# Netflix Data Analysis with Python

The dataset I have used for the Netflix data analytics task consists of TV shows and movies streamed on Netflix as of 2021. The dataset is provided by Flixable which is an engine of third-party research available on Netflix.

In [ ]:

Dataset Link : https://www.kaggle.com/shivamb/netflix-shows

In [1]:
```
import numpy as np # linear algebra
import pandas as pd # for data preparation
import plotly.express as px # for data visualization
from textblob import TextBlob # for sentiment analysis
dff=pd.read_csv('netflix_titles.csv')
dff.shape
```

Out[1]: (8807, 12)

In [2]:
```
dff
```

Out[2]:

| | 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 I... |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **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 [3]:
```
dff.columns
```

Out[3]:
```
Index(['show_id', 'type', 'title', 'director', 'cast', 'country', 'date_added',
       'release_year', 'rating', 'duration', 'listed_in', 'description'],
      dtype='object')
```

# Distribution of Content:

To begin the task of analyzing Netflix data, I'll start by looking at the distribution of content ratings on Netflix:

In [4]:
```
z = dff.groupby(['rating']).size().reset_index(name='counts')
pieChart = px.pie(z, values='counts', names='rating',
 title='Distribution of Content Ratings on Netflix')
pieChart.show()
```

0.466%
0.909%

In [5]:
```
z
```

Out[5]:

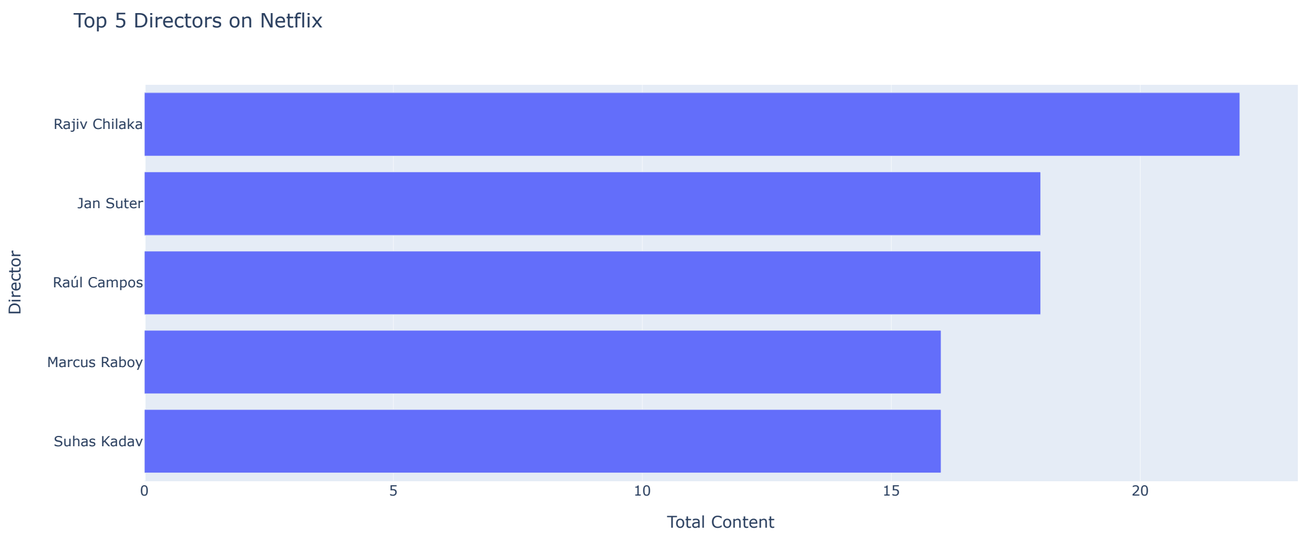
| | rating | counts |
|---|---|---|
| **0** | 66 min | 1 |
| **1** | 74 min | 1 |
| **2** | 84 min | 1 |
| **3** | G | 41 |
| **4** | NC-17 | 3 |
| **5** | NR | 80 |
| **6** | PG | 287 |
| **7** | PG-13 | 490 |
| **8** | R | 799 |
| **9** | TV-14 | 2160 |
| **10** | TV-G | 220 |
| **11** | TV-MA | 3207 |
| **12** | TV-PG | 863 |
| **13** | TV-Y | 307 |
| **14** | TV-Y7 | 334 |
| **15** | TV-Y7-FV | 6 |
| **16** | UR | 3 |

The graph above shows that the majority of content on Netflix is categorized as “TV-MA”, which means that most of the content available on Netflix is intended for viewing by mature and adult audiences.

