

In [152]:

```
# Netflix Case Study
```

In [153]:

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

In [154]:

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

Out[154]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	I
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Docu
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	Inte TV Sh Dra
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	C Inte TV Sh
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Doc Re
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	Inte TV Rom Show
...	...	...	...	...	...	...	...	...	...	...	...
8802	s8803	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	November 20, 2019	2007	R	158 min	Cult
8803	s8804	TV Show	Zombie Dumb	NaN	NaN	NaN	July 1, 2019	2018	TV-Y7	2 Seasons	I Kc Sh C
8804	s8805	Movie	Zombieland	Ruben Fleischer	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	United States	November 1, 2019	2009	R	88 min	Cc Horro
8805	s8806	Movie	Zoom	Peter Hewitt	Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...	United States	January 11, 2020	2006	PG	88 min	Ct Family C
8806	s8807	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chan...	India	March 2, 2019	2015	TV-14	111 min	Inte Movie & I

8807 rows × 12 columns



In [297]:

```
mask1 = df["cast"].apply(lambda x: str(x).split(', ')).tolist()
df1 = pd.DataFrame(mask1, index = df["title"])
df1 = df1.stack()
df1 = pd.DataFrame(df1)
df1.reset_index(inplace = True)
df1 = df1[["title",0]]
df1.columns = ["title", "cast"]
```

In [298]:

df1

Out[298]:

	title	cast
0	Dick Johnson Is Dead	unavailable
1	Blood & Water	Ama Qamata
2	Blood & Water	Khosi Ngema
3	Blood & Water	Gail Mabalane
4	Blood & Water	Thabang Molaba
...	...	...
64946	Zubaan	Manish Chaudhary
64947	Zubaan	Meghna Malik
64948	Zubaan	Malkeet Rauni
64949	Zubaan	Anita Shabdish
64950	Zubaan	Chittaranjan Tripathy

64951 rows × 2 columns

In [299]:

```
mask2 = df["director"].apply(lambda x: str(x).split(', ')).tolist()
df2 = pd.DataFrame(mask2, index = df["title"])
df2 = df2.stack()
df2 = pd.DataFrame(df2)
df2.reset_index(inplace = True)
df2 = df2[["title",0]]
df2.columns = ["title", "director"]
```

In [300]:

df2

Out[300]:

	title	director
0	Dick Johnson Is Dead	Kirsten Johnson
1	Blood & Water	Unknown director
2	Ganglands	Julien Leclercq
3	Jailbirds New Orleans	Unknown director
4	Kota Factory	Unknown director
...	...	...
9607	Zodiac	David Fincher
9608	Zombie Dumb	Unknown director
9609	Zombieland	Ruben Fleischer
9610	Zoom	Peter Hewitt
9611	Zubaan	Mozez Singh

9612 rows × 2 columns

In [301]:

```
mask3 = df["country"].apply(lambda x: str(x).split(', ')).tolist()
df3 = pd.DataFrame(mask3, index = df["title"])
df3 = df3.stack()
df3 = pd.DataFrame(df3)
df3.reset_index(inplace = True)
df3 = df3[["title", 0]]
df3.columns = ["title", "country"]
```

In [302]:

df3

Out[302]:

	title	country
0	Dick Johnson Is Dead	United States
1	Blood & Water	South Africa
2	Ganglands	Unknown country
3	Jailbirds New Orleans	Unknown country
4	Kota Factory	India
...	...	...
10840	Zodiac	United States
10841	Zombie Dumb	Unknown country
10842	Zombieland	United States
10843	Zoom	United States
10844	Zubaan	India

10845 rows × 2 columns

In [303]:

```
mask4 = df["listed_in"].apply(lambda x: str(x).split(', ')).tolist()
df4 = pd.DataFrame(mask4, index = df["title"])
df4 = df4.stack()
df4 = pd.DataFrame(df4)
df4.reset_index(inplace = True)
df4 = df4[["title", 0]]
df4.columns = ["title", "listed_in"]
```

In [304]:

df4

Out[304]:

	title	listed_in
0	Dick Johnson Is Dead	Documentaries
1	Blood & Water	International TV Shows
2	Blood & Water	TV Dramas
3	Blood & Water	TV Mysteries
4	Ganglands	Crime TV Shows
...	...	...
19318	Zoom	Children & Family Movies
19319	Zoom	Comedies
19320	Zubaan	Dramas
19321	Zubaan	International Movies
19322	Zubaan	Music & Musicals

19323 rows × 2 columns

In [305]:

```
df_new = df1.merge(df2, how = "outer").merge(df3, how = "outer").merge(df4, how = "outer")
df_new
```

Out[305]:

	title	cast	director	country	listed_in
0	Dick Johnson Is Dead	unavailable	Kirsten Johnson	United States	Documentaries
1	Blood & Water	Ama Qamata	Unknown director	South Africa	International TV Shows
2	Blood & Water	Ama Qamata	Unknown director	South Africa	TV Dramas
3	Blood & Water	Ama Qamata	Unknown director	South Africa	TV Mysteries
4	Blood & Water	Khosi Ngema	Unknown director	South Africa	International TV Shows
...	...	...	...	...	...
201986	Zubaan	Anita Shabdish	Mozez Singh	India	International Movies
201987	Zubaan	Anita Shabdish	Mozez Singh	India	Music & Musicals
201988	Zubaan	Chittaranjan Tripathy	Mozez Singh	India	Dramas
201989	Zubaan	Chittaranjan Tripathy	Mozez Singh	India	International Movies
201990	Zubaan	Chittaranjan Tripathy	Mozez Singh	India	Music & Musicals

201991 rows × 5 columns

In [306]:

```
ndf = df_new.merge(df, how = 'outer')
```

In [307]:

```
ndf.head(10)
```

Out[307]:

	title	cast	director	country	listed_in	show_id	type	date_added	release_year	rating	duration
0	Dick Johnson Is Dead	unavailable	Kirsten Johnson	United States	Documentaries	s1	Movie	2021-09-25	2020.0	PG-13	90 m
1	Blood & Water	Ama Qamata	Unknown director	South Africa	International TV Shows	NaN	NaN	NaT	NaN	NaN	Na
2	Blood & Water	Ama Qamata	Unknown director	South Africa	TV Dramas	NaN	NaN	NaT	NaN	NaN	Na
3	Blood & Water	Ama Qamata	Unknown director	South Africa	TV Mysteries	NaN	NaN	NaT	NaN	NaN	Na
4	Blood & Water	Khosi Ngema	Unknown director	South Africa	International TV Shows	NaN	NaN	NaT	NaN	NaN	Na
5	Blood & Water	Khosi Ngema	Unknown director	South Africa	TV Dramas	NaN	NaN	NaT	NaN	NaN	Na
6	Blood & Water	Khosi Ngema	Unknown director	South Africa	TV Mysteries	NaN	NaN	NaT	NaN	NaN	Na
7	Blood & Water	Gail Mabalane	Unknown director	South Africa	International TV Shows	NaN	NaN	NaT	NaN	NaN	Na
8	Blood & Water	Gail Mabalane	Unknown director	South Africa	TV Dramas	NaN	NaN	NaT	NaN	NaN	Na
9	Blood & Water	Gail Mabalane	Unknown director	South Africa	TV Mysteries	NaN	NaN	NaT	NaN	NaN	Na

Type *Markdown* and *LaTeX*:  $\alpha^2$

In [308]:

df

Out[308]:

show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in
s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	unavailable	United States	2021-09-25	2020	PG-13	90 min	Documentaries
s2	TV Show	Blood & Water	Unknown director	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	2021-09-24	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries
s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	Unknown country	2021-09-24	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act..
s4	TV Show	Jailbirds New Orleans	Unknown director	unavailable	Unknown country	2021-09-24	2021	TV-MA	1 Season	Docuseries Reality TV
s5	TV Show	Kota Factory	Unknown director	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	2021-09-24	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ..
...	...	...	...	...	...	...	...	...	...	...
s8803	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	2019-11-20	2007	R	158 min	Cult Movies, Dramas, Thriller
s8804	TV Show	Zombie Dumb	Unknown director	unavailable	Unknown country	2019-07-01	2018	TV-Y7	2 Seasons	Kids' TV Shows, TV Comedies
s8805	Movie	Zombieland	Ruben Fleischer	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	United States	2019-11-01	2009	R	88 min	Comedies, Horror Movies
s8806	Movie	Zoom	Peter Hewitt	Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...	United States	2020-01-11	2006	PG	88 min	Children & Family Movies, Comedies
s8807	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan...	India	2019-03-02	2015	TV-14	111 min	Dramas, International Movies, Music & Musical

5 rows x 15 columns



In [167]:

```
df.shape
```

Out[167]:

```
(8807, 12)
```

```
df
```

Type *Markdown* and *LaTeX*:  $\alpha^2$

In [ ]:

In [168]:

```
df.isna().sum()
```

Out[168]:

```
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 [169]:

```
df.fillna({'director':'Unknown director' , 'cast':'unavailable' , 'country':'Unknown country' , 'rating':
```

In [170]:

```
df.isna().sum()
```

Out[170]:

```
show_id      0  
type         0  
title        0  
director    0  
cast         0  
country      0  
date_added   10  
release_year  0  
rating        0  
duration      3  
listed_in     0  
description    0  
dtype: int64
```

In [171]:

df

Out[171]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	unavailable	United States	September 25, 2021	2020	PG-13	90 min	Docu
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	Int TV S Dr
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	Unknown country	September 24, 2021	2021	TV-MA	1 Season	Int TV S
3	s4	TV Show	Jailbirds New Orleans	Unknown director	unavailable	Unknown country	September 24, 2021	2021	TV-MA	1 Season	Docu
4	s5	TV Show	Kota Factory	Unknown director	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	Int T Ro Shc
...	...	...	...	...	...	...	...	...	...	...	...
8802	s8803	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	November 20, 2019	2007	R	158 min	Cu
8803	s8804	TV Show	Zombie Dumb	Unknown director	unavailable	Unknown country	July 1, 2019	2018	TV-Y7	2 Seasons	Int S
8804	s8805	Movie	Zombieland	Ruben Fleischer	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	United States	November 1, 2019	2009	R	88 min	C Horr
8805	s8806	Movie	Zoom	Peter Hewitt	Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...	United States	January 11, 2020	2006	PG	88 min	C Fami
8806	s8807	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan...	India	March 2, 2019	2015	TV-14	111 min	Int Mov 8

8807 rows × 12 columns



In [172]:

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    8807 non-null   object  
 4   cast         8807 non-null   object  
 5   country     8807 non-null   object  
 6   date_added  8797 non-null   object  
 7   release_year 8807 non-null   int64  
 8   rating      8807 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 [ ]:

In [173]:

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

In [174]:

df.head()

Out[174]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	list
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	unavailable	United States	2021-09-25	2020	PG-13	90 min	Document
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	2021-09-24	2021	TV-MA	2 Seasons	Internal TV Show Drama Mystery
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	Unknown country	2021-09-24	2021	TV-MA	1 Season	Crime Street Internal TV Show
3	s4	TV Show	Jailbirds New Orleans	Unknown director	unavailable	Unknown country	2021-09-24	2021	TV-MA	1 Season	Documentary Reality
4	s5	TV Show	Kota Factory	Unknown director	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	2021-09-24	2021	TV-MA	2 Seasons	Internal TV Shows, Street Romant



In [175]:

df[df.date\_added.isnull()]

Out[175]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	list
6066	s6067	TV Show	A Young Doctor's Notebook and Other Stories	Unknown director	Daniel Radcliffe, Jon Hamm, Adam Godley, Chris...	United Kingdom	NaT	2013	TV-MA	2 Seasons	Brit Show Com TV D
6174	s6175	TV Show	Anthony Bourdain: Parts Unknown	Unknown director	Anthony Bourdain	United States	NaT	2018	TV-PG	5 Seasons	Docu
6795	s6796	TV Show	Frasier	Unknown director	Kelsey Grammer, Jane Leeves, David Hyde Pierce...	United States	NaT	2003	TV-PG	11 Seasons	Cla Cult Con
6806	s6807	TV Show	Friends	Unknown director	Jennifer Aniston, Courteney Cox, Lisa Kudrow, ...	United States	NaT	2003	TV-14	10 Seasons	Cla Cult Con
6901	s6902	TV Show	Gunslinger Girl	Unknown director	Yuuuka Nanri, Kanako Mitsuhashi, Eri Sendai, Am...	Japan	NaT	2008	TV-14	2 Seasons	S Cri
7196	s7197	TV Show	Kikoriki	Unknown director	Igor Dmitriev	Unknown country	NaT	2010	TV-Y	2 Seasons	Ki
7254	s7255	TV Show	La Familia P. Luche	Unknown director	Eugenio Derbez, Consuelo Duval, Luis Manuel Áv...	United States	NaT	2012	TV-14	3 Seasons	Intern TV S Sp Lan T
7406	s7407	TV Show	Maron	Unknown director	Marc Maron, Judd Hirsch, Josh Brener, Nora Zeh...	United States	NaT	2016	TV-MA	4 Seasons	Con
7847	s7848	TV Show	Red vs. Blue	Unknown director	Burnie Burns, Jason Saldaña, Gustavo Sorola, G...	United States	NaT	2015	NR	13 Seasons	TV Ac Adve Com TV Sc
8182	s8183	TV Show	The Adventures of Figaro Pho	Unknown director	Luke Jurevicius, Craig Behenna, Charlotte Haml...	Australia	NaT	2015	TV-Y7	2 Seasons	Kids' Con



In [176]:

```
max_date = df['date_added'].max()
```

In [177]:

```
df.fillna({'date_added': max_date}, inplace=True)
```

C:\Users\DELL\AppData\Local\Temp\ipykernel\_10696\23535096.py:1: DeprecationWarning: In a future version, `df.iloc[:, i] = newvals` will attempt to set the values inplace instead of always setting a new array. To retain the old behavior, use either `df[df.columns[i]] = newvals` or, if columns are non-unique, `df.iisetitem(i, newvals)`  
` df.fillna({'date\_added': max\_date}, inplace=True)

In [178]:

```
df.isna().sum()
```

Out[178]:

show_id	0
type	0
title	0
director	0
cast	0
country	0
date_added	0
release_year	0
rating	0
duration	3
listed_in	0
description	0
dtype: int64	

In [179]:

```
df[df.duration.isnull()]
```

Out[179]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	
5541	s5542	Movie	Louis C.K. 2017	Louis C.K.	Louis C.K.	United States	2017-04-04	2017	74 min	NaN	Movies	Louie
5794	s5795	Movie	Louis C.K.: Hilarious	Louis C.K.	Louis C.K.	United States	2016-09-16	2010	84 min	NaN	Movies	E Lou
5813	s5814	Movie	Louis C.K.: Live at the Comedy Store	Louis C.K.	Louis C.K.	United States	2016-08-15	2015	66 min	NaN	Movies	Tf hilari

In [180]:

```
df[df.director == 'Louis C.K.']}
```

Out[180]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	
5541	s5542	Movie	Louis C.K. 2017	Louis C.K.	Louis C.K.	United States	2017-04-04	2017	74 min	NaN	Movies	Louie
5794	s5795	Movie	Louis C.K.: Hilarious	Louis C.K.	Louis C.K.	United States	2016-09-16	2010	84 min	NaN	Movies	E.C. Lou
5813	s5814	Movie	Louis C.K.: Live at the Comedy Store	Louis C.K.	Louis C.K.	United States	2016-08-15	2015	66 min	NaN	Movies	Tf hilari

In [181]:

```
df.loc[df['director'] == 'Louis C.K.' , 'duration'] = df['rating']
```

In [182]:

```
df[df.director == 'Louis C.K.']}
```

Out[182]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	
5541	s5542	Movie	Louis C.K. 2017	Louis C.K.	Louis C.K.	United States	2017-04-04	2017	74 min	74 min	Movies	Louie
5794	s5795	Movie	Louis C.K.: Hilarious	Louis C.K.	Louis C.K.	United States	2016-09-16	2010	84 min	84 min	Movies	E.C. Lou
5813	s5814	Movie	Louis C.K.: Live at the Comedy Store	Louis C.K.	Louis C.K.	United States	2016-08-15	2015	66 min	66 min	Movies	Tf hilari

In [183]:

```
df.loc[df['director'] == 'Louis C.K.' , 'rating'] = 'Unavailable'
```

In [184]:

```
df[df.director == 'Louis C.K.']}
```

Out[184]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in
5541	s5542	Movie	Louis C.K. 2017	Louis C.K.	Louis C.K.	United States	2017-04-04	2017	Unavailable	74 min	Movies
5794	s5795	Movie	Louis C.K.: Hilarious	Louis C.K.	Louis C.K.	United States	2016-09-16	2010	Unavailable	84 min	Movies
5813	s5814	Movie	Louis C.K.: Live at the Comedy Store	Louis C.K.	Louis C.K.	United States	2016-08-15	2015	Unavailable	66 min	Movies

In [185]:

```
df.isna().sum()
```

Out[185]:

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

In [186]:

```
df
```

Out[186]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	unavailable	United States	2021-09-25	2020	PG-13	90 min	Docu
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	2021-09-24	2021	TV-MA	2 Seasons	Int TV S Dr
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	Unknown country	2021-09-24	2021	TV-MA	1 Season	Int TV S
3	s4	TV Show	Jailbirds New Orleans	Unknown director	unavailable	Unknown country	2021-09-24	2021	TV-MA	1 Season	Docu
4	s5	TV Show	Kota Factory	Unknown director	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	2021-09-24	2021	TV-MA	2 Seasons	Int T Ro Shc
...	...	...	...	...	...	...	...	...	...	...	...
8802	s8803	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	2019-11-20	2007	R	158 min	Cu
8803	s8804	TV Show	Zombie Dumb	Unknown director	unavailable	Unknown country	2019-07-01	2018	TV-Y7	2 Seasons	Int S
8804	s8805	Movie	Zombieland	Ruben Fleischer	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	United States	2019-11-01	2009	R	88 min	C Horr
8805	s8806	Movie	Zoom	Peter Hewitt	Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...	United States	2020-01-11	2006	PG	88 min	C Fami
8806	s8807	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanana...	India	2019-03-02	2015	TV-14	111 min	Int Mov 8

8807 rows × 12 columns



# 1

In [187]:

```
df.type.value_counts()
```

Out[187]:

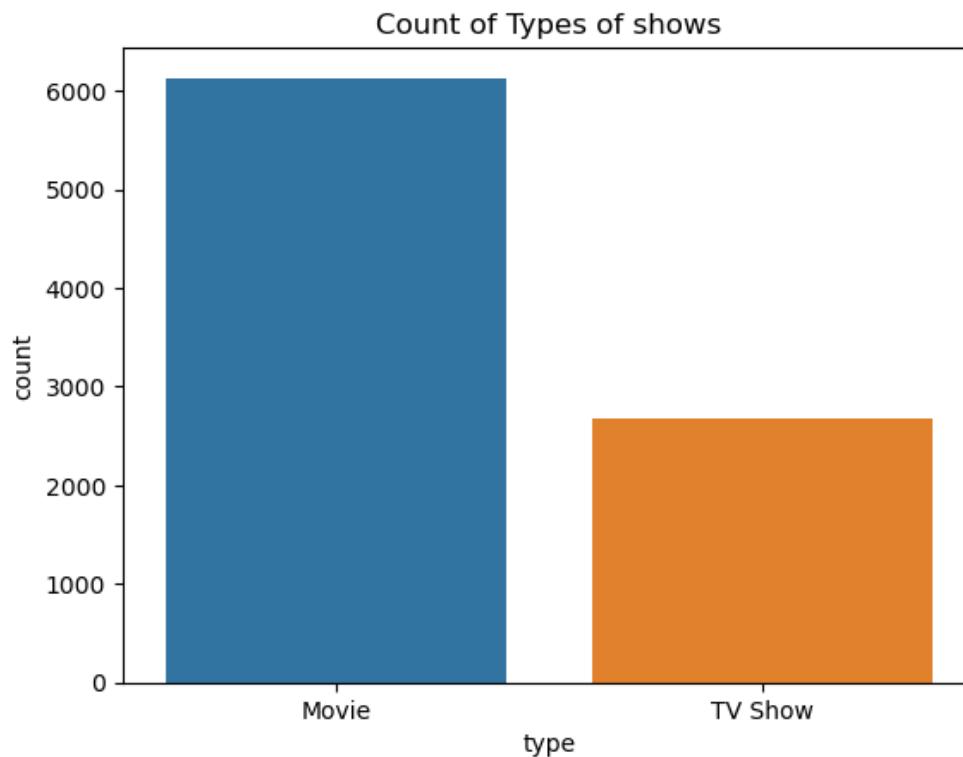
```
Movie      6131  
TV Show    2676  
Name: type, dtype: int64
```

In [191]:

```
sns.countplot(x = 'type' , data = df)  
plt.title('Count of Types of shows')
```

Out[191]:

```
Text(0.5, 1.0, 'Count of Types of shows')
```



In [202]:

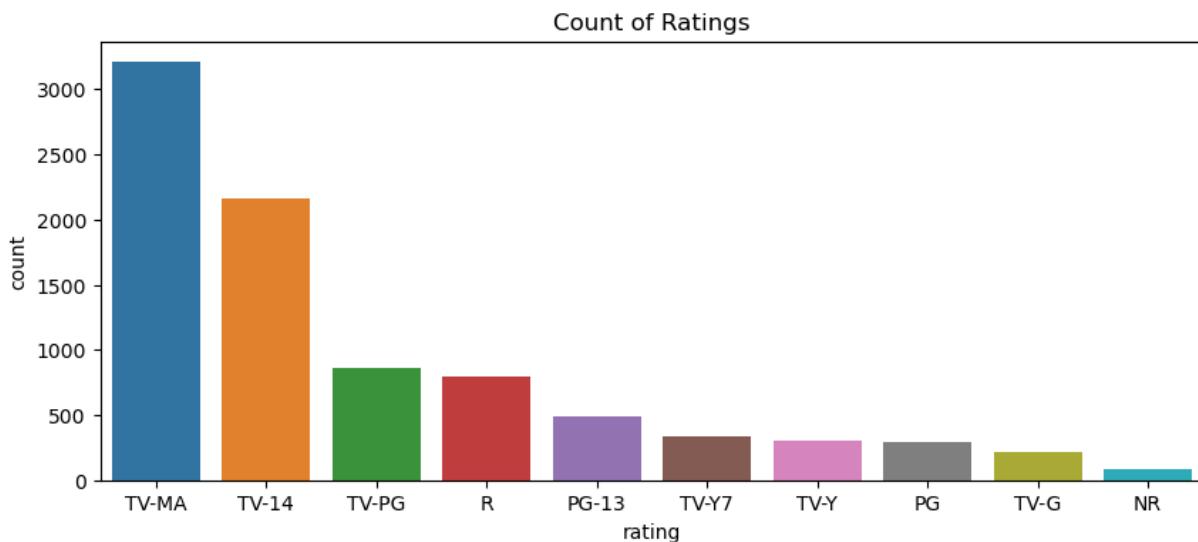
```
df.rating.value_counts()
```

Out[202]:

```
TV-MA        3207  
TV-14        2160  
TV-PG        863  
R            799  
PG-13        490  
TV-Y7        334  
TV-Y         307  
PG           287  
TV-G          220  
NR            80  
G             41  
Unavailable   7  
TV-Y7-FV     6  
NC-17         3  
UR            3  
Name: rating, dtype: int64
```

In [203]:

```
plt.figure(figsize = (10,4))
sns.countplot(x = 'rating' , order = df['rating'].value_counts().index[0:10] ,data = df)
plt.title('Count of Ratings')
plt.show()
```



In [192]:

```
df.country.value_counts().head(10)
```

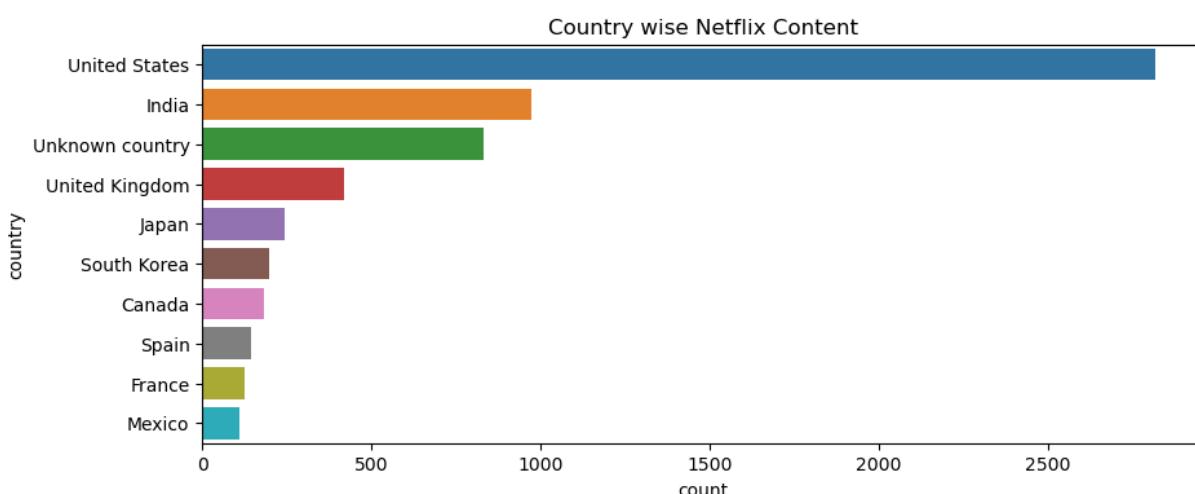
Out[192]:

United States	2818
India	972
Unknown country	831
United Kingdom	419
Japan	245
South Korea	199
Canada	181
Spain	145
France	124
Mexico	110

Name: country, dtype: int64

In [198]:

```
plt.figure(figsize = (10,4))
sns.countplot(y = 'country' , order = df['country'].value_counts().index[0:10] ,data = df)
plt.title('Country wise Netflix Content')
plt.show()
```



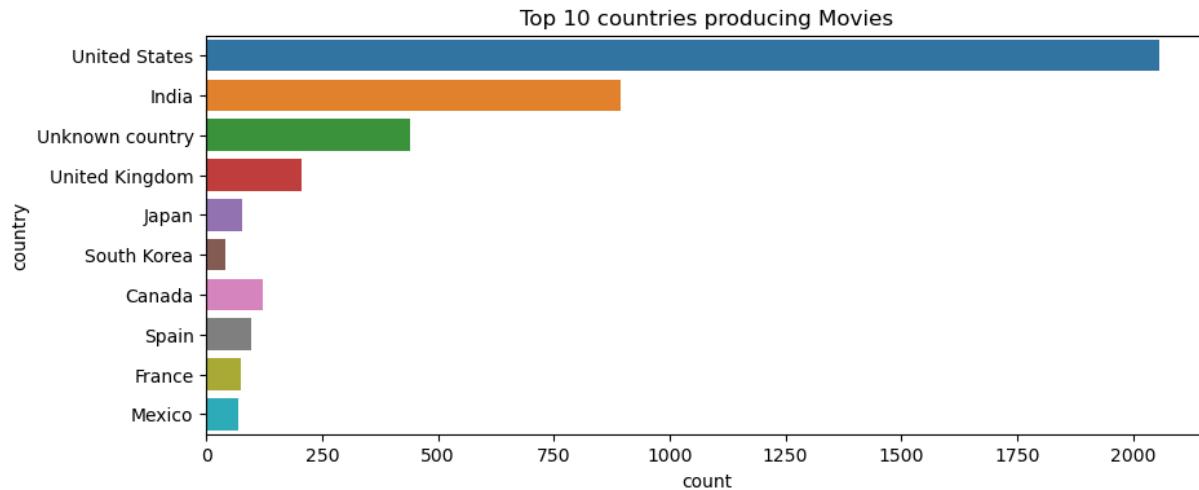
## # 2

In [199]:

```
movie_country = df[df['type']=='Movie']
tv_show_country = df[df['type']=='TV Show']
```

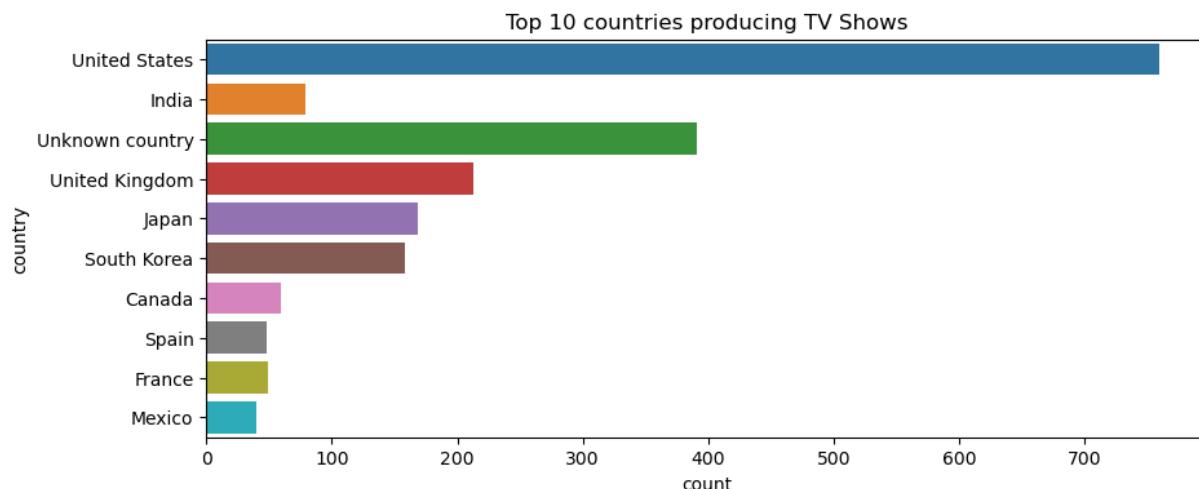
In [200]:

```
plt.figure(figsize = (10,4))
sns.countplot(y = 'country' , order = df['country'].value_counts().index[0:10] ,data = movie_country)
plt.title('Top 10 countries producing Movies')
plt.show()
```



In [201]:

```
plt.figure(figsize = (10,4))
sns.countplot(y = 'country' , order = df['country'].value_counts().index[0:10] ,data = tv_show_country)
plt.title('Top 10 countries producing TV Shows')
plt.show()
```



## # 3

In [ ]:

In [212]:

```
df['month'] = pd.DatetimeIndex(df.date_added).month
df['week'] = pd.DatetimeIndex(df.date_added).week
```

C:\Users\DELL\AppData\Local\Temp\ipykernel\_10696\3156687810.py:2: FutureWarning: weekofyear and week have been deprecated, please use DatetimeIndex.isocalendar().week instead, which returns a Series. To exactly reproduce the behavior of week and weekofyear and return an Index, you may call pd.Int64Index(idx.isocalendar().week)

```
df['week'] = pd.DatetimeIndex(df.date_added).week
```

In [253]:

df.head()

Out[253]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	list
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	unavailable	United States	2021-09-25	2020	PG-13	90 min	Document
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	2021-09-24	2021	TV-MA	2 Seasons	Internal TV Show Drama Mystery
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	Unknown country	2021-09-24	2021	TV-MA	1 Season	Crime Street Internal TV Show
3	s4	TV Show	Jailbirds New Orleans	Unknown director	unavailable	Unknown country	2021-09-24	2021	TV-MA	1 Season	Documentary Reality
4	s5	TV Show	Kota Factory	Unknown director	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	2021-09-24	2021	TV-MA	2 Seasons	Internal TV Show Romantic Shows,

Best week to release tv show

In [ ]:

In [ ]:

In [345]:

```
weekly_counts = df.groupby(['week', 'type']).size().unstack(fill_value=0).reset_index()
weekly_counts
```

Out[345]:

type	week	Movie	TV Show
0	1	316	56
1	2	78	30
2	3	81	32
3	4	56	32
4	5	135	73
5	6	64	33
6	7	106	41
7	8	72	38
8	9	207	47
9	10	107	28
10	11	115	48
11	12	67	42
12	13	174	76
13	14	124	49
14	15	100	52
15	16	124	36
16	17	109	45
17	18	173	61
18	19	73	43
19	20	85	46
20	21	76	41
21	22	146	60
22	23	112	39
23	24	89	75
24	25	101	42
25	26	195	73
26	27	154	86
27	28	89	41
28	29	94	46
29	30	116	44
30	31	185	83
31	32	73	49
32	33	105	48
33	34	102	41
34	35	189	74
35	36	97	45
36	37	114	69
37	38	88	61
38	39	111	55
39	40	215	72
40	41	84	32
41	42	90	45
42	43	88	28
43	44	243	75

type	week	Movie	TV Show
44	45	61	37
45	46	83	51
46	47	85	35
47	48	139	60
48	49	95	45
49	50	119	70
50	51	86	51
51	52	80	52
52	53	61	43

In [372]:

weekly\_counts['Movie'].max()

Out[372]:

316

In [344]:

weekly\_counts['TV Show'].max()

Out[344]:

86

In [359]:

monthly\_counts = df.groupby(['month', 'type']).size().unstack(fill\_value=0).reset\_index()  
monthly\_counts

Out[359]:

type	month	Movie	TV Show
0	1	546	192
1	2	382	181
2	3	529	213
3	4	550	214
4	5	439	193
5	6	492	236
6	7	565	262
7	8	519	236
8	9	519	261
9	10	545	215
10	11	498	207
11	12	547	266

In [360]:

monthly\_counts['Movie'].max()

Out[360]:

565

In [361]:

```
monthly_counts['TV Show'].max()
```

Out[361]:

266

In [ ]:

In [ ]:

In [ ]:

# 4

In [309]:

ndf

Out[309]:

	<b>title</b>	<b>cast</b>	<b>director</b>	<b>country</b>	<b>listed_in</b>	<b>show_id</b>	<b>type</b>	<b>date_added</b>	<b>release_year</b>	<b>rating</b>
0	Dick Johnson Is Dead	unavailable	Kirsten Johnson	United States	Documentaries	s1	Movie	2021-09-25	2020.0	PG 13
1	Blood & Water	Ama Qamata	Unknown director	South Africa	International TV Shows	NaN	NaN	NaT	NaN	NaN
2	Blood & Water	Ama Qamata	Unknown director	South Africa	TV Dramas	NaN	NaN	NaT	NaN	NaN
3	Blood & Water	Ama Qamata	Unknown director	South Africa	TV Mysteries	NaN	NaN	NaT	NaN	NaN
4	Blood & Water	Khosi Ngema	Unknown director	South Africa	International TV Shows	NaN	NaN	NaT	NaN	NaN
...	...	...	...	...	...	...	...	...	...	...
210110	Zodiac	Mark Ruffalo, Jake Gyllenhaal, Robert Downey Jr., ...	David Fincher	United States	Cult Movies, Dramas, Thrillers	s8803	Movie	2019-11-20	2007.0	F
210111	Zombie Dumb	unavailable	Unknown director	Unknown country	Kids' TV, Korean TV Shows, TV Comedies	s8804	TV Show	2019-07-01	2018.0	TV-Y
210112	Zombieland	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	Ruben Fleischer	United States	Comedies, Horror Movies	s8805	Movie	2019-11-01	2009.0	F
210113	Zoom	Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...	Peter Hewitt	United States	Children & Family Movies, Comedies	s8806	Movie	2020-01-11	2006.0	PG
210114	Zubaan	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanana...	Mozez Singh	India	Dramas, International Movies, Music & Musicals	s8807	Movie	2019-03-02	2015.0	TV-14

210115 rows × 15 columns



In [366]:

```
ndf.groupby(['cast'])['director'].max()[0:10].reset_index()
```

Out[366]:

	cast	director
0	Jr.	Unknown director
1	"Riley" Lakdhar Dridi	Rebecca Zlotowski
2	'Najite Dede	Unknown director
3	'Najite Dede, Jude Chukwuka, Taiwo Arimoro, Od...	Unknown director
4	2 Chainz	Unknown director
5	2Mex	Ava DuVernay
6	4Minute	Unknown director
7	4Minute, B1A4, BtoB, ELSIE, EXID, EXO, Got7, I...	Unknown director
8	50 Cent	Scott Walker
9	50 Cent, Ryan Phillippe, Bruce Willis, Rory Ma...	Mike Gunther

In [ ]:

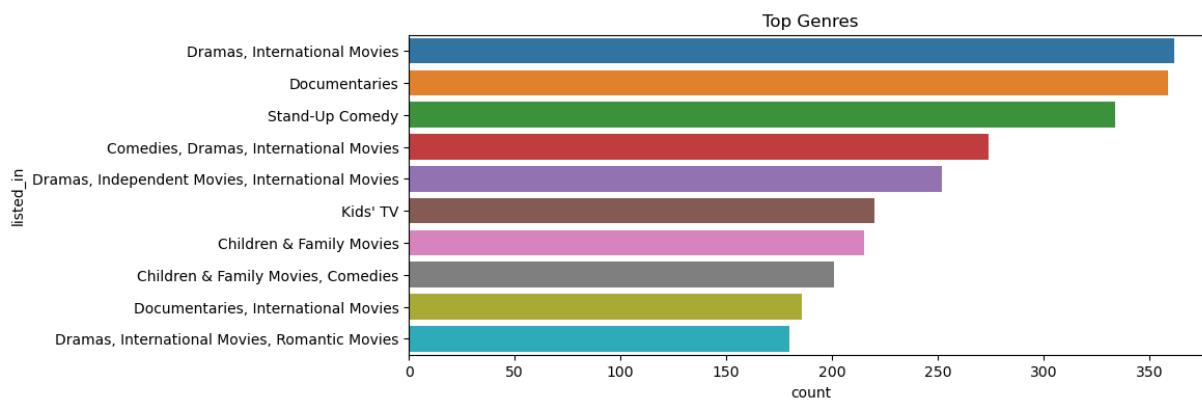
In [ ]:

In [ ]:

## # 5

In [207]:

```
plt.figure(figsize = (10,4))
sns.countplot(y = 'listed_in' , order = df['listed_in'].value_counts().index[0:10] ,data = df)
plt.title('Top Genres')
plt.show()
```



## # 6

In [267]:

```
df['days_to_Netflix'] = (df['date_added'] - pd.to_datetime(df['release_year'],format='%Y')).dt.days
```

In [270]:

```
valid_time_diff = df[df['days_to_Netflix'] >= 0]
```

In [278]:

df

Out[278]:

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration				
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	unavailable	United States	2021-09-25	2020	PG-13	90 min	Docu			
1	s2	TV Show	Blood & Water	Unknown director	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	2021-09-24	2021	TV-MA	2 Seasons	Int TV S Dr			
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	Unknown country	2021-09-24	2021	TV-MA	1 Season	Int TV S			
3	s4	TV Show	Jailbirds New Orleans	Unknown director	unavailable	Unknown country	2021-09-24	2021	TV-MA	1 Season	Docu			
4	s5	TV Show	Kota Factory	Unknown director	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	2021-09-24	2021	TV-MA	2 Seasons	Int T Ro Shc			
...	...	...	...	...	...	...	...	...	...	...	...			
8802	s8803	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	2019-11-20	2007	R	158 min	Cu			
8803	s8804	TV Show	Zombie Dumb	Unknown director	unavailable	Unknown country	2019-07-01	2018	TV-Y7	2 Seasons	Int S			
8804	s8805	Movie	Zombieland	Ruben Fleischer	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	United States	2019-11-01	2009	R	88 min	C Horr			
8805	s8806	Movie	Zoom	Peter Hewitt	Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...	United States	2020-01-11	2006	PG	88 min	C Fami			
8806	s8807	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan...	India	2019-03-02	2015	TV-14	111 min	Int Mov 8			

8807 rows × 15 columns



In [279]:

```
movie_can_be_added_on = valid_time_diff['days_to_Netflix'].mode().iloc[0]
```

In [ ]:

In [281]:

```
movie_can_be_added_on
```

Out[281]:

334

In [ ]:

In [ ]: