South Korea	199
...	...
Romania, Bulgaria, Hungary	1
Uruguay, Guatemala	1
France, Senegal, Belgium	1
Mexico, United States, Spain, Colombia	1
United Arab Emirates, Jordan	1
Name: country, Length: 748, dtype: int64	

```
In [12]: country_counts_df = pd.DataFrame({'Country': country_counts.index, 'MovieCount': country_counts.values})
country_counts_df
```

	Country	MovieCount
0	United States	2818
1	India	972
2	United Kingdom	419
3	Japan	245
4	South Korea	199
...	...	...
743	Romania, Bulgaria, Hungary	1
744	Uruguay, Guatemala	1
745	France, Senegal, Belgium	1
746	Mexico, United States, Spain, Colombia	1
747	United Arab Emirates, Jordan	1

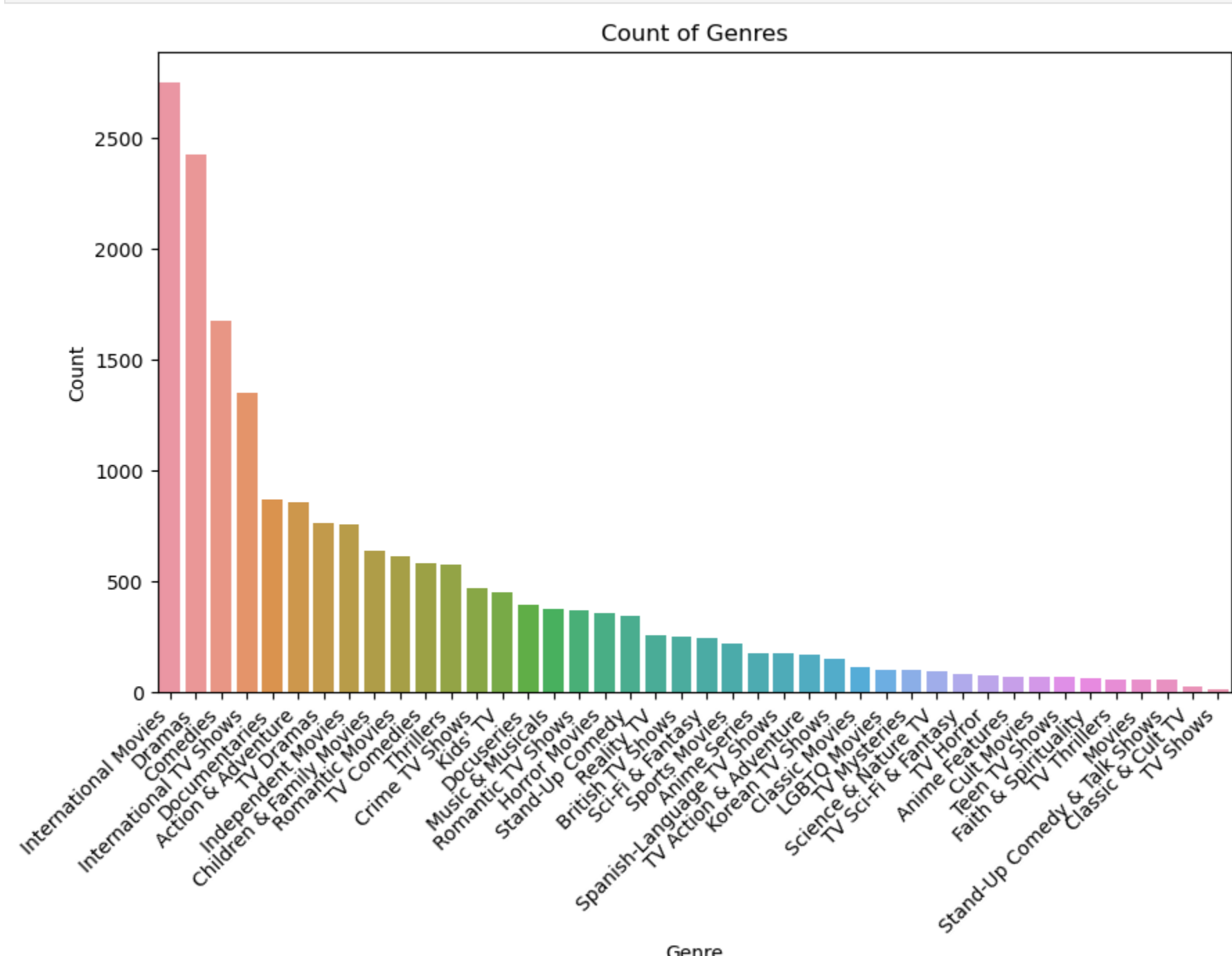
748 rows × 2 columns

```
In [31]: df.head(1)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	
Out[31]:	0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...

```
In [33]: genre_counts = df['listed_in'].str.split(', ').explode().value_counts()
```

```
# Plot the count of genres using a bar plot
plt.figure(figsize=(10, 6))
sns.barplot(x=genre_counts.index, y=genre_counts.values)
plt.xlabel('Genre')
plt.ylabel('Count')
plt.title('Count of Genres')
plt.xticks(rotation=45, ha='right')
plt.show()
```



```
In [44]: df = pd.DataFrame(df)
```

```
# Create interactive widgets for filtering
all_directors = ['All'] + df['director'].unique().tolist()
director_widget = widgets.Dropdown(options=all_directors, description='Director:')

all_countries = ['All'] + df['country'].unique().tolist()
country_widget = widgets.Dropdown(options=all_countries, description='Country:')

all_genres = ['All'] + df['listed_in'].str.split(', ').explode().unique().tolist()
genre_widget = widgets.Dropdown(options=all_genres, description='Genre:')

# Output widget to display the filtered movie list
output = widgets.Output()

# Function to filter and display movies based on user input
def filter_movies(director, country, genre):
    with output:
        clear_output(wait=True)
        if director == 'All':
            director_filter = df['director'].notna() # All rows with non-null director
        else:
            director_filter = df['director'] == director

        if country == 'All':
            country_filter = df['country'].notna() # All rows with non-null country
        else:
            country_filter = df['country'] == country

        if genre == 'All':
            genre_filter = df['listed_in'].notna() # All rows with non-null genre
        else:
            genre_filter = df['listed_in'].str.contains(genre, na=False)

        filtered_df = df[director_filter & country_filter & genre_filter]
        display(filtered_df[['title', 'rating']])

# Function to handle widget changes
def on_change(change):
    filter_movies(director_widget.value, country_widget.value, genre_widget.value)

# Attach the change event to each widget
director_widget.observe(on_change, names='value')
country_widget.observe(on_change, names='value')
genre_widget.observe(on_change, names='value')

# Initial display of all movies
filter_movies(director_widget.value, country_widget.value, genre_widget.value)

# Display the interactive widgets and output
widgets.VBox([director_widget, country_widget, genre_widget, output])
```

```
Out[44]: VBox(children=(Dropdown(description='Director:', options=('All', 'Kirsten Johnson', nan, 'Julien Leclercq', 'M...
```

```
In [ ]:
```