# Top 5 Actors and Directors:

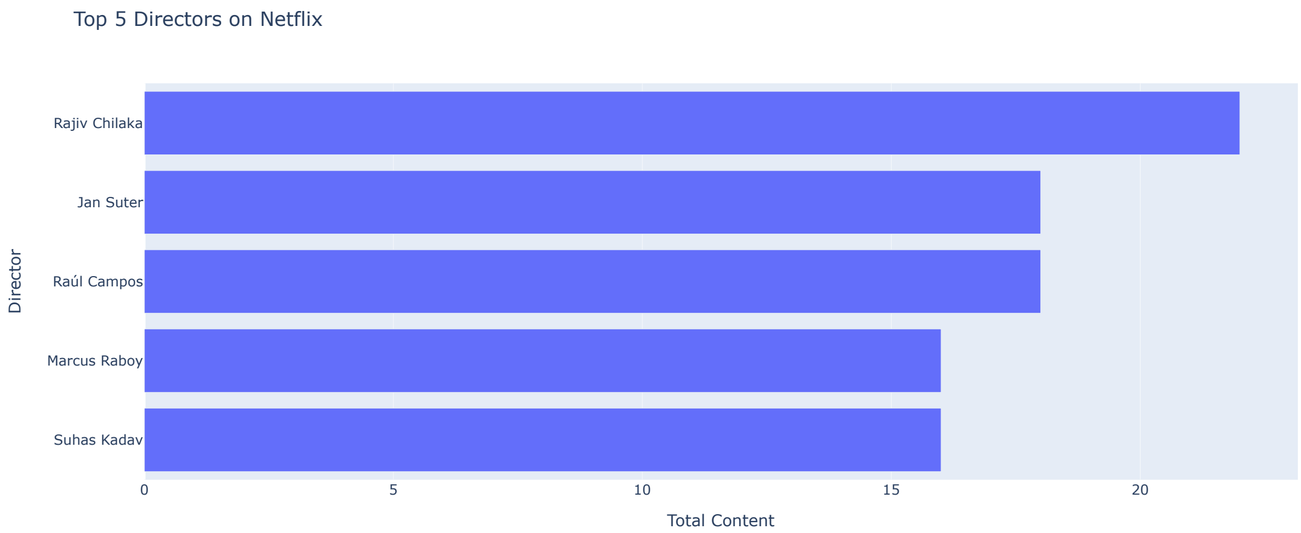
Now let’s see the top 5 successful directors on this platform:

In [6]:
```
dff['director']=dff['director'].fillna('No Director Specified')
filtered_directors=pd.DataFrame()
filtered_directors=dff['director'].str.split(',',expand=True).stack()
filtered_directors=filtered_directors.to_frame()
filtered_directors.columns=['Director']
directors=filtered_directors.groupby(['Director']).size().reset_index(name='Total Content')
directors=directors[directors.Director !='No Director Specified']
directors=directors.sort_values(by=['Total Content'],ascending=False)
directorsTop5=directors.head()
directorsTop5=directorsTop5.sort_values(by=['Total Content'])
fig1=px.bar(directorsTop5,x='Total Content',y='Director',title='Top 5 Directors on Netflix')
fig1.show()
```



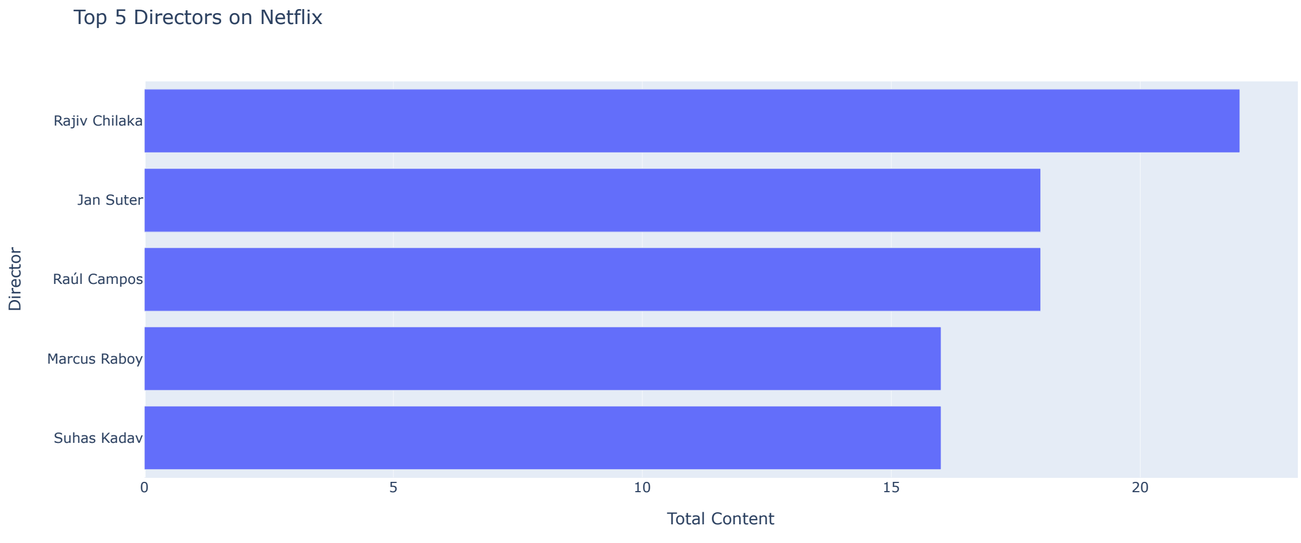

In [7]:
```
dff['director']=dff['director'].fillna('No Director Specified')
```

```
filtered_directors=pd.DataFrame()
filtered_directors=dff['director'].str.split(',',expand=True).stack()
filtered_directors=filtered_directors.to_frame()
filtered_directors.columns=['Director']
directors=filtered_directors.groupby(['Director']).size().reset_index(name='Total Content')
directors=directors[directors.Director !='No Director Specified']
directors=directors.sort_values(by=['Total Content'],ascending=False)
directorsTop5=directors.head()
directorsTop5=directorsTop5.sort_values(by=['Total Content'])
directorsTop5
fig1=px.bar(directorsTop5,x='Total Content',y='Director',title='Top 5 Directors on Netflix')
fig1.show()
```




In [8]:

```
dff['director']=dff['director'].fillna('No Director Specified')
filtered_directors=pd.DataFrame()
filtered_directors=dff['director'].str.split(',',expand=True).stack()
filtered_directors=filtered_directors.to_frame()
filtered_directors.columns=['Director']
directors=filtered_directors.groupby(['Director']).size().reset_index(name='Total Content')
directors=directors[directors.Director !='No Director Specified']
directors=directors.sort_values(by=['Total Content'],ascending=False)
directorsTop5=directors.head()
directorsTop5=directorsTop5.sort_values(by=['Total Content'])
fig1=px.bar(directorsTop5,x='Total Content',y='Director',title='Top 5 Directors on Netflix')
fig1.show()
```




From the above graph it is derived that the top 5 directors on this platform are: Raul Campos Jan Suter Jay Karas Marcus Raboy Jay Chapman Now let's have a look at the top 5 successful actors on this platform

# The top 5 successful actors

In [9]:
```
dff['cast']=dff['cast'].fillna('No Cast Specified')
filtered_cast=pd.DataFrame()
filtered_cast=dff['cast'].str.split(',',expand=True).stack()
filtered_cast=filtered_cast.to_frame()
filtered_cast.columns=['Actor']
actors=filtered_cast.groupby(['Actor']).size().reset_index(name='Total Content')
actors=actors[actors.Actor !='No Cast Specified']
actors=actors.sort_values(by=['Total Content'],ascending=False)
actorsTop5=actors.head()
actorsTop5=actorsTop5.sort_values(by=['Total Content'])
actorsTop5
```

Out[9]:

| | Actor | Total Content |
|---|---|---|
| **23624** | Om Puri | 27 |
| **15541** | Julie Tejwani | 28 |
| **30303** | Takahiro Sakurai | 30 |
| **26941** | Rupa Bhimani | 31 |
| **2612** | Anupam Kher | 39 |

From the above plot, it is derived that the top 5 actors on Netflix are: Anupam Kher Om Puri Shah Rukh Khan Takahira Sakurai Boman Irani

# Analyzing Content on Netflix:

The next thing to analyze from this data is the trend of production over the years on Netflix:

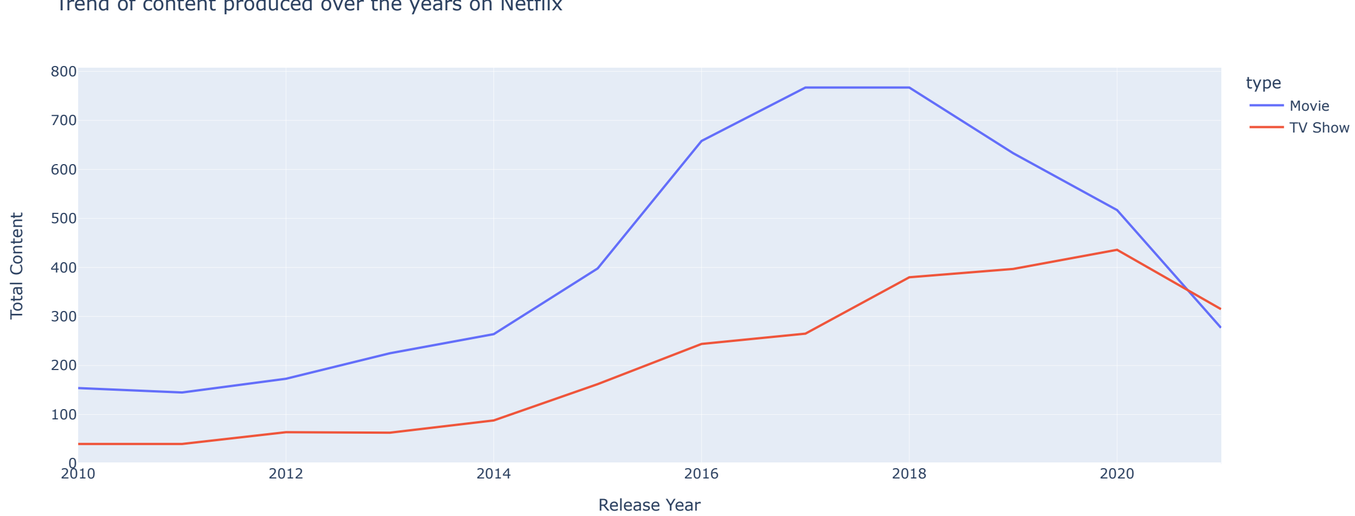
In [10]:
```
df1=dff[['type','release_year']]
df1=df1.rename(columns={"release_year": "Release Year"})
df2=df1.groupby(['Release Year','type']).size().reset_index(name='Total Content')
df2=df2[df2['Release Year']>=2010]
df2
```

Out[10]:

| | Release Year | type | Total Content |
|---|---|---|---|
| **95** | 2010 | Movie | 154 |
| **96** | 2010 | TV Show | 40 |
| **97** | 2011 | Movie | 145 |
| **98** | 2011 | TV Show | 40 |
| **99** | 2012 | Movie | 173 |
| **100** | 2012 | TV Show | 64 |
| **101** | 2013 | Movie | 225 |
| **102** | 2013 | TV Show | 63 |
| **103** | 2014 | Movie | 264 |
| **104** | 2014 | TV Show | 88 |
| **105** | 2015 | Movie | 398 |
| **106** | 2015 | TV Show | 162 |
| **107** | 2016 | Movie | 658 |
| **108** | 2016 | TV Show | 244 |
| **109** | 2017 | Movie | 767 |
| **110** | 2017 | TV Show | 265 |
| **111** | 2018 | Movie | 767 |
| **112** | 2018 | TV Show | 380 |
| **113** | 2019 | Movie | 633 |
| **114** | 2019 | TV Show | 397 |
| **115** | 2020 | Movie | 517 |
| **116** | 2020 | TV Show | 436 |
| **117** | 2021 | Movie | 277 |
| **118** | 2021 | TV Show | 315 |

In [11]:
```
df1=dff[['type','release_year']]
df1=df1.rename(columns={"release_year": "Release Year"})
df2=df1.groupby(['Release Year','type']).size().reset_index(name='Total Content')
df2=df2[df2['Release Year']>=2010]
fig3 = px.line(df2, x="Release Year", y="Total Content", color='type',title='Trend of content produced over the years on Netflix')
fig3.show()
```

Trend of content produced over the years on Netflix




The above line graph shows that there has been a decline in the production of the content for both movies and other shows since 2018. At last, to conclude our analysis, I will analyze the sentiment of content on Netflix:

# Sentiment Analysis

In [ ]:

```
dfx=dff[['release_year','description']]
dfx=dfx.rename(columns={'release_year':'Release Year'})
for index,row in dfx.iterrows():
    z=row['description']
    testimonial=TextBlob(z)
    p=testimonial.sentiment.polarity
    if p==0:
        sent='Neutral'
    elif p>0:
        sent='Positive'
    else:
        sent='Negative'
    dfx.loc[[index,2],'Sentiment']=sent
dfx=dfx.groupby(['Release Year','Sentiment']).size().reset_index(name='Total Content')
dfx=dfx[dfx['Release Year']>=2010]
fig4 = px.bar(dfx, x="Release Year", y="Total Content", color="Sentiment", title="Sentiment of content on Netflix")
fig4.show()
```

So the above graph shows that the overall positive content is always greater than the neutral and negative content combined.

In [ ]: