

```
In [ ]: github.com/avulamanikanta  
        linkedin.com/in/avula-manikanta
```

## Import Libraries

```
In [1]: import numpy as np  
        import pandas as pd  
        import matplotlib.pyplot as plt  
        %matplotlib inline  
        import seaborn as sns  
        import warnings  
        warnings.filterwarnings('ignore')
```

## Understand the dataset

```
In [2]: netflix = pd.read_csv(r'D:\DatSets\Netflix_Data_Analysis\netflix.csv')  
        netflix.head()
```

Out[2]:

	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	Internat TV S TV Dr TV Sci-
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dr Internat M
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78 min	t M Internat M
3	s4	Movie	9	Shane Acker	Elijah Wood, John C. Reilly, Jennifer Connelly...	United States	November 16, 2017	PG-13	80 min	Act Adve Indepe Movie
4	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar...	United States	January 1, 2020	PG-13	123 min	D

In [3]:

netflix.tail()

Out[3]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	
<b>7784</b>	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	
<b>7785</b>	s7784	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan...	India	March 2, 2019	TV-14	111 min	
<b>7786</b>	s7785	Movie	Zulu Man in Japan	NaN	Nasty C	NaN	September 25, 2020	TV-MA	44 min	D
<b>7787</b>	s7786	TV Show	Zumbo's Just Desserts	NaN	Adriano Zumbo, Rachel Khoo	Australia	October 31, 2020	TV-PG	1 Season	
<b>7788</b>	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	D

In [4]: `netflix.shape`

Out[4]: (7789, 11)

In [5]: `netflix.size # to show the total elements in the dataset`

Out[5]: 85679

In [6]: `list(netflix.columns)`

Out[6]:

```
['Show_Id',
 'Category',
 'Title',
 'Director',
 'Cast',
 'Country',
 'Release_Date',
 'Rating',
 'Duration',
 'Type',
 'Description']
```

In [7]: `netflix.dtypes`

```
Out[7]: 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 [8]: netflix.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
```

**Is any duplicate records in the data set? if yes remove those duplicates**

```
In [9]: netflix[netflix.duplicated()]
```

Out[9]:

	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	Indi
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	Indi

```
In [10]: netflix.drop_duplicates(inplace=True) #Remove the Duplicated records permintely
```

```
In [11]: netflix[netflix.duplicated()] # it shows the no duplicated records
```

```
Out[11]:
```

Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Descriptio
---------	----------	-------	----------	------	---------	--------------	--------	----------	------	------------

## Is any null values present in the Columns ? and show the in HeatMap

```
In [12]: netflix.isnull()
```

Out[12]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description
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

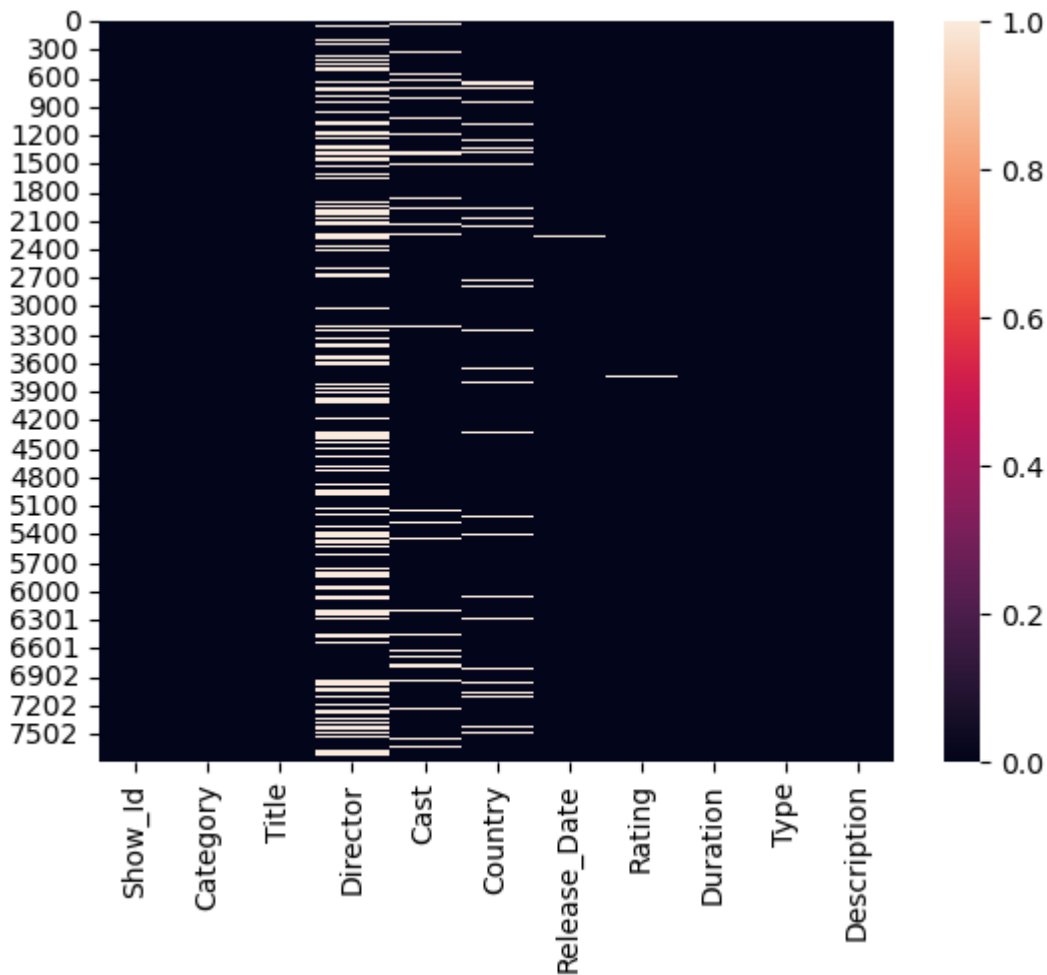
In [13]: `netflix.isnull().sum()`

Out[13]:

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 [14]: `sns.heatmap(netflix.isnull())`

Out[14]: &lt;Axes: &gt;



Q.1 For 'House Of Cards', what is the show id & director name ?

isin()

```
In [15]: netflix[netflix['Title'].isin(['House of Cards'])]
```

```
Out[15]:
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Typ
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	Drama T Thriller

Insight :

1. The Show\_Id is s2833
2. The Show Director is Robin Wright, David Fincher, Gerald McRaney

Str.contains()

```
In [16]: netflix[netflix['Title'].str.contains('House of Cards')]
```

```
Out[16]:
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type
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	Drama, Thriller

Insight :

1. The Show\_Id is s2833
2. The Show Director is Robin Wright, David Fincher, Gerald McRaney

## Q.2 In witch Year Most of the Movies &Shows are released? and Show the Bar Graph

```
In [17]: netflix.dtypes
```

```
Out[17]: 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 [18]: netflix['Date_N'] = pd.to_datetime(netflix['Release_Date'])
```

```
In [19]: netflix.columns
```

```
Out[19]: Index(['Show_Id', 'Category', 'Title', 'Director', 'Cast', 'Country',
              'Release_Date', 'Rating', 'Duration', 'Type', 'Description', 'Date_N'],
              dtype='object')
```

```
In [20]: netflix.dtypes
```

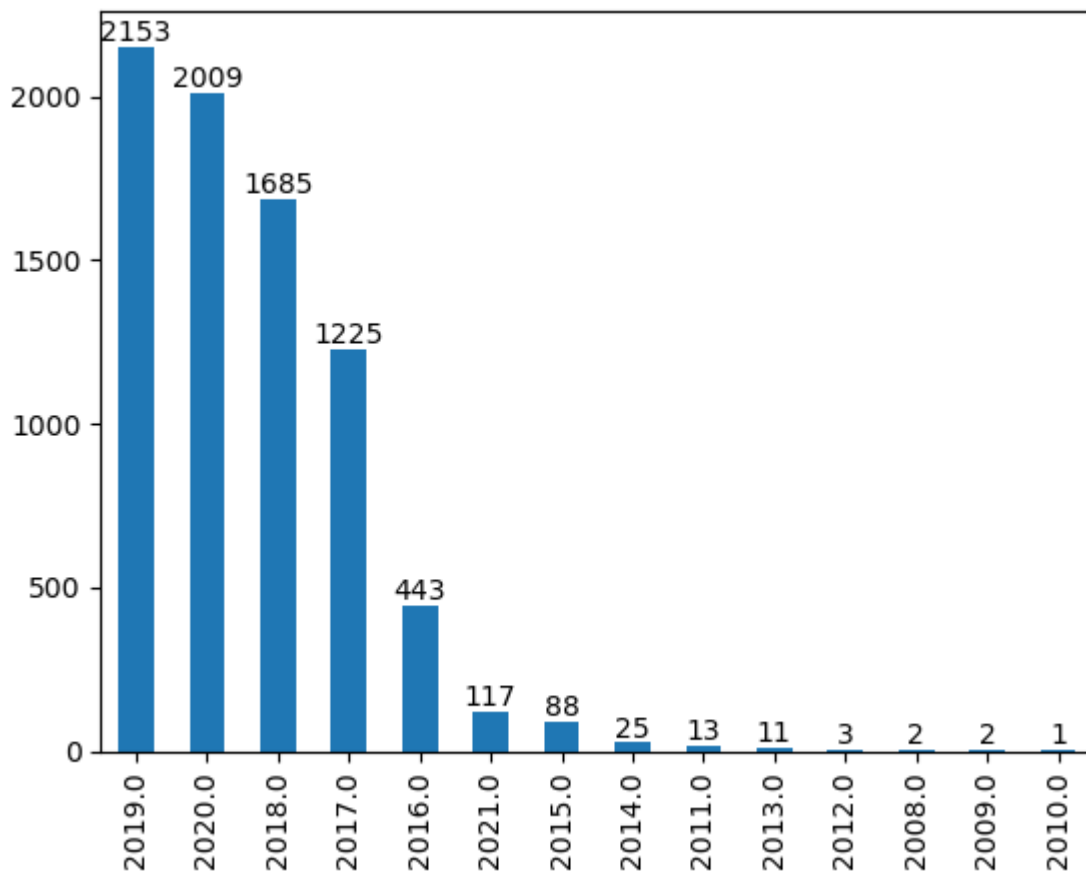


```
Out[20]: Show_Id      object
         Category   object
         Title      object
         Director   object
         Cast       object
         Country    object
         Release_Date object
         Rating     object
         Duration   object
         Type       object
         Description object
         Date_N     datetime64[ns]
         dtype: object
```

```
In [21]: netflix['Date_N'].dt.year.value_counts() #It Counts the Occurance of all individual ye
```

```
Out[21]: 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
         2008.0       2
         2009.0       2
         2010.0       1
         Name: Date_N, dtype: int64
```

```
In [22]: aa=netflix['Date_N'].dt.year.value_counts().plot(kind='bar')
         for bars in aa.containers:
             aa.bar_label(bars)
```



Insight :

1.As per Above Graph in the year of 2019 Most of the Movies & Shows are released

### Q.3 How many Movies & TV Shows are in Dataset? show in graph

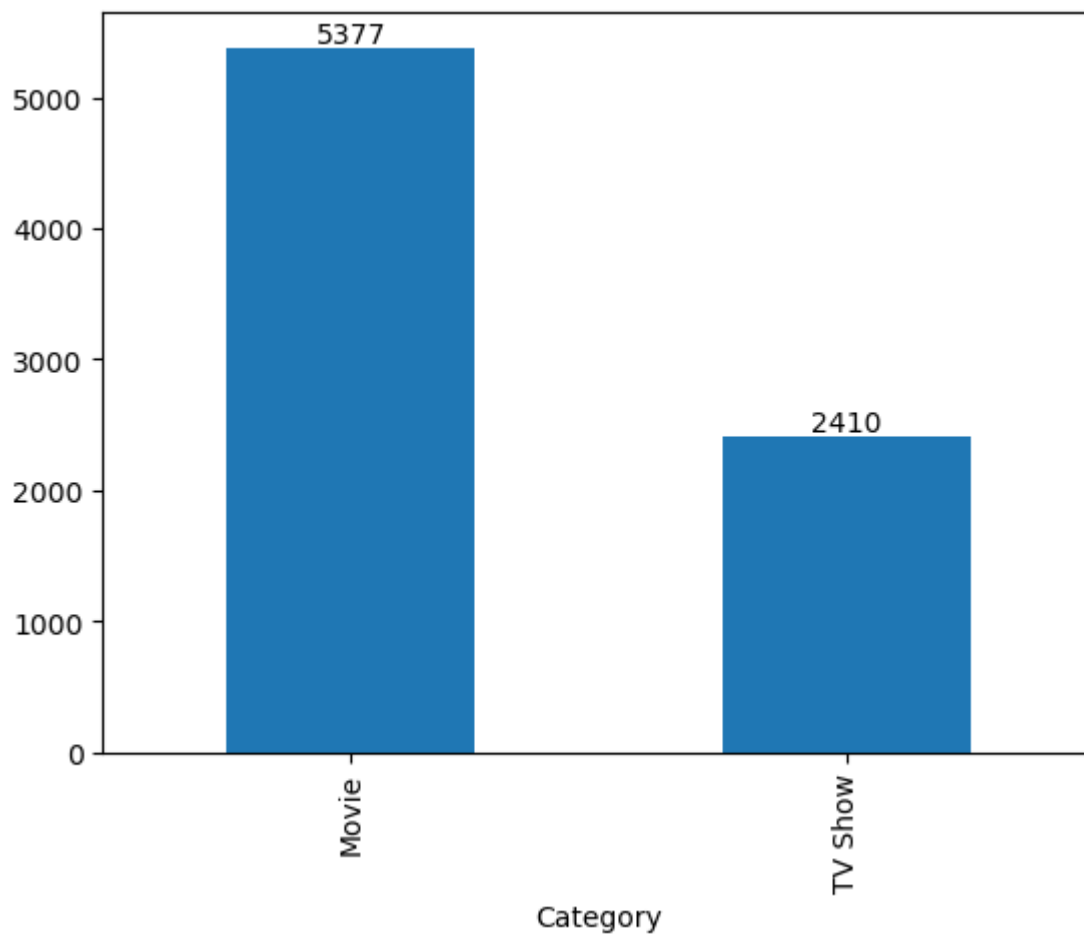
```
In [23]: netflix.head(2)
```

	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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc

```
In [24]: netflix.groupby('Category').Category.count() #To group all unique items of a columns
```

```
Out[24]: Category  
Movie      5377  
TV Show    2410  
Name: Category, dtype: int64
```

```
In [25]: ab= netflix.groupby('Category').Category.count().plot(kind='bar')  
for bars in ab.containers:  
    ab.bar_label(bars)
```



Insight : \ 1.In the Total DataSet the Movies are 5377 \ 2.In the Total DataSet the TV Shows are 2410

## Q.4 Show all the Movies in the Year of 2016

```
In [26]: netflix.head()
```

Out[26]:

	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	Internati
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dr
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78 min	Internati
3	s4	Movie	9	Shane Acker	Elijah Wood, John C. Reilly, Jennifer Connelly...	United States	November 16, 2017	PG-13	80 min	Act
4	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar...	United States	January 1, 2020	PG-13	123 min	D

In [27]: netflix['Year']=netflix['Date\_N'].dt.year

In [28]: netflix.head(2)

Out[28]:

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

## Filtering

```
In [29]: netflix[(netflix['Category']=='Movie') & (netflix['Year']==2016)]
```

Out[29]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Durat
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 m
25	s26	Movie	(T)ERROR	Lyric R. Cabral, David Felix Sutcliffe	NaN	United States	June 30, 2016	NR	84 m
35	s36	Movie	#Rucker50	Robert McCullough Jr.	NaN	United States	December 1, 2016	TV-PG	56 m
59	s60	Movie	1000 Rupee Note	Shrihari Sathe	Usha Naik, Sandeep Pathak, Shrikant Yadav, Gan...	India	December 1, 2016	TV-14	89 m
62	s63	Movie	13 Cameras	Victor Zarcoff	PJ McCabe, Brianne Moncrief, Sarah Baldwin, Ji...	United States	August 13, 2016	NR	90 m
...	...	...	...	...	...	...	...	...	...
7715	s7714	Movie	Yo-Kai Watch: The Movie	Mark Risley	Johnny Yong Bosch, Joey D'Auria, Alicyn Packar...	Japan, United States	December 1, 2016	TV-Y7	96 m
7716	s7715	Movie	Yoga Hosers	Kevin Smith	Harley Quinn Smith, Lily-Rose Depp, Johnny Dep...	United States	December 2, 2016	PG-13	88 m
7728	s7727	Movie	You Carry Me	Ivona Juka	Lana Baric, Vojislav Brajovic, Natasa Janjic, ...	Croatia, Slovenia, Serbia, Montenegro	July 1, 2016	TV-MA	157 m
7739	s7738	Movie	Young Tiger	Mu Chu	Qiu Yuen,	Hong Kong	November 1, 2016	NR	81 m

	Show_Id	Category	Title	Director	Charlie Cast	Country	Release_Date	Rating	Duration
					Jackie Chan, Hu Chin, ...				
7772	s7771	Movie	Zinzana	Majid Al Ansari	Ali Suliman, Saleh Bakri, Yasa, Ali Al-Jabri, ...	United Arab Emirates, Jordan	March 9, 2016	TV-MA	96 min

258 rows x 13 columns

Q.5 Show all the TV Shows released in the Year 2016

```
In [30]: netflix.head(2)
```

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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc

```
In [31]: netflix[(netflix['Category']=='TV Show') &(netflix['Year']==2016)]
```

Out[31]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duratio
<b>137</b>	s138	TV Show	72 Cutest Animals	NaN	NaN	Australia	June 1, 2016	TV-PG	1 Seasc
<b>140</b>	s141	TV Show	72 Dangerous Places to Live	NaN	Mitch Ryan	Australia	June 1, 2016	TV-PG	1 Seasc
<b>321</b>	s322	TV Show	Africa	NaN	David Attenborough	United Kingdom	April 28, 2016	TV-PG	1 Seasc
<b>360</b>	s361	TV Show	AJIN: Demi-Human	NaN	Mamoru Miyano, Yoshimasa Hosoya, Jun Fukuyama,...	Japan	December 27, 2016	TV-MA	Season
<b>471</b>	s472	TV Show	American Odyssey	NaN	Anna Friel, Peter Facinelli, Jake Robinson, Ji...	United States	April 5, 2016	TV-14	1 Seasc
...	...	...	...	...	...	...	...	...	...
<b>7655</b>	s7654	TV Show	Women Behind Bars	NaN	NaN	United States	November 1, 2016	TV-14	Season
<b>7714</b>	s7713	TV Show	Yo-Kai Watch	NaN	Johnny Yong Bosch, J.W. Terry, Alicyn Packard,...	United States	April 1, 2016	TV-Y7	1 Seasc
<b>7735</b>	s7734	TV Show	You're My Destiny	NaN	Joe Chen, Ethan Juan, Baron Chen, Bianca Bai, ...	Taiwan	August 1, 2016	TV-MA	1 Seasc
<b>7742</b>	s7741	TV Show	Your lie in April	NaN	Natsuki Hanae, Risa Taneda, Ayane Sakura, Ryot...	Japan	March 1, 2016	TV-14	1 Seasc
<b>7769</b>	s7768	TV Show	Zindagi Gulzar Hai	NaN	Sanam Saeed, Fawad Khan,	Pakistan	December 15, 2016	TV-PG	1 Seasc



Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration
---------	----------	-------	----------	------	---------	--------------	--------	----------

Ayesha Omer,  
Mehreen ...

185 rows x 13 columns

## Q.6 Show only the Titles of all the TV Shows that was released in India Only

In [32]: `netflix.head(2)`

	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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demian Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc

In [33]: `netflix[(netflix['Category']=='TV Show') & (netflix['Country']=='India')] ['Title']`

Out[33]:

```

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

```

## Q.7 Show the Top 10 Directors, who gave the Highest no of TV Shows & Movies

In [34]: `netflix.head(2)`

Out[34]:

	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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc

In [35]: `netflix['Director'].value_counts().head(10)`

Out[35]:

Raúl Campos, Jan Suter	18
Marcus Raboy	16
Jay Karas	14
Cathy Garcia-Molina	13
Jay Chapman	12
Youssef Chahine	12
Martin Scorsese	12
Steven Spielberg	10
David Dhawan	9
Hakan Algül	8

Name: Director, dtype: int64

Insights:\

1. in the data set Raúl Campos, Jan Suter are give most no of TV Shows and Movies

## Q.8 Show all the Records, where 'Category' is Movie, Type is Comedy, or County is United States

In [36]: `netflix.head(2)`

Out[36]:

	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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc

In [37]:

```
netflix[(netflix['Category']=='Movie') & (netflix['Type']=='Comedies')]
```

Out[37]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration
<b>33</b>	s34	Movie	#realityhigh	Fernando Lebrija	Nesta Cooper, Kate Walsh, John Michael Higgins...	United States	September 8, 2017	TV-14	99 min
<b>72</b>	s73	Movie	17 Again	Burr Steers	Zac Efron, Leslie Mann, Matthew Perry, Thomas ...	United States	January 1, 2021	PG-13	102 min
<b>84</b>	s85	Movie	21 & Over	Jon Lucas, Scott Moore	Miles Teller, Skylar Astin, Justin Chon, Sarah...	United States	April 16, 2019	R	93 min
<b>148</b>	s149	Movie	A Bad Moms Christmas	Jon Lucas, Scott Moore	Mila Kunis, Kristen Bell, Kathryn Hahn, Susan ...	United States, China	February 14, 2020	R	104 min
<b>174</b>	s175	Movie	A Futile and Stupid Gesture	David Wain	Will Forte, Domhnall Gleeson, Martin Mull, Joe...	United States	January 26, 2018	TV-MA	102 min
...	...	...	...	...	...	...	...	...	...
<b>7341</b>	s7340	Movie	Undercover Brother 2	Leslie Small	Michael Jai White, Vince Swann, Barry Bostwick...	United States	November 5, 2019	R	85 min
<b>7590</b>	s7589	Movie	Where's the Money	Scott Zabielski	Andrew Bachelor, Kat Graham, Mike Epps, Terry ...	United States	January 22, 2018	R	86 min
<b>7623</b>	s7622	Movie	Wild Oats	Andy Tennant	Shirley MacLaine, Jessica Lange, Billy Connoll...	Germany, United States	May 13, 2017	PG-13	86 min

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration
7634	s7633	Movie	Wine Country	Amy Poehler	Amy Poehler, Maya Rudolph, Ana Gasteyer, Rache...	United States	May 10, 2019	R	104 min
7664	s7663	Movie	Work It	Laura Terruso	Sabrina Carpenter, Jordan Fisher, Liza Koshy, ...	United States	August 7, 2020	TV-14	94 min

97 rows x 13 columns

```
In [38]: netflix[(netflix['Category']=='Movie') & (netflix['Type']=='Comedies') | ( netflix['C
```

Out[38]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration
<b>3</b>	s4	Movie	9	Shane Acker	Elijah Wood, John C. Reilly, Jennifer Connelly...	United States	November 16, 2017	PG-13	80 min
<b>4</b>	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar...	United States	January 1, 2020	PG-13	123 min
<b>7</b>	s8	Movie	187	Kevin Reynolds	Samuel L. Jackson, John Heard, Kelly Rowan, Cl...	United States	November 1, 2019	R	119 min
<b>10</b>	s11	Movie	1922	Zak Hilditch	Thomas Jane, Molly Parker, Dylan Schmid, Kaitl...	United States	October 20, 2017	TV-MA	103 min
<b>14</b>	s15	Movie	3022	John Suits	Omar Epps, Kate Walsh, Miranda Cosgrove, Angus...	United States	March 19, 2020	R	91 min
...	...	...	...	...	...	...	...	...	...
<b>7760</b>	s7759	Movie	Zack and Miri Make a Porno	Kevin Smith	Seth Rogen, Elizabeth Banks, Craig Robinson, J...	United States	October 1, 2018	R	101 min
<b>7773</b>	s7772	Movie	Zion	Floyd Russ	Zion Clark	United States	August 10, 2018	TV-PG	12 min
<b>7776</b>	s7775	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	November 20, 2019	R	158 min

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration
7780	s7779	Movie	Zombieland	Ruben Fleischer	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	United States	November 1, 2019	R	88 min
7783	s7782	Movie	Zoom	Peter Hewitt	Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...	United States	January 11, 2020	PG	88 min

2578 rows x 13 columns

Q.9 In How Many Movies/TV Shows Tom Cruise was casted ?

```
In [39]: netflix.head(2)
```

Out[39]:

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	International TV Shows TV Drama TV Sci-Fi
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Drama International Movies



```
In [40]: netflix[netflix['Cast'].str.contains('Tom Cruise')]
```

```

-----
ValueError                                Traceback (most recent call last)
Cell In[40], line 1
----> 1 netflix[netflix['Cast'].str.contains('Tom Cruise')]

File ~\anaconda3\lib\site-packages\pandas\core\frame.py:3797, in DataFrame.__getitem__(self, key)
    3794     return self.where(key)
    3796 # Do we have a (boolean) 1d indexer?
-> 3797 if com.is_bool_indexer(key):
    3798     return self._getitem_bool_array(key)
    3800 # We are left with two options: a single key, and a collection of keys,
    3801 # We interpret tuples as collections only for non-MultiIndex

File ~\anaconda3\lib\site-packages\pandas\core\common.py:135, in is_bool_indexer(key)
    131     na_msg = "Cannot mask with non-boolean array containing NA / NaN values"
    132     if lib.infer_dtype(key_array) == "boolean" and isna(key_array).any():
    133         # Don't raise on e.g. ["A", "B", np.nan], see
    134         # test_loc_getitem_list_of_labels_categoricalindex_with_na
--> 135         raise ValueError(na_msg)
    136     return False
    137 return True

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

```

In [41]: *# from the Above Error, firstly we can remove the null value in the data set, so we cr*

In [42]: netflix\_New = netflix.dropna()  
netflix\_New.head(2)

Out[42]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	T
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dran Internatic Mo
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78 min	Ho Mov Internatic Mo

In [43]: netflix\_New[netflix\_New['Cast'].str.contains('Tom Cruise')]



Out[43]:

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

## Q.10 What are the different Ratings declared by Netflix?

In [44]: `netflix['Rating'].nunique()`

Out[44]: 14

In [45]: `netflix['Rating'].unique()`Out[45]: `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)`

## Q.11 What is the Maximum Duration of a Movie\TV Show in Netflix

In [46]: `netflix.head(2)`

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

In [47]: `netflix['Duration'].unique()`

```
Out[47]: 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 [48]: netflix['Duration'].dtypes
```

```
Out[48]: dtype('O')
```

```
Str.split()
```

```
In [49]: netflix[['Minutes', 'Unit']] = netflix['Duration'].str.split(' ', expand=True)
```

```
In [50]: netflix.head(2)
```

Out[50]:

	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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc



In [51]: netflix['Minutes'].max()

Out[51]: '99'

Q.12 Witch Individual County has Highest No of TV Shows ?

In [52]: netflix.head(2)

Out[52]:

	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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc



In [53]: netflix\_TVSHOWS= netflix[netflix['Category']=='TV Show']

In [54]: netflix.head(2)

Out[54]:

	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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc

In [55]: `netflix_TVSHOWS.head(2)`

Out[55]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	T
0	s1	TV Show	3%	NaN	João Miguel, Bianca Comparato, Michel Gomes, R...	Brazil	August 14, 2020	TV-MA	4 Seasons	Internatic TV Shc TV Drar TV Sci-Fi
5	s6	TV Show	46	Serdar Akar	Erdal Beşikçioğlu, Yasemin Allen, Melis Birkan...	Turkey	July 1, 2017	TV-MA	1 Season	Internatic TV Shc TV Drar Myste

In [56]: `netflix_TVSHOWS['Country'].value_counts()`

Out[56]:

```

United States    705
United Kingdom   204
Japan            157
South Korea      147
India            71
...
Canada, United States, United Kingdom, France, Luxembourg    1
United States, Italy    1
Chile, Italy    1
Canada, United Kingdom    1
United States, France, South Korea, Indonesia    1
Name: Country, Length: 183, dtype: int64

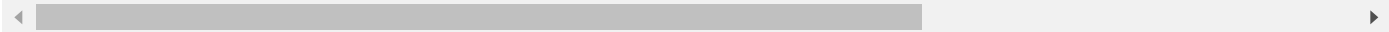
```

## Q.13 How can we sort the Values in DataSet?

In [57]: `netflix.head(2)`

Out[57]:

	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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc



```
In [58]: netflix.sort_values(by='Year', ascending=False)
```

Out[58]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration
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	128 min
5919	s5919	Movie	Surf's Up	Ash Brannon, Chris Buck	Shia LaBeouf, Jeff Bridges, Zooey Deschanel, J...	United States	January 1, 2021	PG	86 min
980	s981	TV Show	Bling Empire	NaN	NaN	NaN	January 15, 2021	TV-MA	1 Season
5955	s5955	Movie	Taare Zameen Par	Aamir Khan	Aamir Khan, Darsheel Safary, Tanay Chheda, Tis...	India	January 10, 2021	PG	162 min
366	s367	Movie	Al acecho	Francisco D'Eufemia	Rodrigo de la Serna, Belen Blanco, Walter Jako...	NaN	January 12, 2021	TV-MA	81 min
...	...	...	...	...	...	...	...	...	...
3374	s3375	TV Show	Kikoriki	NaN	Igor Dmitriev	NaN	NaN	TV-Y	2 Season
3492	s3493	TV Show	La Familia P. Luche	NaN	Eugenio Derbez, Consuelo Duval, Luis Manuel Áv...	United States	NaN	TV-14	3 Season
3946	s3947	TV Show	Maron	NaN	Marc Maron, Judd Hirsch, Josh Brener,	United States	NaN	TV-MA	4 Season

Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	
5138	s5138	TV Show	Red vs. Blue	NaN	Nora Zeh...	United States	NaN	NR	13 Seasons
					Burnie Burns, Jason Saldaña, Gustavo Sorola, G...				
6066	s6066	TV Show	The Adventures of Figaro Pho	NaN	Luke Jurevicius, Craig Behenna, Charlotte Haml...	Australia	NaN	TV-Y7	2 Seasons

7787 rows x 15 columns

Q.14 Category is Movie & Type is Dramas, Find Instances

```
In [59]: netflix.head(2)
```

	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	Internati TV Sh TV Dra TV Sci-F
1	s2	Movie	07:19	Jorge Michel Grau	Demían Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dra Internati Mc

```
In [60]: netflix[(netflix['Category']=='Movie') &(netflix['Type']=='Dramas')]
```

Out[60]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration
<b>4</b>	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar...	United States	January 1, 2020	PG-13	123 min
<b>7</b>	s8	Movie	187	Kevin Reynolds	Samuel L. Jackson, John Heard, Kelly Rowan, Cl...	United States	November 1, 2019	R	119 min
<b>170</b>	s171	Movie	A Family Man	Mark Williams	Gerard Butler, Gretchen Mol, Alison Brie, Will...	Canada, United States	December 15, 2019	R	110 min
<b>232</b>	s233	Movie	A Stoning in Fulham County	Larry Elikann	Ken Olin, Jill Eikenberry, Maureen Mueller, Gr...	United States	October 1, 2011	TV-14	95 min
<b>295</b>	s296	Movie	Across Grace Alley	Ralph Macchio	Ben Hyland, Marsha Mason, Karina Smirnoff, Col...	United States	December 1, 2016	TV-PG	24 min
...	...	...	...	...	...	...	...	...	...
<b>7417</b>	s7416	Movie	Victor	Brandon Dickerson	Patrick Davis, Lisa Vidal, Josh Pence, José Zú...	United States	July 24, 2017	PG-13	110 min
<b>7422</b>	s7421	Movie	Villain	Philip Barantini	Craig Fairbrass, George Russo, Robert Gleniste...	United Kingdom	September 5, 2020	R	97 min
<b>7449</b>	s7448	Movie	VS.	Ed Lilly	Connor Swindells, Fola Evans-Akingbola, Nichol...	United Kingdom	June 19, 2019	TV-MA	99 min



	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration
7465	s7464	Movie	Wakefield	Robin Swicord	Bryan Cranston, Jennifer Garner, Jason O'Mara,...	United States	March 2, 2019	R	109 min
7480	s7479	Movie	War Horse	Steven Spielberg	Emily Watson, David Thewlis, Peter Mullan, Nie...	United States, India	May 6, 2019	PG-13	147 min

117 rows x 15 columns

Q.15 Category is Movie & Type is Dramas OR Category is TV Show & Type is Kids TV

```
In [61]: netflix.head(2)
```

Out[61]:	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	T	
	0	s1	TV Show	3%	NaN	João Miguel, Bianca Comparato, Michel Gomes, R...	Brazil	August 14, 2020	TV-MA	4 Seasons	International TV Shows, TV Dramas, TV Sci-Fi
	1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Drama, International Movies

```
In [62]: netflix[(netflix['Category']=='Movie') &(netflix['Type']=='Dramas') | (netflix['Catego
```

Out[62]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration
<b>4</b>	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar...	United States	January 1, 2020	PG-13	123 min
<b>7</b>	s8	Movie	187	Kevin Reynolds	Samuel L. Jackson, John Heard, Kelly Rowan, Cl...	United States	November 1, 2019	R	119 min
<b>170</b>	s171	Movie	A Family Man	Mark Williams	Gerard Butler, Gretchen Mol, Alison Brie, Will...	Canada, United States	December 15, 2019	R	110 min
<b>232</b>	s233	Movie	A Stoning in Fulham County	Larry Elikann	Ken Olin, Jill Eikenberry, Maureen Mueller, Gr...	United States	October 1, 2011	TV-14	95 min
<b>295</b>	s296	Movie	Across Grace Alley	Ralph Macchio	Ben Hyland, Marsha Mason, Karina Smirnoff, Col...	United States	December 1, 2016	TV-PG	24 min
...	...	...	...	...	...	...	...	...	...
<b>7417</b>	s7416	Movie	Victor	Brandon Dickerson	Patrick Davis, Lisa Vidal, Josh Pence, José Zú...	United States	July 24, 2017	PG-13	110 min
<b>7422</b>	s7421	Movie	Villain	Philip Barantini	Craig Fairbrass, George Russo, Robert Gleniste...	United Kingdom	September 5, 2020	R	97 min
<b>7449</b>	s7448	Movie	VS.	Ed Lilly	Connor Swindells, Fola Evans-Akingbola, Nichol...	United Kingdom	June 19, 2019	TV-MA	99 min

Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	
7465	s7464	Movie	Wakefield	Robin Swicord	Bryan Cranston, Jennifer Garner, Jason O'Mara,...	United States	March 2, 2019	R	109 min
7480	s7479	Movie	War Horse	Steven Spielberg	Emily Watson, David Thewlis, Peter Mullan, Nie...	United States, India	May 6, 2019	PG-13	147 min

117 rows x 15 columns

In [ ]: