

Netflix Data Analysis

```
In [2]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

```
In [17]: data = pd.read_csv(r"C:\Users\chitr\Desktop\netflix\netflix.csv")
```

```
In [18]: data.head()
```

```
Out[18]:
```

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration | |
|---|---------|----------|-------|-------------------|---|---------------|-------------------|--------|-----------|------------|
| 0 | s1 | TV Show | 3% | NaN | João Miguel, Bianca Comparato, Michel Gomes, R... | Brazil | August 14, 2020 | TV-MA | 4 Seasons | Inte TV |
| 1 | s2 | Movie | 07:19 | Jorge Michel Grau | Demián Bichir, Héctor Bonilla, Oscar Serrano, ... | Mexico | December 23, 2016 | TV-MA | 93 min | Inte |
| 2 | s3 | Movie | 23:59 | Gilbert Chan | Tedd Chan, Stella Chung, Henley Hii, Lawrence ... | Singapore | December 20, 2018 | R | 78 min | Inte |
| 3 | s4 | Movie | 9 | Shane Acker | Elijah Wood, John C. Reilly, Jennifer Connelly... | United States | November 16, 2017 | PG-13 | 80 min | Ac Inde Mo |
| 4 | s5 | Movie | 21 | Robert Luketic | Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar... | United States | January 1, 2020 | PG-13 | 123 min | |

In [19]:

data.tail()

Out[19]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|------|---------|----------|---|-------------|---|---|--------------------|--------|----------|
| 7784 | s7783 | Movie | Zozo | Josef Fares | Imad Creidi, Antoinette Turk, Elias Gergi, Car... | Sweden, Czech Republic, United Kingdom, Denmar... | October 19, 2020 | TV-MA | 99 min |
| 7785 | s7784 | Movie | Zubaan | Mozez Singh | Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan... | India | March 2, 2019 | TV-14 | 111 min |
| 7786 | s7785 | Movie | Zulu Man in Japan | NaN | Nasty C | NaN | September 25, 2020 | TV-MA | 44 min |
| 7787 | s7786 | TV Show | Zumbo's Just Desserts | NaN | Adriano Zumbo, Rachel Khoo | Australia | October 31, 2020 | TV-PG | 1 Season |
| 7788 | s7787 | Movie | ZZ TOP: THAT LITTLE OL' BAND FROM TEXAS | Sam Dunn | NaN | United Kingdom, Canada, United States | March 1, 2020 | TV-MA | 90 min |



```
In [20]: data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 7789 entries, 0 to 7788
Data columns (total 11 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Show_Id         7789 non-null   object
1   Category        7789 non-null   object
2   Title           7789 non-null   object
3   Director        5401 non-null   object
4   Cast            7071 non-null   object
5   Country         7282 non-null   object
6   Release_Date    7779 non-null   object
7   Rating          7782 non-null   object
8   Duration        7789 non-null   object
9   Type            7789 non-null   object
10  Description      7789 non-null   object
dtypes: object(11)
memory usage: 669.5+ KB
```

```
In [21]:
```

Out[21]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|--------|---------|----------|-------------------|------------------------|--------------------|---------------|-----------------|--------|----------|
| count | 7789 | 7789 | 7789 | 5401 | 7071 | 7282 | 7779 | 7782 | 7789 |
| unique | 7787 | 2 | 7787 | 4050 | 6831 | 681 | 1565 | 14 | 7789 |
| top | s6621 | Movie | The Lost Okoroshi | Raúl Campos, Jan Suter | David Attenborough | United States | January 1, 2020 | TV-MA | Sea |
| freq | 2 | 5379 | 2 | 18 | 18 | 2556 | 118 | 2865 | 1 |

```
In [22]: data.size
```

Out[22]: 85679

```
In [23]: data.columns
```

Out[23]: Index(['Show_Id', 'Category', 'Title', 'Director', 'Cast', 'Country', 'Release_Date', 'Rating', 'Duration', 'Type', 'Description'], dtype='object')

```
In [24]: data.dtypes
```

```
Out[24]: Show_Id      object
Category    object
Title       object
Director    object
Cast        object
Country     object
Release_Date object
Rating      object
Duration    object
Type        object
Description object
dtype: object
```

```
In [30]: #To find the duplicate records in the dataset and removing them

data.head()
```

Out[30]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration | |
|---|---------|----------|-------|-------------------|---|---------------|-------------------|--------|-----------|------------|
| 0 | s1 | TV Show | 3% | NaN | João Miguel, Bianca Comparato, Michel Gomes, R... | Brazil | August 14, 2020 | TV-MA | 4 Seasons | Inte TV 7 |
| 1 | s2 | Movie | 07:19 | Jorge Michel Grau | Demián Bichir, Héctor Bonilla, Oscar Serrano, ... | Mexico | December 23, 2016 | TV-MA | 93 min | Inte |
| 2 | s3 | Movie | 23:59 | Gilbert Chan | Tedd Chan, Stella Chung, Henley Hii, Lawrence ... | Singapore | December 20, 2018 | R | 78 min | Inte |
| 3 | s4 | Movie | 9 | Shane Acker | Elijah Wood, John C. Reilly, Jennifer Connelly... | United States | November 16, 2017 | PG-13 | 80 min | Ac Inde Mo |
| 4 | s5 | Movie | 21 | Robert Luketic | Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar... | United States | January 1, 2020 | PG-13 | 123 min | |

```
In [32]: data[data.duplicated()]
```

Out[32]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration | |
|------|---------|----------|-------------------|----------------|---|---------------|-------------------|--------|----------|----|
| 6300 | s684 | Movie | Backfire | Dave Patten | Black Deniro, Byron "Squally" Vinson, Dominic ... | United States | April 5, 2019 | TV-MA | 97 min | Ir |
| 6622 | s6621 | Movie | The Lost Okoroshi | Abba T. Makama | Seun Ajayi, Judith Audu, Tope Tedela, Ifu Enna... | Nigeria | September 4, 2020 | TV-MA | 94 min | Ir |

```
In [34]: data.drop_duplicates(inplace=True)
```

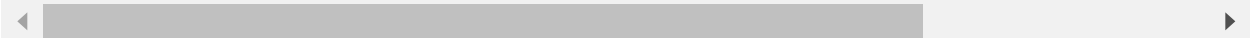
In [35]: data

Out[35]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|------|---------|----------|-----------------------|-------------------|---|---|--------------------|--------|----------|
| 0 | s1 | TV Show | 3% | NaN | João Miguel, Bianca Comparato, Michel Gomes, R... | Brazil | August 14, 2020 | TV-MA | Seasons |
| 1 | s2 | Movie | 07:19 | Jorge Michel Grau | Demián Bichir, Héctor Bonilla, Oscar Serrano, ... | Mexico | December 23, 2016 | TV-MA | 93 min |
| 2 | s3 | Movie | 23:59 | Gilbert Chan | Tedd Chan, Stella Chung, Henley Hii, Lawrence ... | Singapore | December 20, 2018 | R | 78 min |
| 3 | s4 | Movie | 9 | Shane Acker | Elijah Wood, John C. Reilly, Jennifer Connelly... | United States | November 16, 2017 | PG-13 | 80 min |
| 4 | s5 | Movie | 21 | Robert Luketic | Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar... | United States | January 1, 2020 | PG-13 | 123 min |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 7784 | s7783 | Movie | Zozo | Josef Fares | Imad Creidi, Antoinette Turk, Elias Gergi, Car... | Sweden, Czech Republic, United Kingdom, Denmar... | October 19, 2020 | TV-MA | 99 min |
| 7785 | s7784 | Movie | Zubaan | Mozez Singh | Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan... | India | March 2, 2019 | TV-14 | 111 min |
| 7786 | s7785 | Movie | Zulu Man in Japan | NaN | Nasty C | NaN | September 25, 2020 | TV-MA | 44 min |
| 7787 | s7786 | TV Show | Zumbo's Just Desserts | NaN | Adriano Zumbo, Rachel Khoo | Australia | October 31, 2020 | TV-PG | Seasons |

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|------|---------|----------|---|-------------|------|---|---------------|--------|----------|
| 7788 | s7787 | Movie | ZZ TOP: THAT LITTLE OL' BAND FROM TEXAS | Sam Dunn | NaN | United Kingdom, Canada, United States | March 1, 2020 | TV-MA | 90 mi |

7787 rows × 11 columns



```
In [36]: #finding null values
data.isnull()
```

Out[36]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration | Type |
|------|---------|----------|-------|----------|-------|---------|--------------|--------|----------|-------|
| 0 | False | False | False | True | False | False | False | False | False | False |
| 1 | False | False | False | False | False | False | False | False | False | False |
| 2 | False | False | False | False | False | False | False | False | False | False |
| 3 | False | False | False | False | False | False | False | False | False | False |
| 4 | False | False | False | False | False | False | False | False | False | False |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 7784 | False | False | False | False | False | False | False | False | False | False |
| 7785 | False | False | False | False | False | False | False | False | False | False |
| 7786 | False | False | False | True | False | True | False | False | False | False |
| 7787 | False | False | False | True | False | False | False | False | False | False |
| 7788 | False | False | False | False | True | False | False | False | False | False |

7787 rows × 11 columns



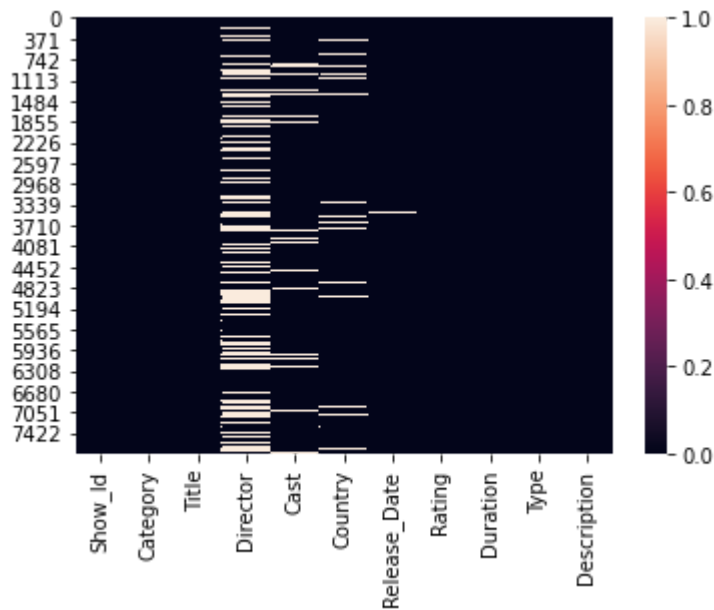
```
In [37]: data.isnull().sum()
```

Out[37]:

| | |
|--------------|-------|
| Show_Id | 0 |
| Category | 0 |
| Title | 0 |
| Director | 2388 |
| Cast | 718 |
| Country | 507 |
| Release_Date | 10 |
| Rating | 7 |
| Duration | 0 |
| Type | 0 |
| Description | 0 |
| dtype: | int64 |

```
In [39]: #Null Values via heatmap
sns.heatmap(data.isnull())
```

Out[39]: <AxesSubplot:>



```
In [43]: #Q1: for house of cards, what is the show id and Who is the director of the show?
#isin()

data[data['Title'].isin(['House of Cards'])]
```

Out[43]:

| Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration | | |
|---------|----------|---------|----------------|---|---|---------------|------------------|----------|-----------|------------|
| 2832 | s2833 | TV Show | House of Cards | Robin Wright, David Fincher, Gerald McRaney, J... | Kevin Spacey, Robin Wright, Kate Mara, Corey S... | United States | November 2, 2018 | TV-MA | 6 Seasons | Dra Thi |


```
In [49]: #method 2
#str.contains()

data[data['Title'].str.contains('House of Cards')]
```

```
Out[49]:
```

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration | |
|------|---------|----------|----------------|---|---|---------------|------------------|--------|-----------|------------|
| 2832 | s2833 | TV Show | House of Cards | Robin Wright, David Fincher, Gerald McRaney, J... | Kevin Spacey, Robin Wright, Kate Mara, Corey S... | United States | November 2, 2018 | TV-MA | 6 Seasons | Dra Thi |

```
In [52]: #Q2: In which year the highest number of TV shows and movies were released ?

data.dtypes
```

```
Out[52]: Show_Id      object
Category      object
Title         object
Director      object
Cast          object
Country       object
Release_Date  object
Rating        object
Duration      object
Type          object
Description    object
dtype: object
```

```
In [53]: data['Date_N'] = pd.to_datetime(data['Release_Date'])
```

In [55]:

data.head()

Out[55]:

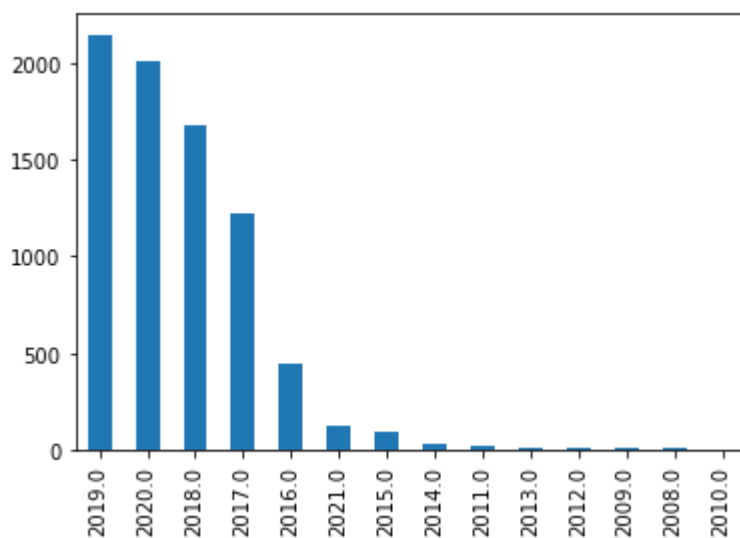
| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration | |
|---|---------|----------|-------|-------------------|---|---------------|-------------------|--------|-----------|------------|
| 0 | s1 | TV Show | 3% | NaN | João Miguel, Bianca Comparato, Michel Gomes, R... | Brazil | August 14, 2020 | TV-MA | 4 Seasons | Inte TV 7 |
| 1 | s2 | Movie | 07:19 | Jorge Michel Grau | Demián Bichir, Héctor Bonilla, Oscar Serrano, ... | Mexico | December 23, 2016 | TV-MA | 93 min | Inte |
| 2 | s3 | Movie | 23:59 | Gilbert Chan | Tedd Chan, Stella Chung, Henley Hii, Lawrence ... | Singapore | December 20, 2018 | R | 78 min | Inte |
| 3 | s4 | Movie | 9 | Shane Acker | Elijah Wood, John C. Reilly, Jennifer Connelly... | United States | November 16, 2017 | PG-13 | 80 min | Ac Inde Mo |
| 4 | s5 | Movie | 21 | Robert Luketic | Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar... | United States | January 1, 2020 | PG-13 | 123 min | |

```
In [66]: data['Date_N'].dt.year.value_counts()
```

```
Out[66]: 2019.0    2153
          2020.0    2009
          2018.0    1685
          2017.0    1225
          2016.0     443
          2021.0     117
          2015.0      88
          2014.0     25
          2011.0     13
          2013.0     11
          2012.0      3
          2009.0      2
          2008.0      2
          2010.0      1
          Name: Date_N, dtype: int64
```

```
In [67]: data['Date_N'].dt.year.value_counts().plot(kind='bar') #Bar graph plotting
```

```
Out[67]: <AxesSubplot:>
```



```
In [68]: #Q3: How many movies and TV shows are in the dataset, with graph?
```

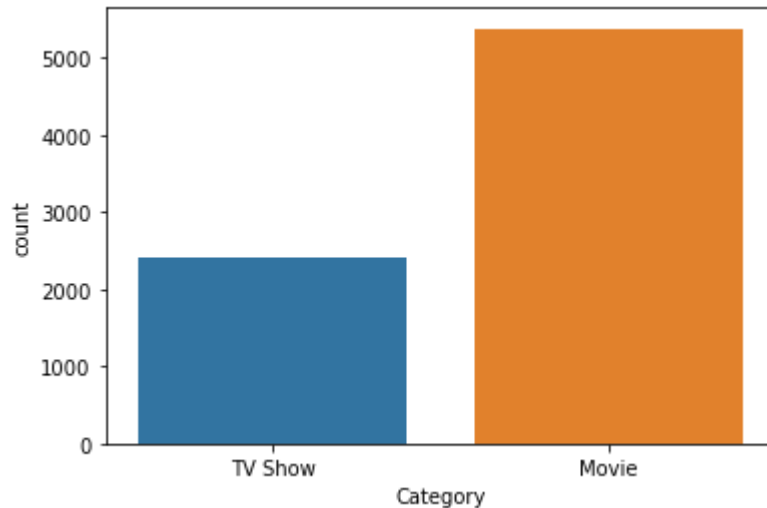
```
In [70]: data.groupby(['Category']).Category.count()
```

```
Out[70]: Category
         Movie      5377
         TV Show   2410
         Name: Category, dtype: int64
```

```
In [72]: sns.countplot(data['Category'])
```

C:\Users\chitr\anaconda3\lib\site-packages\seaborn_decorators.py:36: FutureWarning: Pass the following variable as a keyword arg: x. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.
warnings.warn(

```
Out[72]: <AxesSubplot:xlabel='Category', ylabel='count'>
```



```
In [75]: #Q4: Show all the movies released in the year 2000 ?
```

```
data['Year'] = data['Date_N'].dt.year #Creating a new column
```

```
In [92]: data[(data['Category'] == 'Movie') & (data['Year'] == 2020)]
```

```
Out[92]:
```

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Du |
|------|---------|----------|-------------------------------|-----------------------------|---|---|-------------------|--------|-----|
| 4 | s5 | Movie | 21 | Robert Luketic | Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar... | United States | January 1, 2020 | PG-13 | 1: |
| 6 | s7 | Movie | 122 | Yasir Al Yasiri | Amina Khalil, Ahmed Dawood, Tarek Lotfy, Ahmed... | Egypt | June 1, 2020 | TV-MA | 9 |
| 14 | s15 | Movie | 3022 | John Suits | Omar Epps, Kate Walsh, Miranda Cosgrove, Angus... | United States | March 19, 2020 | R | 9 |
| 27 | s28 | Movie | #Alive | Cho Il | Yoo Ah-in, Park Shin-hye | South Korea | September 8, 2020 | TV-MA | 9 |
| 28 | s29 | Movie | #AnneFrank - Parallel Stories | Sabina Fedeli, Anna Migotto | Helen Mirren, Gengher Gatti | Italy | July 1, 2020 | TV-14 | 9 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 7762 | s7761 | Movie | Zaki Chan | Wael Ihsan | Ahmed Helmy, Yasmin Abdulaziz, Hassan Hosny, H... | Egypt | May 19, 2020 | TV-PG | 10 |
| 7783 | s7782 | Movie | Zoom | Peter Hewitt | Tim Allen, Courteney Cox, Chevy Chase, Kate Ma... | United States | January 11, 2020 | PG | 8 |
| 7784 | s7783 | Movie | Zozo | Josef Fares | Imad Creidi, Antoinette Turk, Elias Gergi, Car... | Sweden, Czech Republic, United Kingdom, Denmar... | October 19, 2020 | TV-MA | 9 |

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Du |
|------|---------|----------|---|----------|---------|---------------------------------------|--------------------|--------|----|
| 7786 | s7785 | Movie | Zulu Man in Japan | NaN | Nasty C | NaN | September 25, 2020 | TV-MA | |
| 7788 | s7787 | Movie | ZZ TOP: THAT LITTLE OL' BAND FROM TEXAS | Sam Dunn | NaN | United Kingdom, Canada, United States | March 1, 2020 | TV-MA | |

1312 rows × 13 columns

In [94]: *#Title of all the tv shows that were released in india*

```
data.head()
```

Out[94]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|---|---------|----------|-------|-------------------|---|---------------|-------------------|--------|-----------|
| 0 | s1 | TV Show | 3% | NaN | João Miguel, Bianca Comparato, Michel Gomes, R... | Brazil | August 14, 2020 | TV-MA | 4 Seasons |
| 1 | s2 | Movie | 07:19 | Jorge Michel Grau | Demián Bichir, Héctor Bonilla, Oscar Serrano, ... | Mexico | December 23, 2016 | TV-MA | 93 min |
| 2 | s3 | Movie | 23:59 | Gilbert Chan | Tedd Chan, Stella Chung, Henley Hii, Lawrence ... | Singapore | December 20, 2018 | R | 78 min |
| 3 | s4 | Movie | 9 | Shane Acker | Elijah Wood, John C. Reilly, Jennifer Connelly... | United States | November 16, 2017 | PG-13 | 80 min |
| 4 | s5 | Movie | 21 | Robert Luketic | Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar... | United States | January 1, 2020 | PG-13 | 123 min |

```
In [107]: data[(data['Country'] == "India") & (data['Category'] == "TV Show")]['Title']
```

```
Out[107]: 86          21 Sarfarosh: Saragarhi 1897
132          7 (Seven)
340          Agent Raghav
364          Akbar Birbal
533          Anjaan: Rural Myths
...
6249         The Creative Indians
6400         The Golden Years with Javed Akhtar
6469         The House That Made Me
7294         Typewriter
7705         Yeh Meri Family
Name: Title, Length: 71, dtype: object
```

```
In [118]: #Show top 10 director who has given highest number to TV shows and movies to NETL
data["Director"].value_counts().head(10)
```

```
Out[118]: Raúl Campos, Jan Suter    18
Marcus Raboy                      16
Jay Karas                         14
Cathy Garcia-Molina               13
Martin Scorsese                   12
Youssef Chahine                   12
Jay Chapman                       12
Steven Spielberg                  10
David Dhawan                      9
Shannon Hartman                   8
Name: Director, dtype: int64
```

```
In [120]: #show all the movies where category is movie and type is comedies or Country is I
data.head(2)
```

```
Out[120]:
```

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration | |
|---|---------|----------|-------|-------------------|---|---------|-------------------|--------|-----------|--------------------|
| 0 | s1 | TV Show | 3% | NaN | João Miguel, Bianca Comparato, Michel Gomes, R... | Brazil | August 14, 2020 | TV-MA | 4 Seasons | Intern TV: TV D TV |
| 1 | s2 | Movie | 07:19 | Jorge Michel Grau | Demián Bichir, Héctor Bonilla, Oscar Serrano, ... | Mexico | December 23, 2016 | TV-MA | 93 min | D Intern |

```
In [122]: data[ (data['Category'] == "Movies") & (data['Type'] == 'Comedies') | (data['Cour
```

```
Out[122]:
```

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | D |
|------|---------|----------|--------------------------|--------------------|---|---------|--------------------|--------|-----|
| 8 | s9 | Movie | 706 | Shravan Kumar | Divya Dutta, Atul Kulkarni, Mohan Agashe, Anup... | India | April 1, 2019 | TV-14 | |
| 9 | s10 | Movie | 1920 | Vikram Bhatt | Rajneesh Duggal, Adah Sharma, Indraneil Sengup... | India | December 15, 2017 | TV-MA | |
| 18 | s19 | Movie | 15-Aug | Swapnaneel Jayakar | Rahul Pethe, Mrunmayee Deshpande, Adinath Koth... | India | March 29, 2019 | TV-14 | |
| 20 | s21 | Movie | Kuch Bheege Alfaaz | Onir | Geetanjali Thapa, Zain Khan Durrani, Shray Rai... | India | September 1, 2018 | TV-14 | |
| 21 | s22 | Movie | Goli Soda 2 | Vijay Milton | Samuthirakani, Bharath Seeni, Vinoth, Esakki B... | India | September 15, 2018 | TV-14 | |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 7766 | s7765 | Movie | Zero | Aanand Rai | Shah Rukh Khan, Anushka Sharma, Katrina Kaif, ... | India | May 21, 2019 | TV-14 | |
| 7771 | s7770 | Movie | Zindagi Na Milegi Dobara | Zoya Akhtar | Hrithik Roshan, Abhay Deol, Farhan Akhtar, Kat... | India | December 15, 2019 | TV-14 | |
| 7778 | s7777 | Movie | Zokkomon | Satyajit Bhatkal | Darsheel Safary, Anupam Kher, Manjari Fadnis, ... | India | November 1, 2018 | PG | |
| 7782 | s7781 | Movie | Zoo | Shlok Sharma | Shashank Arora, Shweta Tripathi, Rahul Kumar, ... | India | July 1, 2018 | TV-MA | |
| 7785 | s7784 | Movie | Zubaan | Mozez Singh | Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan... | India | March 2, 2019 | TV-14 | |

923 rows × 13 columns

In [134]: *#in how many movies tom cruise was actor?*

```
data[data['Cast'].str.contains("Tom Cruise")]
```

```
-----
ValueError                                Traceback (most recent call last)
<ipython-input-134-2a9d5ffea531> in <module>
      1 #in how many movies tom cruise was actor?
      2
----> 3 data[data['Cast'].str.contains("Tom Cruise")]

~\anaconda3\lib\site-packages\pandas\core\frame.py in __getitem__(self, key)
    3012
    3013         # Do we have a (boolean) 1d indexer?
-> 3014         if com.is_bool_indexer(key):
    3015             return self._getitem_bool_array(key)
    3016

~\anaconda3\lib\site-packages\pandas\core\common.py in is_bool_indexer(key)
    112         # Don't raise on e.g. ["A", "B", np.nan], see
    113         # test_loc_getitem_list_of_labels_categoricalindex
    with_na
-> 114         raise ValueError(na_msg)
    115         return False
    116         return True
```

ValueError: Cannot mask with non-boolean array containing NA / NaN values

In [131]: *#Removing the null values (Cannot mask with non-boolean array containing NA / NaN)*

```
data_new=data.dropna()
```

In [132]: data_new

Out[132]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | |
|------|---------|----------|------------|-------------------|---|---|-------------------|--------|--|
| 1 | s2 | Movie | 07:19 | Jorge Michel Grau | Demián Bichir, Héctor Bonilla, Oscar Serrano, ... | Mexico | December 23, 2016 | TV-MA | |
| 2 | s3 | Movie | 23:59 | Gilbert Chan | Tedd Chan, Stella Chung, Henley Hii, Lawrence ... | Singapore | December 20, 2018 | R | |
| 3 | s4 | Movie | 9 | Shane Acker | Elijah Wood, John C. Reilly, Jennifer Connelly... | United States | November 16, 2017 | PG-13 | |
| 4 | s5 | Movie | 21 | Robert Luketic | Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar... | United States | January 1, 2020 | PG-13 | |
| 5 | s6 | TV Show | 46 | Serdar Akar | Erdal Beşikçioğlu, Yasemin Allen, Melis Birkan... | Turkey | July 1, 2017 | TV-MA | |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| 7780 | s7779 | Movie | Zombieland | Ruben Fleischer | Jesse Eisenberg, Woody Harrelson, Emma Stone, ... | United States | November 1, 2019 | R | |
| 7782 | s7781 | Movie | Zoo | Shlok Sharma | Shashank Arora, Shweta Tripathi, Rahul Kumar, ... | India | July 1, 2018 | TV-MA | |
| 7783 | s7782 | Movie | Zoom | Peter Hewitt | Tim Allen, Courteney Cox, Chevy Chase, Kate Ma... | United States | January 11, 2020 | PG | |
| 7784 | s7783 | Movie | Zozo | Josef Fares | Imad Creidi, Antoinette Turk, Elias Gergi, Car... | Sweden, Czech Republic, United Kingdom, Denmar... | October 19, 2020 | TV-MA | |

| Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|---------|----------|-------|----------|-------------|---|--------------|---------------|----------|
| 7785 | s7784 | Movie | Zubaan | Mozez Singh | Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan... | India | March 2, 2019 | TV-14 |

4809 rows × 13 columns

In [135]: *#in how many movies tom cruise was actor?*

```
data_new[data_new['Cast'].str.contains("Tom Cruise")]
```

Out[135]:

| Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|---------|----------|-------|----------|----------------------|---|---------------|-----------------|-----------|
| 3860 | s3861 | Movie | Magnolia | Paul Thomas Anderson | Jeremy Blackman, Tom Cruise, Melinda Dillon, A... | United States | January 1, 2020 | R 189 min |
| 5071 | s5071 | Movie | Rain Man | Barry Levinson | Dustin Hoffman, Tom Cruise, Valeria Golino, Ge... | United States | July 1, 2019 | R 134 min |

In [138]: *#Q: What are the different ratings by netflix?*

#total unique values in rating column

```
data['Rating'].nunique()
```

Out[138]: 14

In [139]: `data['Rating'].unique()`

Out[139]: array(['TV-MA', 'R', 'PG-13', 'TV-14', 'TV-PG', 'NR', 'TV-G', 'TV-Y', nan, 'TV-Y7', 'PG', 'G', 'NC-17', 'TV-Y7-FV', 'UR'], dtype=object)

In [156]: *#Q: how many movies got the TV 14 rating in India?*

```
data[(data['Category'] == "Movie") & (data['Rating'] == "TV-14") & (data['Country'] == "India")]
```

Out[156]: (497, 13)

In [163]: *#Q How many tv shows got PG rating and was released after 2018*

```
data[(data['Category'] == 'TV Show') & (data['Rating'] == "TV-PG") & (data['Year'] > 2018)]
```

Out[163]: (137, 13)

In [165]: *#Q: What is the maximum duration of a movie/show on Netflix*

```
data['Duration'].unique()
```

```
Out[165]: array(['4 Seasons', '93 min', '78 min', '80 min', '123 min', '1 Season',
'95 min', '119 min', '118 min', '143 min', '103 min', '89 min',
'91 min', '149 min', '144 min', '124 min', '87 min', '110 min',
'128 min', '117 min', '100 min', '2 Seasons', '84 min', '99 min',
'90 min', '102 min', '104 min', '105 min', '56 min', '125 min',
'81 min', '97 min', '106 min', '107 min', '109 min', '44 min',
'75 min', '101 min', '3 Seasons', '37 min', '113 min', '114 min',
'130 min', '94 min', '140 min', '135 min', '82 min', '70 min',
'121 min', '92 min', '164 min', '53 min', '83 min', '116 min',
'86 min', '120 min', '96 min', '126 min', '129 min', '77 min',
'137 min', '148 min', '28 min', '122 min', '176 min', '85 min',
'22 min', '68 min', '111 min', '29 min', '142 min', '168 min',
'21 min', '59 min', '20 min', '98 min', '108 min', '76 min',
'26 min', '156 min', '30 min', '57 min', '150 min', '133 min',
'115 min', '154 min', '127 min', '146 min', '136 min', '88 min',
'131 min', '24 min', '112 min', '74 min', '63 min', '38 min',
'25 min', '174 min', '60 min', '153 min', '158 min', '151 min',
'162 min', '54 min', '51 min', '69 min', '64 min', '147 min',
'42 min', '79 min', '5 Seasons', '40 min', '45 min', '172 min',
'10 min', '163 min', '9 Seasons', '55 min', '72 min', '61 min',
'71 min', '160 min', '171 min', '48 min', '139 min', '157 min',
'15 min', '65 min', '134 min', '161 min', '62 min', '8 Seasons',
'186 min', '49 min', '73 min', '58 min', '165 min', '166 min',
'138 min', '159 min', '141 min', '132 min', '52 min', '67 min',
'34 min', '66 min', '312 min', '180 min', '47 min', '6 Seasons',
'155 min', '14 min', '177 min', '11 min', '9 min', '46 min',
'145 min', '11 Seasons', '7 Seasons', '13 Seasons', '8 min',
'12 min', '12 Seasons', '10 Seasons', '43 min', '50 min', '23 min',
'185 min', '200 min', '169 min', '27 min', '170 min', '196 min',
'33 min', '181 min', '204 min', '32 min', '35 min', '167 min',
'16 Seasons', '179 min', '193 min', '13 min', '214 min', '17 min',
'173 min', '192 min', '209 min', '187 min', '41 min', '182 min',
'224 min', '233 min', '189 min', '152 min', '19 min', '15 Seasons',
'208 min', '237 min', '31 min', '178 min', '230 min', '194 min',
'228 min', '195 min', '3 min', '16 min', '5 min', '18 min',
'205 min', '190 min', '36 min', '201 min', '253 min', '203 min',
'191 min'], dtype=object)
```

In [190]: *#Converting the data in numeric format*

```
data[['Minutes', 'Unit']] = data['Duration'].str.split(' ', expand= True)
```

In [191]: data

Out[191]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|------|---------|----------|-----------------------|-------------------|---|---|--------------------|--------|-----------|
| 0 | s1 | TV Show | 3% | NaN | João Miguel, Bianca Comparato, Michel Gomes, R... | Brazil | August 14, 2020 | TV-MA | Season: 4 |
| 1 | s2 | Movie | 07:19 | Jorge Michel Grau | Demián Bichir, Héctor Bonilla, Oscar Serrano, ... | Mexico | December 23, 2016 | TV-MA | 93 min |
| 2 | s3 | Movie | 23:59 | Gilbert Chan | Tedd Chan, Stella Chung, Henley Hii, Lawrence ... | Singapore | December 20, 2018 | R | 78 min |
| 3 | s4 | Movie | 9 | Shane Acker | Elijah Wood, John C. Reilly, Jennifer Connelly... | United States | November 16, 2017 | PG-13 | 80 min |
| 4 | s5 | Movie | 21 | Robert Luketic | Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar... | United States | January 1, 2020 | PG-13 | 123 min |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 7784 | s7783 | Movie | Zozo | Josef Fares | Imad Creidi, Antoinette Turk, Elias Gergi, Car... | Sweden, Czech Republic, United Kingdom, Denmar... | October 19, 2020 | TV-MA | 99 min |
| 7785 | s7784 | Movie | Zubaan | Mozez Singh | Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan... | India | March 2, 2019 | TV-14 | 111 min |
| 7786 | s7785 | Movie | Zulu Man in Japan | NaN | Nasty C | NaN | September 25, 2020 | TV-MA | 44 min |
| 7787 | s7786 | TV Show | Zumbo's Just Desserts | NaN | Adriano Zumbo, Rachel Khoo | Australia | October 31, 2020 | TV-PG | Season: 1 |

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|------|---------|----------|---|-------------|------|---|---------------|--------|----------|
| 7788 | s7787 | Movie | ZZ TOP: THAT LITTLE OL' BAND FROM TEXAS | Sam Dunn | NaN | United Kingdom, Canada, United States | March 1, 2020 | TV-MA | 90 min |

7787 rows × 15 columns



```
In [172]: data['Minutes'].max()
```

Out[172]: '99'

```
In [173]: #Q which invidual country has the highest no of tv Shows
```

```
In [178]: data_tvshow = data[data['Category'] == "TV Show"]
```

In [179]: data_tvshow

Out[179]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Dura |
|------|---------|----------|--------------------|----------------------|---|-----------------------|-------------------|--------|------|
| 0 | s1 | TV Show | 3% | NaN | João Miguel, Bianca Comparato, Michel Gomes, R... | Brazil | August 14, 2020 | TV-MA | Seas |
| 5 | s6 | TV Show | 46 | Serdar Akar | Erdal Beşikçioğlu, Yasemin Allen, Melis Birkan... | Turkey | July 1, 2017 | TV-MA | Seas |
| 11 | s12 | TV Show | 1983 | NaN | Robert Więckiewicz, Maciej Musiał, Michalina O... | Poland, United States | November 30, 2018 | TV-MA | Seas |
| 12 | s13 | TV Show | 1994 | Diego Enrique Osorno | NaN | Mexico | May 17, 2019 | TV-MA | Seas |
| 16 | s17 | TV Show | Feb-09 | NaN | Shahd El Yaseen, Shaila Sabt, Hala, Hanadi Al-... | NaN | March 20, 2019 | TV-14 | Seas |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 7769 | s7768 | TV Show | Zindagi Gulzar Hai | NaN | Sanam Saeed, Fawad Khan, Ayesha Omer, Mehreen ... | Pakistan | December 15, 2016 | TV-PG | Seas |
| 7777 | s7776 | TV Show | Zoids Wild | NaN | Kensho Ono, Takahiro Sakurai, Mikako Komatsu, ... | Japan | August 14, 2020 | TV-Y7 | Seas |
| 7779 | s7778 | TV Show | Zombie Dumb | NaN | NaN | NaN | July 1, 2019 | TV-Y7 | Seas |
| 7781 | s7780 | TV Show | Zona Rosa | NaN | Manu NNa, Ana Julia Yeyé, Ray Contreras, Pablo... | Mexico | November 26, 2019 | TV-MA | Seas |

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|------|---------|----------|-----------------------|----------|----------------------------|-----------|------------------|--------|----------|
| 7787 | s7786 | TV Show | Zumbo's Just Desserts | NaN | Adriano Zumbo, Rachel Khoo | Australia | October 31, 2020 | TV-PG | Se |

2410 rows × 15 columns

```
In [183]: data_tvshow['Country'].value_counts().head(1)
```

```
Out[183]: United States    705
Name: Country, dtype: int64
```

```
In [184]: #@ sorting the data by year

data.head()
```

```
Out[184]:
```

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | Duration |
|---|---------|----------|-------|-------------------|---|---------------|-------------------|--------|-----------|
| 0 | s1 | TV Show | 3% | NaN | João Miguel, Bianca Comparato, Michel Gomes, R... | Brazil | August 14, 2020 | TV-MA | 4 Seasons |
| 1 | s2 | Movie | 07:19 | Jorge Michel Grau | Demián Bichir, Héctor Bonilla, Oscar Serrano, ... | Mexico | December 23, 2016 | TV-MA | 93 min |
| 2 | s3 | Movie | 23:59 | Gilbert Chan | Tedd Chan, Stella Chung, Henley Hii, Lawrence ... | Singapore | December 20, 2018 | R | 78 min |
| 3 | s4 | Movie | 9 | Shane Acker | Elijah Wood, John C. Reilly, Jennifer Connelly... | United States | November 16, 2017 | PG-13 | 80 min |
| 4 | s5 | Movie | 21 | Robert Luketic | Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar... | United States | January 1, 2020 | PG-13 | 123 min |

In [187]: `data.sort_values(by='Year', ascending = False)`

Out[187]:

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | D |
|------|---------|----------|---------------------|-------------------------|---|---|------------------|--------|---|
| 5564 | s5564 | Movie | Sherlock Holmes | Guy Ritchie | Robert Downey Jr., Jude Law, Rachel McAdams, M... | United States, Germany, United Kingdom, Australia | January 1, 2021 | PG-13 | |
| 5919 | s5919 | Movie | Surf's Up | Ash Brannon, Chris Buck | Shia LaBeouf, Jeff Bridges, Zooey Deschanel, J... | United States | January 1, 2021 | PG | |
| 980 | s981 | TV Show | Bling Empire | NaN | NaN | NaN | January 15, 2021 | TV-MA | |
| 5955 | s5955 | Movie | Taare Zameen Par | Aamir Khan | Aamir Khan, Darsheel Safary, Tanay Chheda, Tis... | India | January 10, 2021 | PG | |
| 366 | s367 | Movie | Al acecho | Francisco D'Eufemia | Rodrigo de la Serna, Belen Blanco, Walter Jako... | NaN | January 12, 2021 | TV-MA | |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| 3374 | s3375 | TV Show | Kikoriki | NaN | Igor Dmitriev | NaN | NaN | TV-Y | S |
| 3492 | s3493 | TV Show | La Familia P. Luche | NaN | Eugenio Derbez, Consuelo Duval, Luis Manuel Áv... | United States | NaN | TV-14 | S |
| 3946 | s3947 | TV Show | Maron | NaN | Marc Maron, Judd Hirsch, Josh Brener, Nora Zeh... | United States | NaN | TV-MA | S |

| | Show_Id | Category | Title | Director | Cast | Country | Release_Date | Rating | D |
|------|---------|----------|------------------------------|----------|---|---------------|--------------|--------|---|
| 5138 | s5138 | TV Show | Red vs. Blue | NaN | Burnie Burns, Jason Saldaña, Gustavo Sorola, G... | United States | NaN | NR | S |
| 6066 | s6066 | TV Show | The Adventures of Figaro Pho | NaN | Luke Jurevicius, Craig Behenna, Charlotte Haml... | Australia | NaN | TV-Y7 | S |

7787 rows × 15 columns



In []: