In [114…

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

In [114…

```
data = pd.read_csv("netflix.csv")
```

In [114…

```
data.shape
```

Out[1142]:

```
(8807, 12)
```

In [114…

```
data.head()
```

Out[1143]:

	show_id	type	title	director	cast	country	date_added	release_year	ratin
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

In [114…

```
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 [114…

```
df = data.drop('description', axis=1)
```

In [114…

```
df.nunique()
```

Out[1146]:

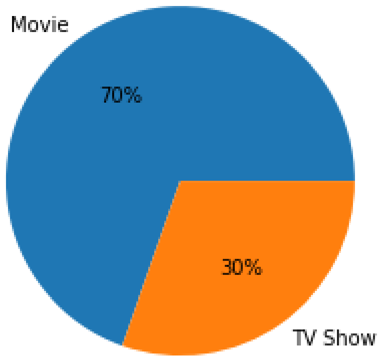
```
show_id         8807
type               2
title           8807
director        4528
cast            7692
country          748
date_added      1767
release_year      74
rating            17
duration         220
listed_in        514
dtype: int64
```

Analysis

Movie vs TV Show

In [114…

```
plt.pie(df['type'].value_counts(), labels=df['type'].unique(), autopct='%0.
plt.show()
```



70% of the total content are movies. TV shows takes only 30% of the total share

In [114…

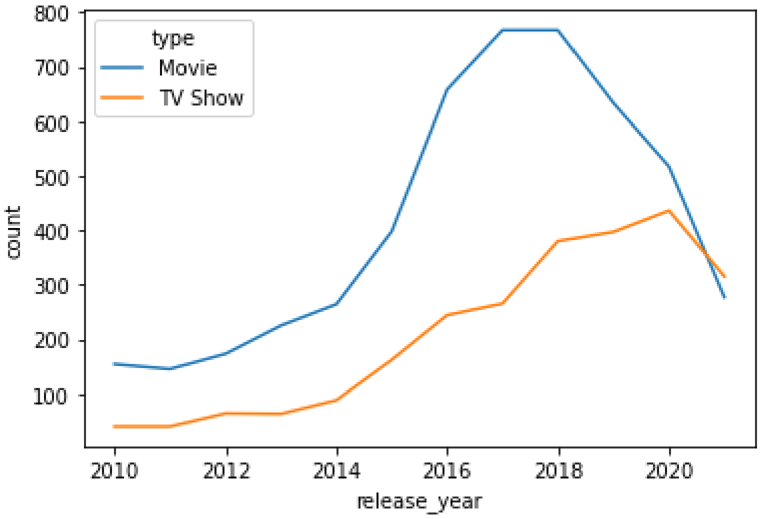
```
df_new = df[df['release_year'] >= 2010]
df_new = df_new.groupby(['release_year', 'type']).show_id.count().to_frame(
df_new.rename(columns={'show_id':'count'}, inplace=True)
df_new.tail(8)
```

Out[1148]:

	release_year	type	count
16	2018	Movie	767
17	2018	TV Show	380
18	2019	Movie	633
19	2019	TV Show	397
20	2020	Movie	517
21	2020	TV Show	436
22	2021	Movie	277
23	2021	TV Show	315

In [114…

```
sns.lineplot(data=df_new, x='release_year', y='count', hue='type')
plt.autoscale()
plt.savefig('img')
plt.show()
```



Both the number of movies and TV Shows were showing a raising trend until 2018 and the number of movies released hit an all time high of 767 movies per year in the year 2017 and 2018 followed by a drop to 277 in the year 2021 whereas the number of TV shows continued to increase and peaked at 436 in 2020 eventually surpassing the number of movies/year in 2021.

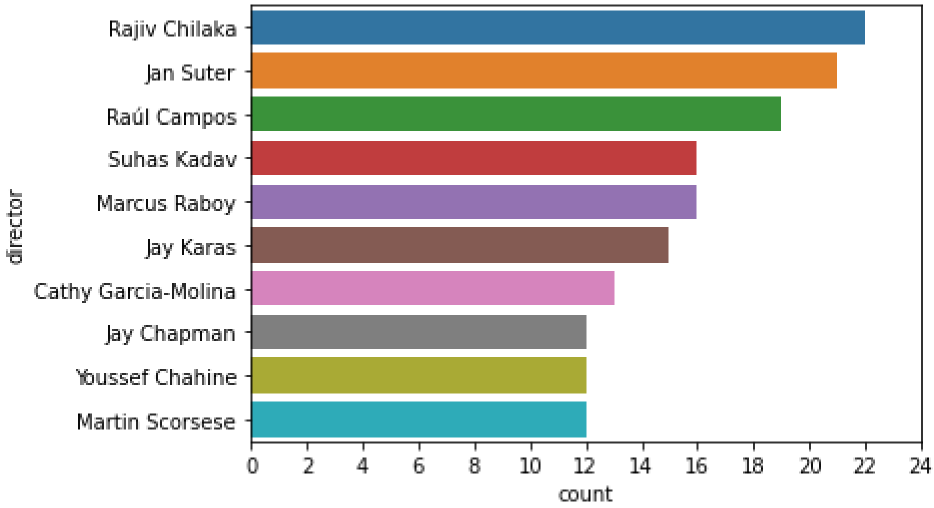
10 most popular directors

In [115…

```
df_dir = df[~df['director'].isna()]
directors = df_dir['director'].apply(lambda x: str(x).split(', ')).to_list(
df_dir = pd.DataFrame(directors, index=df_dir['title'])
df_dir = df_dir.stack()
df_dir = pd.DataFrame(df_dir)
df_dir.rename(columns={0:"director"}, inplace=True)
```

In [115…

```
sns.countplot(data=df_dir, y='director', order=df_dir['director'].value_cou
plt.xticks(np.arange(0,25,2))
plt.show()
```



10 most popular movie actors

In [115…

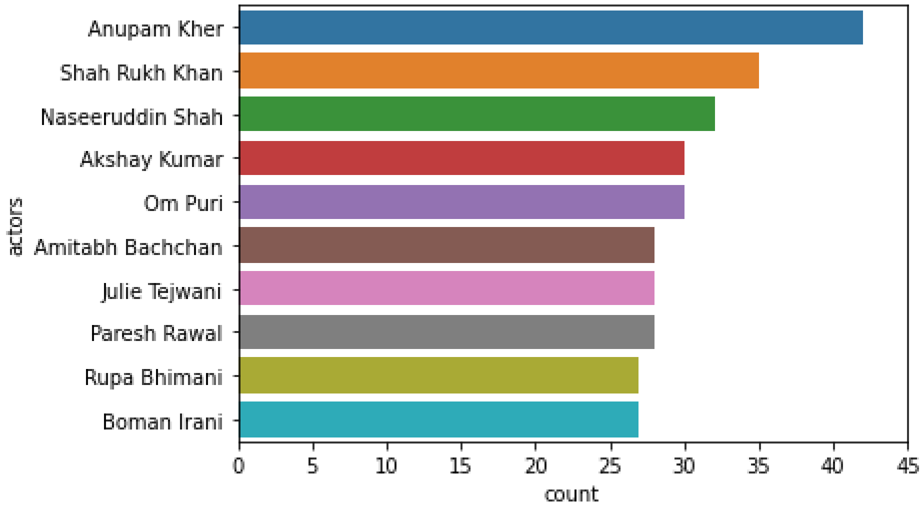
```
df_act = df[~df['cast'].isna()]
df_act = df_act[df_act['type'] == 'Movie']
actors = df_act['cast'].apply(lambda x: str(x).split(', ')).to_list()
df_act = pd.DataFrame(actors, index=df_act['title'])
df_act = df_act.stack()
df_act = pd.DataFrame(df_act)

df_act.rename(columns={0:"actors"}, inplace=True)
```

In [115…

```
sns.countplot(data=df_act, y='actors', order=df_act['actors'].value_counts(
plt.xticks(np.arange(0,50,5))

plt.show()
```



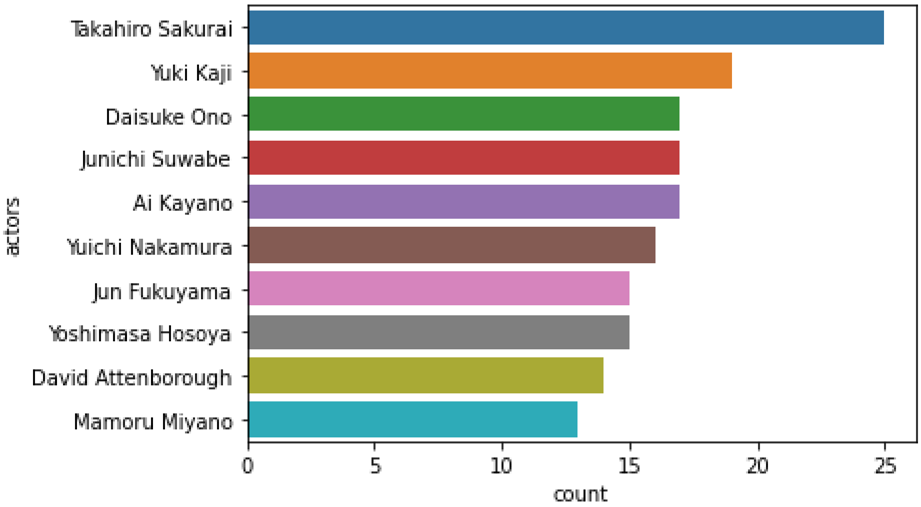
10 most popular TV Show actors/Performers

In [115…

```
df_per = df[~df['cast'].isna()]
df_per = df_per[df_per['type'] == 'TV Show']
actors = df_per['cast'].apply(lambda x: str(x).split(', ')).to_list()
df_per = pd.DataFrame(actors, index=df_per['title'])
df_per = df_per.stack()
df_per = pd.DataFrame(df_per)
df_per.rename(columns={0:"actors"}, inplace=True)
```

In [115…

```
sns.countplot(data=df_per, y='actors', order=df_per['actors'].value_counts(
plt.xticks(np.arange(0,30,5))
plt.show()
```



Country

In [115…

```
df_ctry = df[~df['country'].isna()]
country = df_ctry['country'].apply(lambda x: str(x).split(', ')).to_list()
df_ctry = pd.DataFrame(country, index=df_ctry['title'])
df_ctry = df_ctry.stack()
df_ctry = pd.DataFrame(df_ctry)
df_ctry.rename(columns={0:"country"}, inplace=True)
```

In [115…

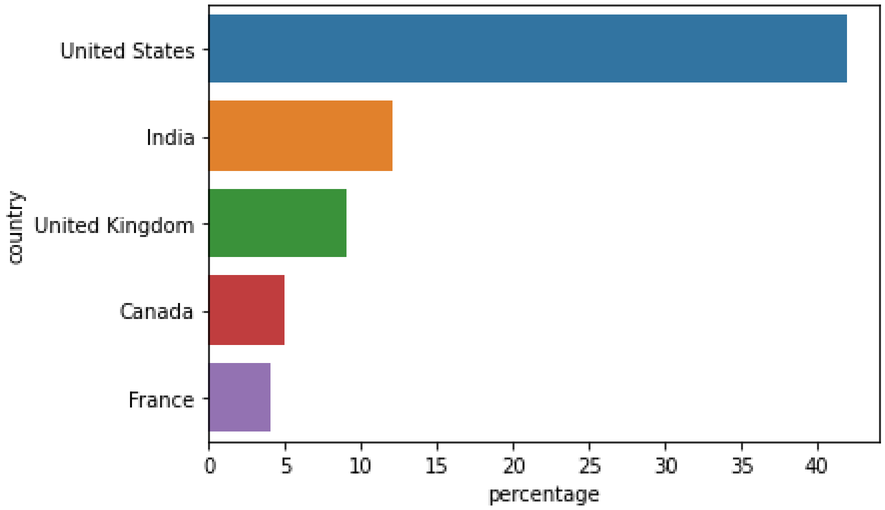
```
df_cntry_percent = df_ctry['country'].value_counts()/88.07
df_cntry_percent = df_cntry_percent.to_frame().reset_index().rename(columns
df_cntry_percent['percentage'] = df_cntry_percent['percentage'].round(0).as
df_cntry_percent.head()
```

Out[1157]:

	country	percentage
0	United States	42
1	India	12
2	United Kingdom	9
3	Canada	5
4	France	4

In [115…

```
sns.barplot(data=df_cntry_percent.iloc[0:5], y='country', x='percentage')
plt.savefig("country_wise", bbox_inches = "tight")
plt.show()
```



Almost half(42%) of the total content are available in US whereas India at second position has only 12 percent of the total content indicates that the majority of the content in netflix is targeted to the audience in US market

Date added - TV shows

In [115…

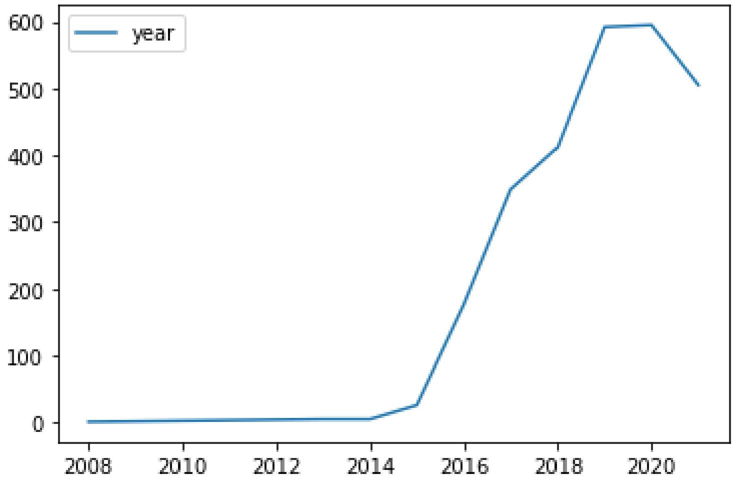
```
df_dtadded = df[~df['date_added'].isna()]
df_dtadded = df_dtadded[df_dtadded['type'] == 'TV Show']
dt_added = df_dtadded['date_added'].to_list()
df_dtadded = pd.DataFrame(dt_added, index=df_dtadded['title'])
df_dtadded.rename(columns={0:"date_added"}, inplace=True)
df_dtadded['date_added'] = df_dtadded['date_added'].astype('datetime64')
```

In [116…

```
df_dtadded['year'] = df_dtadded['date_added'].dt.year
df_dtadded['month'] = df_dtadded['date_added'].dt.month_name()
df_dtadded['day'] = df_dtadded['date_added'].dt.day
df_dtadded['week'] = df_dtadded['date_added'].dt.weekday
df_dtadded['week'].replace([0, 1, 2, 3, 4, 5, 6], ['Monday', 'Tuesday', 'We
```

In [116…

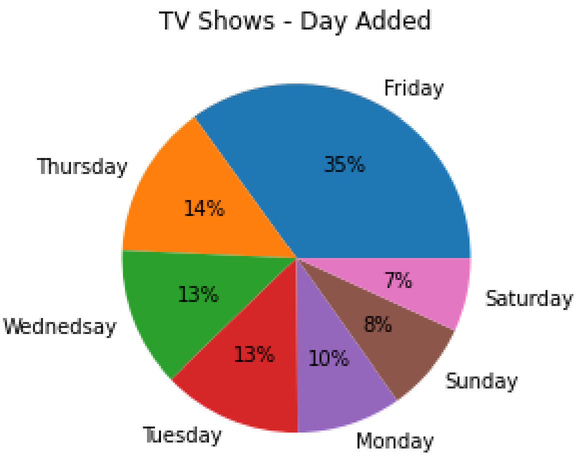
```
sns.lineplot(data=df_dtadded['year'].value_counts().to_frame())
plt.show()
```



A steep increase can be observed in terms of the TV shows added to the platform post the year 2015 followed by a small decrease in 2020

In [116…

```
plt.pie(df_dtadded['week'].value_counts(), labels=df_dtadded['week'].unique
plt.title("TV Shows - Day Added")
plt.savefig("show_Added")
plt.show()
```



35% of the TV shows are added to netflix on Fridays

Release Year

Movie

In [116…

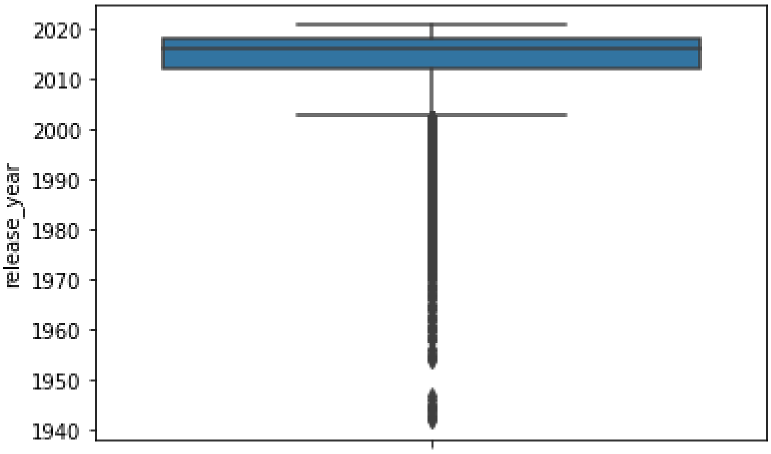
```
df_rymovie = df[df['type']=='Movie']
df_rymovie.describe()
```

Out[1163]:

	release_year
count	6131.000000
mean	2013.121514
std	9.678169
min	1942.000000
25%	2012.000000
50%	2016.000000
75%	2018.000000
max	2021.000000

In [116…

```
sns.boxplot(data=df_rymovie, y='release_year')
plt.show()
```



75% of the movies in netflix has a release year >= 2012

TV Show

In [116…

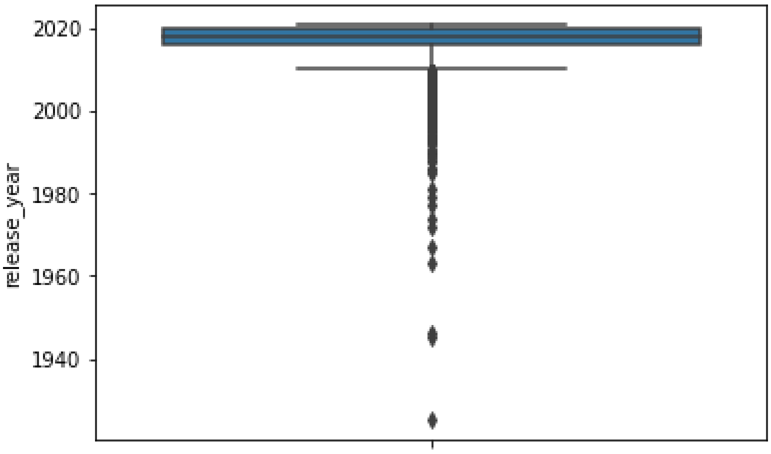
```
df_ryshow = df[df['type']=='TV Show']
df_ryshow.describe()
```

Out[1165]:

	release_year
count	2676.000000
mean	2016.605755
std	5.740138
min	1925.000000
25%	2016.000000
50%	2018.000000
75%	2020.000000
max	2021.000000

In [116…

```
sns.boxplot(data=df_ryshow, y='release_year')
plt.show()
```



75% of the TV Shows in netflix has a release year >= 2016

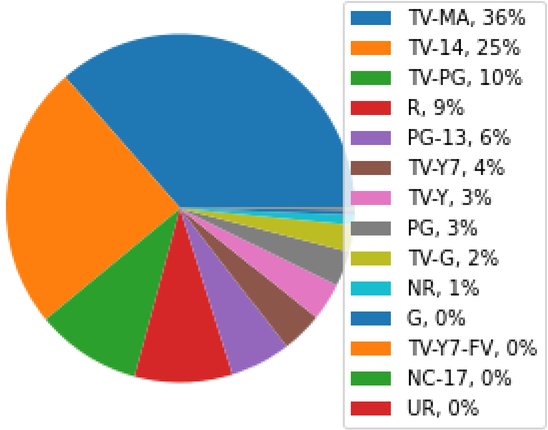
Rating

In [116…

```
ratings = df.groupby(['rating']).size().reset_index(name='count')
ratings.drop([0, 1, 2], inplace=True)
ratings.sort_values(by='count', ascending=False, inplace=True)
ratings.reset_index(inplace=True)
ratings.drop('index', axis=1, inplace=True)
```

In [116…

```
plt.pie(ratings['count'])
labels = ratings['rating']
sizes = ratings['count']/88.07
labels = [f'{l}, {s:0.0f}%' for l, s in zip(labels, sizes)]
plt.legend(bbox_to_anchor=(0.85, 1), loc='upper left', labels=labels)
plt.savefig("rating")
plt.show()
```



60% of the content are rated either TV-MA or TV-14

Duration

Movie

In [116…

```
df_dur = df[~df['duration'].isna()]
movie_dur = df_dur[df_dur['type'] == 'Movie']['duration'].to_frame()
```

In [117…

```
movie_dur['duration'] = movie_dur['duration'].apply(lambda x: str(x).split(
movie_dur['duration'] = movie_dur['duration'].astype('int')
```

In [117…

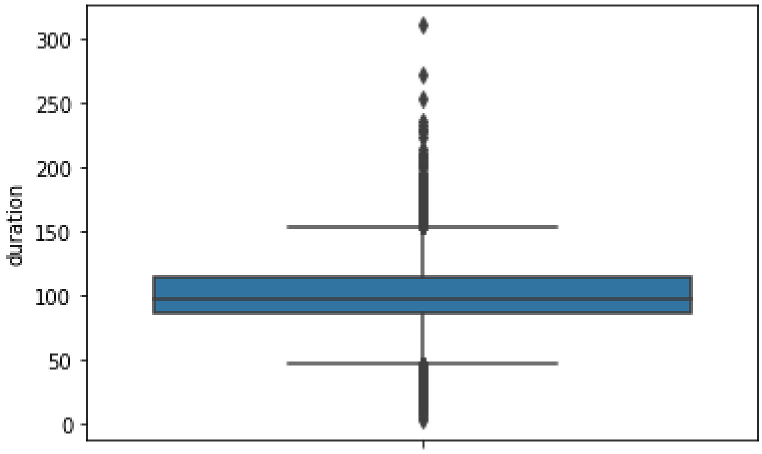
```
movie_dur.describe()
```

Out[1171]:

	duration
count	6128.000000
mean	99.577187
std	28.290593
min	3.000000
25%	87.000000
50%	98.000000
75%	114.000000
max	312.000000

In [117…

```
sns.boxplot(data=movie_dur, y='duration')
plt.savefig('movie_duration')
plt.show()
```



50% of the movies have a duration between 87-114 minutes. Median duration is found to be 98min for a movie

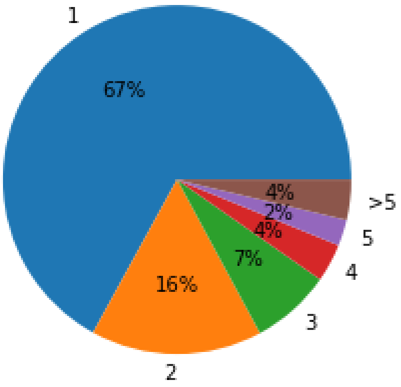
TV Show

In [117…

```
show_dur = df_dur[df_dur['type'] == 'TV Show']['duration'].to_frame()
show_dur['duration'] = show_dur['duration'].apply(lambda x: str(x).split('
show_dur = show_dur.value_counts().to_frame().reset_index().rename(columns=
show_dur.loc[15] = ['>5', show_dur.iloc[5:15]['count'].sum()]
show_dur.drop(np.arange(5,15), inplace=True)
```

In [117…

```
plt.pie(show_dur['count'], labels=show_dur['seasons'], autopct='%0.0f%%')
plt.show()
```



67% of the TV Shows have only 1 season and 90% of the shows have a total number of season <= 3

Genre

In [117…

```
df_genre = df[~df['listed_in'].isna()]
genre = df_genre['listed_in'].apply(lambda x: str(x).split(', ')).to_list()
df_genre = pd.DataFrame(genre, index=df_genre['title'])
df_genre = df_genre.stack()
df_genre = pd.DataFrame(df_genre)
df_genre.rename(columns={0:"genre"}, inplace=True)
```

In [117…

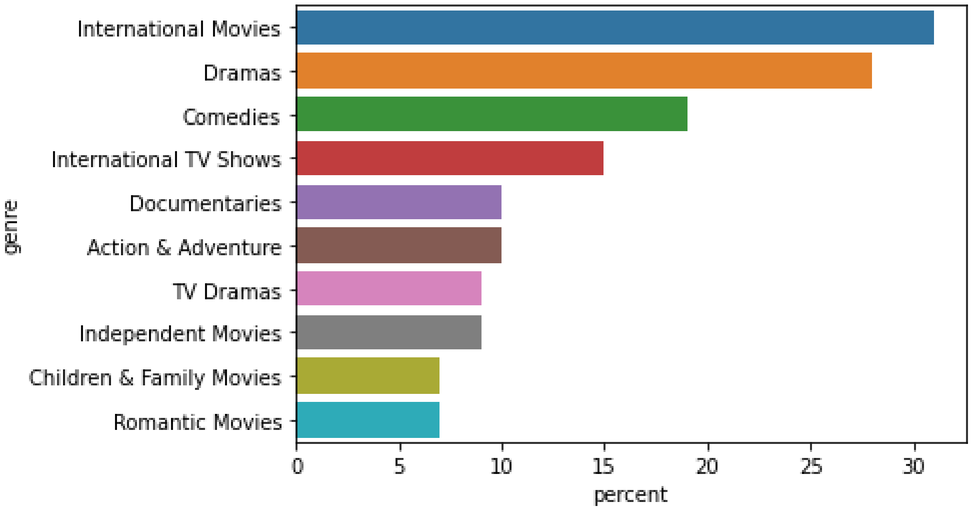
```
df_genre_pcent = df_genre['genre'].value_counts().to_frame().reset_index().
df_genre_pcent['percent'] = (df_genre_pcent['count']/88.07).round(0).astype
df_genre_pcent.head()
```

Out[1176]:

	genre	count	percent
0	International Movies	2752	31
1	Dramas	2427	28
2	Comedies	1674	19
3	International TV Shows	1351	15
4	Documentaries	869	10

In [117…

```
sns.barplot(data=df_genre_pcent.iloc[0:10], y='genre', x='percent')
plt.show()
```



Highest classified genre categories are 'International Movies', 'Dramas' and 'Comedies'

Movies

In [117…

```
df_genre_movies = df[~df['listed_in'].isna()]
df_genre_movies = df_genre_movies[df_genre_movies['type']=='Movie']
genre = df_genre_movies['listed_in'].apply(lambda x: str(x).split(', ')).to
df_genre_movies = pd.DataFrame(genre, index=df_genre_movies['title'])
df_genre_movies = df_genre_movies.stack()
df_genre_movies = pd.DataFrame(df_genre_movies)
df_genre_movies.rename(columns={0:"genre"}, inplace=True)
```

In [117…

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

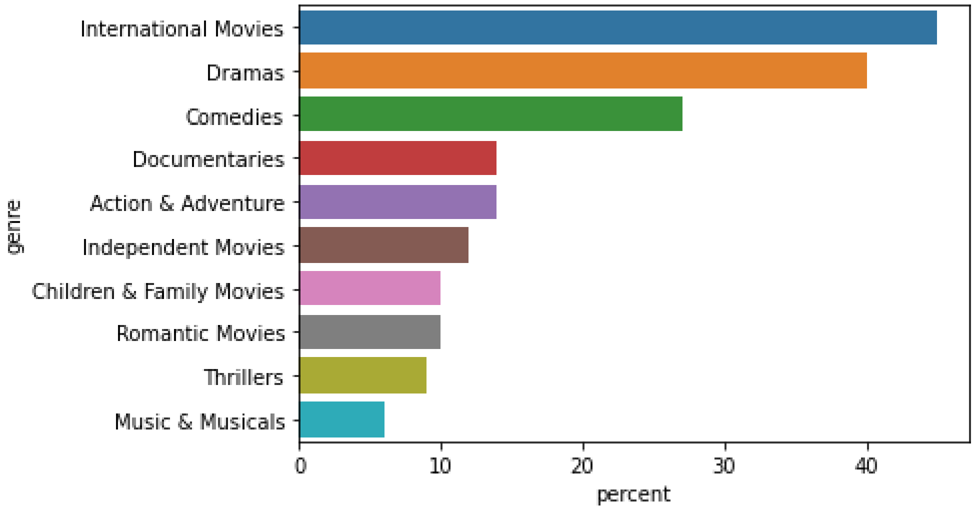
Out[1179]:

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

In [118…

```
df_genre_movie_pcent = df_genre_movies['genre'].value_counts().to_frame().r
df_genre_movie_pcent['percent'] = (df_genre_movie_pcent['count']/61.31).rou
```

In [118…
```
sns.barplot(data=df_genre_movie_pcent.iloc[0:10], y='genre', x='percent')
plt.show()
```

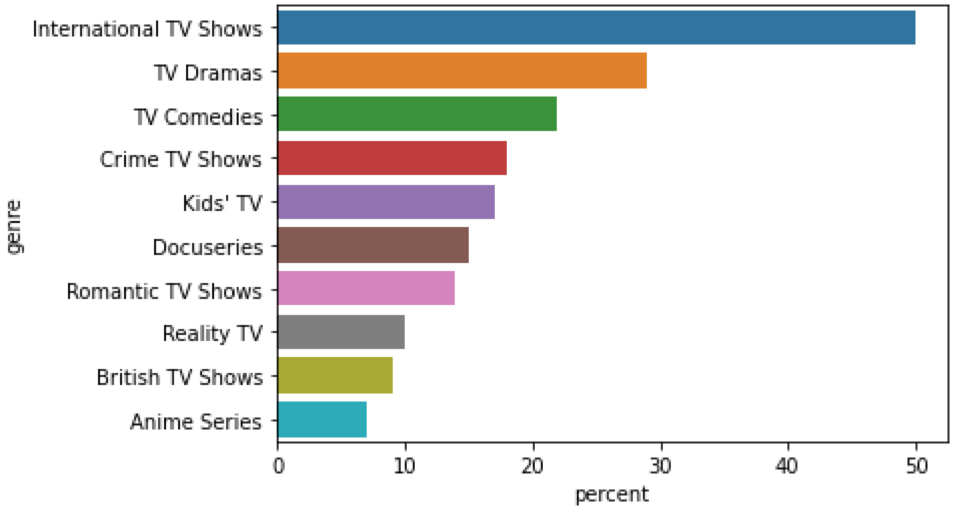


TV Shows

In [118…
```
df_genre_shows = df[~df['listed_in'].isna()]
df_genre_shows = df_genre_shows[df_genre_shows['type']=='TV Show']
genre = df_genre_shows['listed_in'].apply(lambda x: str(x).split(', ')).to_
df_genre_shows = pd.DataFrame(genre, index=df_genre_shows['title'])
df_genre_shows = df_genre_shows.stack()
df_genre_shows = pd.DataFrame(df_genre_shows)
df_genre_shows.rename(columns={0:"genre"}, inplace=True)
```

In [118…
```
df_genre_shows_pcent = df_genre_shows['genre'].value_counts().to_frame().re
df_genre_shows_pcent['percent'] = (df_genre_shows_pcent['count']/26.76).rou
```

In [118…
```
sns.barplot(data=df_genre_shows_pcent.iloc[0:10], y='genre', x='percent')
plt.show()
```

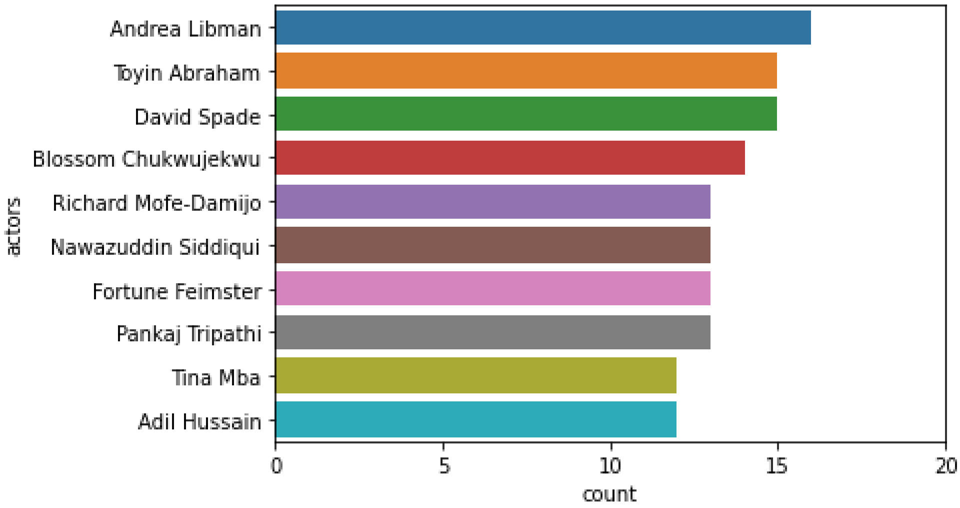


Popular movie actors as per the content released in last 5 years

In [118…
```
df_act_ryear = df_act.reset_index().drop(columns='level_1')
df_act_ryear = pd.merge(df_act_ryear, df, on=['title'])[['title', 'actors',
actors_p2015 = df_act_ryear[df_act_ryear['release_year'] >= 2015]
actors_p2015 = actors_p2015[actors_p2015['type'] == 'Movie']
```

In [118…

```
sns.countplot(data=actors_p2015, y='actors', order=actors_p2015['actors'].v
plt.xticks(np.arange(0,25,5))
plt.show()
```



In [118…

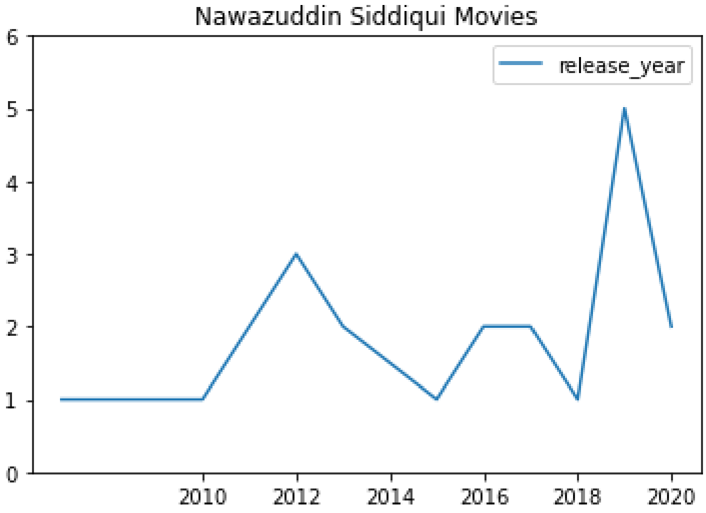
```
act = df_act_ryear[df_act_ryear['actors'] == 'Nawazuddin Siddiqui']
act.shape
```

Out[1187]:

```
(20, 4)
```

In [118…

```
sns.lineplot(data=act['release_year'].value_counts().to_frame())
plt.title('Nawazuddin Siddiqui Movies')
plt.yticks(np.arange(0, 7, 1))
plt.xticks(np.arange(2010, 2022, 2))
plt.savefig("nawaz")
plt.show()
```



Nawazuddin Siddiqui has acted in over 20 movies from the year 2015

In [ ]: