

Netflix data analysis using Python.

Objective - The main objective is to perform Exploratory data analysis over Netflix data which include the details of TV shows and Movies. Analyze the given dataset to answer set of business questions client wants to know.

Data source- Kaggle.com This dataset consists of tv shows and movies available on Netflix as of 2019. The dataset is collected from Flixable which is a third-party Netflix search engine.

Project Roadmap

1. Ask- Collect stakeholder requirement and business questions.
2. Prepare- Validate business requirement and download data set.
3. Process- Perform Exploratory data analysis and make it ready for analysis.
4. Analyze- Analyze the data to answer set of business questions.
5. Share- Document and represent the findings and share it with stakeholders.

Business Questions client want to know are:-

1. Get detail for "House of Cards" and who is the director of the show.
2. Highest number of TV shows and movies released by years, Visualize result.
3. How many Movies and TV Show we have in dataset.
4. In The year 2000 how many movies are releases, display their details.
5. Show number of TV Shows released in India only and also get their title.
6. Show number of TV Shows released in India only and also get their title.
7. Show Top 10 Directors, Who gave the highest number of releases to Netflix.
8. Show all the Records, where "Category is Movie and Type is Comedies" or "Country is United Kingdom".
9. Get detail of Actor Tom Cruise, in home many Movies/Shows he was present.
10. Count of all unique Ratings.
11. Get the count of TV-14 rating Movies in Canada.
12. After 2018 how many TV Shows got "R" rating.
13. Maximum Seasons in TV Shows.
14. Maximum duration in Movie.

15. Country with release of maximum number of TV Show.
16. Country with release of maximum number of Movies.
17. Find total number of Drama Movies and display records.
18. Find total number of Kids TV Show and display records.
19. Find the number of Comedy Movies released for family and kids in India only and display their title.
20. Find the number of adult movies released in India only along with title and duration of movie.
21. Find Adventure and Thriller movies released in India only along with title and duration of movie.

Analyzed by - Mohammad Juned Khan

```
In [2]: # import basic libraries
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline
```

```
In [3]: # import Netflix dataset
data=pd.read_csv("Netflix_dataset.csv")
# view to rows of data set
data.head(5)
```

```
Out[3]:
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description
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 &...	In a future where the elite inhabit an island ...
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dramas, International Movies	After a devastating earthquake hits Mexico Cit...
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78 min	Horror Movies, International Movies	When an army recruit is found dead, his fellow...

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description
3	s4	Movie	9	Shane Acker	Elijah Wood, John C. Reilly, Jennifer Connelly...	United States	November 16, 2017	PG-13	80 min	Action & Adventure, Independent Movies, Sci-Fi...	In a postapocalyptic world, rag-doll robots hi...
4	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar...	United States	January 1, 2020	PG-13	123 min	Dramas	A brilliant group of students become card-coun...

Perform Exploratory data analysis first

In [4]:

```
# top 5 records
data.head()
```

Out[4]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description
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 &...	In a future where the elite inhabit an island ...
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dramas, International Movies	After a devastating earthquake hits Mexico Cit...
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78 min	Horror Movies, International Movies	When an army recruit is found dead, his fellow...
3	s4	Movie	9	Shane Acker	Elijah Wood, John C. Reilly, Jennifer Connelly...	United States	November 16, 2017	PG-13	80 min	Action & Adventure, Independent Movies, Sci-Fi...	In a postapocalyptic world, rag-doll robots hi...
4	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar...	United States	January 1, 2020	PG-13	123 min	Dramas	A brilliant group of students become card-coun...

In [5]:

```
#bottom 5 records
data.tail()
```

Out[5]:

Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description
7784	Movie	Zozo	Josef Fares	Imad Creidi, Antoinette Turk, Elias Gergi, Car...	Sweden, Czech Republic, United Kingdom, Denmar...	October 19, 2020	TV-MA	99 min	Dramas, International Movies	When Lebanon's Civil War deprives Zozo of his ...
7785	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan...	India	March 2, 2019	TV-14	111 min	Dramas, International Movies, Music & Musicals	A scrappy but poor boy worms his way into a ty...
7786	Movie	Zulu Man in Japan	NaN	Nasty C	NaN	September 25, 2020	TV-MA	44 min	Documentaries, International Movies, Music & M...	In this documentary, South African rapper Nast...
7787	TV Show	Zumbo's Just Desserts	NaN	Adriano Zumbo, Rachel Khoo	Australia	October 31, 2020	TV-PG	1 Season	International TV Shows, Reality TV	Dessert wizard Adriano Zumbo looks for the nex...
7788	Movie	ZZ TOP: THAT LITTLE OL' BAND FROM TEXAS	Sam Dunn	NaN	United Kingdom, Canada, United States	March 1, 2020	TV-MA	90 min	Documentaries, Music & Musicals	This documentary delves into the mystique behi...

In [6]:

```
# shape of dataset
data.shape
```

Out[6]: (7789, 11)

```
In [7]: # total number of elements in dataset
data.size
```

```
Out[7]: 85679
```

```
In [8]: #list columns in dataset
data.columns
```

```
Out[8]: Index(['Show_Id', 'Category', 'Title', 'Director', 'Cast', 'Country',
              'Release_Date', 'Rating', 'Duration', 'Type', 'Description'],
              dtype='object')
```

```
In [9]: #data type of columns
data.dtypes
```

```
Out[9]: 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 [10]: # more information about dataset.
#such as index, number of columns, data type of each columns, non null values in each columns and memory usage
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 [142...

```
# Descriptive
data.describe(include="all")
```

<ipython-input-142-62d5eccceefc>:2: FutureWarning: Treating datetime data as categorical rather than numeric in `.describe` is deprecated and will be removed in a future version of pandas. Specify `datetime_is_numeric=True` to silence this warning and adopt the future behavior now.

```
data.describe(include="all")
```

Out[142...

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description
count	7787	7787	7787	5399	7069	7280	7777	7780	7787	7787	7787
unique	7787	2	7787	4050	6831	681	1565	14	216	492	7769
top	s7094	Movie	#FriendButMarried 2	Raúl Campos, Jan Suter	David Attenborough	United States	January 1, 2020	TV-MA	1 Season	Documentaries	Multiple women report their husbands as missin...
freq	1	5377	1	18	18	2555	118	2863	1608	334	3
first	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
last	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
mean	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
std	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
min	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
25%	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
50%	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
75%	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

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

Check and remove duplicate records from the dataset.

```
In [14]: # check for duplicate records in data set and remove it.
data[data.duplicated()]
```

```
Out[14]:
```

Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	
6300	s684	Movie	Backfire	Dave Patten	Black Deniro, Byron "Squally" Vinson, Dominic ...	United States	April 5, 2019	TV-MA	97 min	Dramas, Independent Movies, Thrillers	When two would-be robbers accidentally kill a ...
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	Comedies, Dramas, Independent Movies	A disillusioned security guard transforms into...

```
In [17]: # we have two duplicate records and now remove it
data.drop_duplicates(inplace=True)
```

```
In [21]: #now cross check for duplicate records
data[data.duplicated()]
```

```
Out[21]:
```

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

```
In [22]: # shape of data after removing duplicate data. previous shape (7789, 11)
data.shape
```

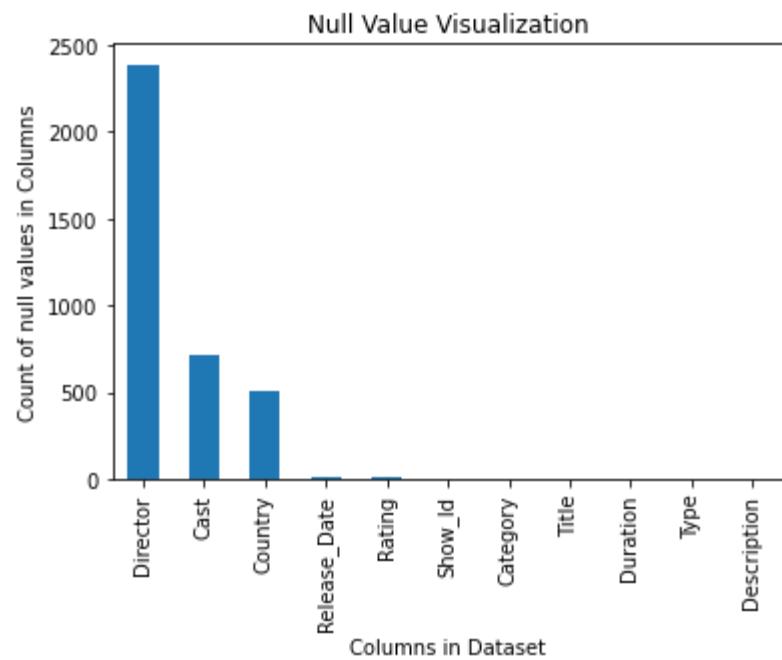
```
Out[22]: (7787, 11)
```

Check for null values. Show it in Heat-map using seaborn

```
In [23]: # Get count of null values in each columns.  
data.isnull().sum()
```

```
Out[23]: 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]: #plot a bargraph of null values  
nullvalue= data.isnull().sum()  
nullvalue = nullvalue.sort_values(ascending=False)  
nullvalue.plot(kind="bar")  
plt.xlabel("Columns in Dataset")  
plt.ylabel("Count of null values in Columns")  
plt.title("Null Value Visualization")  
plt.show()
```

```
In [40]: #plot a heat-map using Seaborn  
sns.heatmap(data.isnull())
```

```
Out[40]: <AxesSubplot:>
```



We will not treat missing values in this file. Now let's start answering business questions.

1- Get detail for "House of Cards" and who is the director of the show.

```
In [42]: data[data.Title.isin(["House of Cards"])]
```

```
Out[42]:
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description
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	TV Dramas, TV Thrillers	A ruthless politician will stop at nothing to ...

```
In [44]: #Director of "House of Cards"
data["Director"][data.Title.isin(["House of Cards"])]
```

```
Out[44]: 2832    Robin Wright, David Fincher, Gerald McRaney, J...
Name: Director, dtype: object
```

2- Highest number of TV shows and movies released by years, Visualize result.

```
In [45]: # all the columns have data type as object. First convert date column to date datatype
# create new column Date_N which include release data.
data["Date_N"] = pd.to_datetime(data["Release_Date"])
data.head()
```

```
Out[45]:
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N
0	s1	TV Show	3%	NaN	João Miguel, Bianca	Brazil	August 14, 2020	TV-MA	4 Seasons	International TV Shows, TV Dramas,	In a future where the elite inhabit an	2020-08-14

Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	
1	s2	Movie	07:19	Jorge Michel Grau	Comparato, Michel Gomes, R...	Mexico	December 23, 2016	TV-MA	93 min	TV Sci-Fi &...	island ...	2016-12-23
					Demián Bichir, Héctor Bonilla, Oscar Serrano, ...					Dramas, International Movies	After a devastating earthquake hits Mexico Cit...	
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78 min	Horror Movies, International Movies	When an army recruit is found dead, his fellow...	2018-12-20
3	s4	Movie	9	Shane Acker	Elijah Wood, John C. Reilly, Jennifer Connelly...	United States	November 16, 2017	PG-13	80 min	Action & Adventure, Independent Movies, Sci-Fi...	In a postapocalyptic world, rag-doll robots hi...	2017-11-16
4	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey, Kate Bosworth,	United States	January 1, 2020	PG-13	123 min	Dramas	A brilliant group of students become card-coun...	2020-01-01

```
In [47]: #check data type of Date_N column
data["Date_N"].dtypes
```

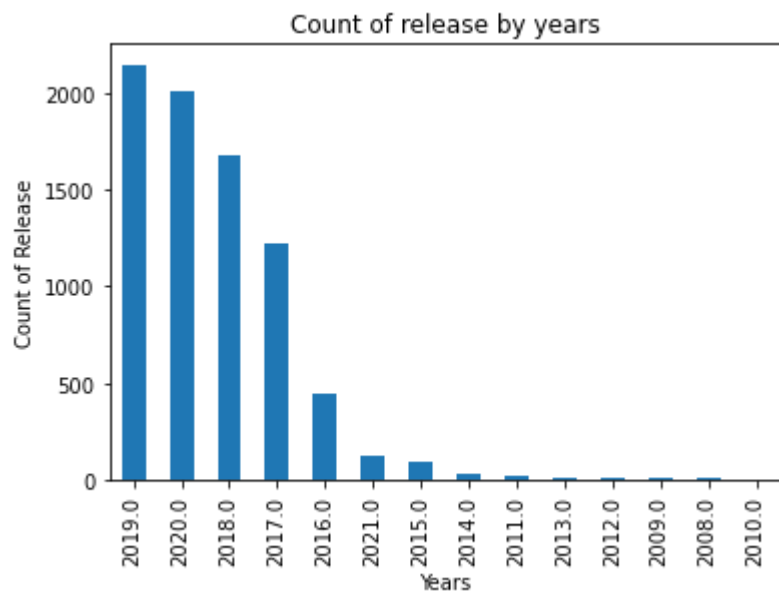
```
Out[47]: dtype('<M8[ns]')
```

```
In [90]: # Count number of TV Shows and Movies released by year
year_release_count = data["Date_N"].dt.year.value_counts()
year_release_count = year_release_count.sort_values(ascending=False)
year_release_count
```

```
Out[90]: 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

```
In [68]: year_release_count.plot(kind="bar")
plt.xlabel("Years")
plt.ylabel("Count of Release")
plt.title("Count of release by years")
plt.show()
```



3- How many Movies and TV Show we have in dataset

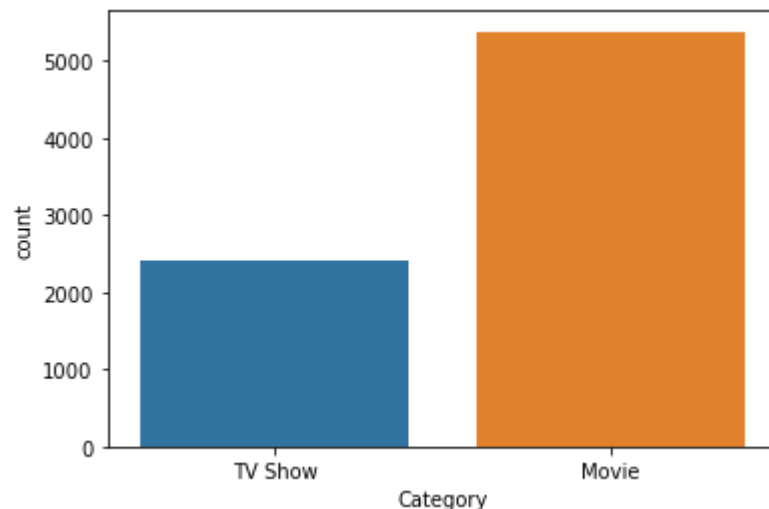
```
In [76]: #Grouping on Category and getting count of unique values
data.groupby("Category").Category.count()
```

```
Out[76]: Category
Movie      5377
TV Show    2410
Name: Category, dtype: int64
```

```
In [77]: #We can directly olt value count in seaborn countplot() function
sns.countplot(data["Category"])
```

```
C:\Machinelearning\Anaconda\envs\mlwork\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[77]: <AxesSubplot:xlabel='Category', ylabel='count'>
```



4- In The year 2000 how many movies are releases, display their details.

```
In [78]: # Create a new column Release_year to extract year from release date
data["Release_year"] = data["Date_N"].dt.year
data.head(3)
```

Out[78]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	Release
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 &...	In a future where the elite inhabit an island ...	2020-08-14	2
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dramas, International Movies	After a devastating earthquake hits Mexico Cit...	2016-12-23	2
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78 min	Horror Movies, International Movies	When an army recruit is found dead, his fellow...	2018-12-20	2

```
In [ ]: # filtering data based on requirement where year is 2000 and category is Movie
```

```
In [84]: data.head()
```

Out[84]:

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	Rele
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 &...	In a future where the elite inhabit an island ...	2020-08-14	

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	Rele
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dramas, International Movies	After a devastating earthquake hits Mexico Cit...	2016-12-23	
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78 min	Horror Movies, International Movies	When an army recruit is found dead, his fellow...	2018-12-20	
3	s4	Movie	9	Shane Acker	Elijah Wood, John C. Reilly, Jennifer Connelly...	United States	November 16, 2017	PG-13	80 min	Action & Adventure, Independent Movies, Sci-Fi...	In a postapocalyptic world, rag-doll robots hi...	2017-11-16	
4	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey,	United States	January 1, 2020	PG-13	123 min	Dramas	A brilliant group of students	2020-01-01	

```
In [91]: data[(data["Category"]=="Movie") & (data["Release_year"]==2000)]
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	Release_y
3840	s3841	Movie	Mad Ron's Prevues from Hell	Jim Monaco	Nick Pawlow, Jordy Schell, Jay Kushwara, Micha...	United States	November 1, 2010	NR	84 min	Cult Movies, Horror Movies	This collection cherry-picks trailers, forgott...	2010-11-01	201

```
In [86]: # No movies were released in the year 2000.
```

```
In [89]: #lets check for TV Shoes in year 2000
data[(data["Category"]=="TV Show") & (data["Release_year"]==2000)]
```

```
Out[89]: Show_Id  Category  Title  Director  Cast  Country  Release_Date  Rating  Duration  Type  Description  Date_N  Release_year
```

5- Show number of TV Shows released in India only and also get their title.

```
In [96]: print("Number of TV Shows released in India only are : ",data[(data["Category"]=="TV Show") & (data["Country"]=="India")])

Number of TV Shows released in India only are : 71
```

```
In [97]: data[(data["Category"]=="TV Show") & (data["Country"]=="India")]["Title"]
```

```
Out[97]: 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
```

6- Show Top 10 Directors, Who gave the highest number of releases to Netflix.

```
In [98]: data["Director"].value_counts().head(10)
```

```
Out[98]: Raúl Campos, Jan Suter      18
Marcus Raboy                        16
Jay Karas                           14
Cathy Garcia-Molina                 13
```



```

Martin Scorsese      12
Jay Chapman          12
Youssef Chahine      12
Steven Spielberg     10
David Dhawan          9
Ryan Polito           8
Name: Director, dtype: int64

```

7- Show all the Records, where "Category is Movie and Type is Comedies" or "Country is United Kingdom".

In [104...

```

# filter Movie & Comedies
data[(data["Category"]=="Movie") & (data["Type"]=="Comedies")]

```

Out[104...

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	R
33	s34	Movie	#realityhigh	Fernando Lebrija	Nesta Cooper, Kate Walsh, John Michael Higgins...	United States	September 8, 2017	TV-14	99 min	Comedies	When nerdy high schooler Dani finally attracts...	2017-09-08	
72	s73	Movie	17 Again	Burr Steers	Zac Efron, Leslie Mann, Matthew Perry, Thomas ...	United States	January 1, 2021	PG-13	102 min	Comedies	Nearing a midlife crisis, thirty-something Mik...	2021-01-01	
84	s85	Movie	21 & Over	Jon Lucas, Scott Moore	Miles Teller, Skylar Astin, Justin Chon, Sarah...	United States	April 16, 2019	R	93 min	Comedies	Jeff's straight-and-narrow life changes abrupt...	2019-04-16	

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	Ri
148	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	Comedies	Stressed-out moms Amy, Carla and Kiki are back...	2020-02-14	
174	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	Comedies	In a brief life full of triumph and failure, "...	2018-01-26	
...	
7341	s7340	Movie	Undercover Brother 2	Leslie Small	Michael Jai White, Vince Swann, Barry Bostwick...	United States	November 5, 2019	R	85 min	Comedies	When a beloved secret agent falls deep into a ...	2019-11-05	
7590	s7589	Movie	Where's the Money	Scott Zabielski	Andrew Bachelor, Kat Graham, Mike Epps, Terry ...	United States	January 22, 2018	R	86 min	Comedies	Hunting for a stash of stolen money, a sharp-w...	2018-01-22	
7623	s7622	Movie	Wild Oats	Andy Tennant	Shirley MacLaine, Jessica Lange, Billy Connoll...	Germany, United States	May 13, 2017	PG-13	86 min	Comedies	When insurance accidentally pays her millions,...	2017-05-13	
7634	s7633	Movie	Wine Country	Amy Poehler	Amy Poehler, Maya Rudolph, Ana Gasteyer,	United States	May 10, 2019	R	104 min	Comedies	When longtime friends meet up for a wine-soake...	2019-05-10	

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	Ra
					Rache...								
					Sabrina						A brilliant		
In [105...	<pre>#First condition & then second condition then / "Or" condition data[(data["Category"]=="Movie") & (data["Type"]=="Comedies") (data["Country"]=="United Kingdom")]</pre>												
Out[105...	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date	
	19	s20	Movie	'89	NaN	Lee Dixon, Ian Wright, Paul Merson	United Kingdom	May 16, 2018	TV-PG	87 min	Sports Movies	Mixing old footage with interviews, this is th...	2018-05
	33	s34	Movie	#realityhigh	Fernando Lebrija	Nesta Cooper, Kate Walsh, John Michael Higgins...	United States	September 8, 2017	TV-14	99 min	Comedies	When nerdy high schooler Dani finally attracts...	2017-09
	58	s59	TV Show	100% Hotter	NaN	Daniel Palmer, Melissa Sophia, Karen Williams,...	United Kingdom	November 1, 2019	TV-14	1 Season	British TV Shows, International TV Shows, Real...	A stylist, a hair designer and a makeup artist...	2019-11
	72	s73	Movie	17 Again	Burr Steers	Zac Efron, Leslie Mann, Matthew Perry, Thomas ...	United States	January 1, 2021	PG-13	102 min	Comedies	Nearing a midlife crisis, thirty-something Mik...	2021-01
	82	s83	Movie	2036 Origin Unknown	Hasraf Dulull	Katee Sackhoff, Ray Fearon, Julie Cox, Steven ...	United Kingdom	December 20, 2018	TV-14	95 min	Sci-Fi & Fantasy	Working with an artificial intelligence to inv...	2018-12

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date
...
7670	s7669	TV Show	World War II in Colour	NaN	Robert Powell	United Kingdom	August 1, 2017	TV-MA	1 Season	British TV Shows, Docuseries, International TV...	Footage of the most dramatic moments from Worl...	2017-08
7671	s7670	TV Show	World's Busiest Cities	NaN	Anita Rani, Ade Adepitan, Dan Snow	United Kingdom	February 1, 2019	TV-PG	1 Season	British TV Shows, Docuseries	From Moscow to Mexico City, three BBC journali...	2019-02
7688	s7687	Movie	XV: Beyond the Tryline	Pierre Deschamps	NaN	United Kingdom	March 18, 2020	TV-14	91 min	Documentaries, Sports Movies	Set against the 2015 Rugby World Cup, this doc...	2020-03
7725	s7724	Movie	You Can Tutu	James Brown	Lily O'Regan, Jeannettsy Enriquez Borges, Joel...	United Kingdom	December 31, 2017	TV-G	87 min	Children & Family Movies	A gifted young ballet dancer struggles to find...	2017-12
7740	s7739	TV Show	Young Wallander	NaN	Adam Pålsson, Richard Dillane, Leanne Best, El...	United Kingdom	September 3, 2020	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Dramas	An incendiary hate crime stirs civil unrest, f...	2020-09

8- Get detail of Actor Tom Cruise, in home many Movies/Shows he was present.

```
In [110...
#As our data contains NaN values we can not search for Tom Cruise directly
#Lets create a new df and drop NaN values first to filter record based on conditions.
data_t = data.copy()
data_t["Cast"].isnull().sum()
```

Out[110... 718

```
In [116...
#Drop Nan values
data_t.dropna(inplace=True)
data_t["Cast"].isnull().sum()
```

Out[116... 0

```
In [122...
data_t[data_t["Cast"].str.contains("Tom Cruise")]
```

Out[122...

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	Re
3860	s3861	Movie	Magnolia	Paul Thomas Anderson	Jeremy Blackman, Tom Cruise, Melinda Dillon, A...	United States	January 1, 2020	R	189 min	Dramas, Independent Movies	Through chance, human action, past history and...	2020-01-01	
5071	s5071	Movie	Rain Man	Barry Levinson	Dustin Hoffman, Tom Cruise, Valeria Golino, Ge...	United States	July 1, 2019	R	134 min	Classic Movies, Dramas	A fast-talking yuppie is forced to slow down w...	2019-07-01	

9- Count of all unique Ratings .

```
In [138...
# type of rating we have in dataset
print("We have total",data["Rating"].nunique(),"type of ratings from Netflix.")
```

We have total 14 type of ratings from Netflix.

```
In [139... #unique values in rating
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 [141... #value count of each type of Rating
data["Rating"].value_counts()
```

```
Out[141... TV-MA      2863
TV-14      1931
TV-PG      806
R           665
PG-13       386
TV-Y        280
TV-Y7       271
PG          247
TV-G        194
NR           84
G           39
TV-Y7-FV     6
UR           5
NC-17        3
Name: Rating, dtype: int64
```

10- Get the count of TV-14 rating Movies in Canada.

```
In [165... print("There are total",data[(data["Rating"]=="TV-14") & (data["Category"]=="Movie") & (data["Country"]=="Ca
#data[(data["Rating"]=="TV-14") & (data["Country"]=="Canada")].shape[0] for getting count
print("  Title of Movies with TV-14 Rating  ")
data[(data["Rating"]=="TV-14") & (data["Category"]=="Movie") & (data["Country"]=="Canada")].Title
```

There are total 11 Movies with TV-14 rating in Canada.
Title of Movies with TV-14 Rating

```
Out[165... 30          #cats_the_mewvie
34          #Roxy
608         At First Light
1506        Counterfeiting in Suburbia
3713        Long Time Running
3956        Martin Matte: La vie, la mort...eh la la..!
```

```

5336                Sadie's Last Days on Earth
5393                Sardaar ji
6062                The Accountant of Auschwitz
7025                The Wrong Babysitter
7041                There's Something in the Water
Name: Title, dtype: object

```

11- After 2018 how many TV Shows got "R" rating.

```

In [163... print("There are total",data[(data["Category"]=="TV Show")&(data["Rating"]=="R") & (data["Release_year"]> 20
data[(data["Category"]=="TV Show")&(data["Rating"]=="R") & (data["Release_year"]> 2018)].Title

```

There are total 1 TV Shows with R rating after 2018.

```

Out[163... 6437    The Hateful Eight: Extended Version
Name: Title, dtype: object

```

12- Maximum Seasons in TV Shows.

```

In [166... #check values in Duration
data["Duration"].unique()

```

```

Out[166... 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',
```

In [169...

values in the column are of Object type. lest split the values and store them in new columns
data[["Minuts","Unit"]]= data["Duration"].str.split(' ',expand=True)
data.head()

Out[169...

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	Rele
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 &...	In a future where the elite inhabit an island ...	2020-08-14	
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dramas, International Movies	After a devastating earthquake hits Mexico Cit...	2016-12-23	
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78 min	Horror Movies, International Movies	When an army recruit is found dead, his fellow...	2018-12-20	

Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	Rele
3	s4	Movie	9	Shane Acker	Elijah Wood, John C. Reilly, Jennifer Connelly...	United States	November 16, 2017	PG-13	80 min	Action & Adventure, Independent Movies, Sci-Fi...	In a postapocalyptic world, rag-doll robots hi...	2017-11-16
				Jim Sturgess,						A brilliant		

In [182...

```
#Convert Minuts Column to integer
data["Minuts"]=pd.to_numeric(data["Minuts"])
data["Minuts"].dtype
```

In [184...

```
# duration of TV Show in terms of season
print("Seasons wise TV Show count",data[data["Category"]=="TV Show"].Duration.value_counts())
```

```
Seasons wise TV Show count 1 Season      1608
2 Seasons      382
3 Seasons      184
4 Seasons       87
5 Seasons       58
6 Seasons       30
7 Seasons       19
8 Seasons       18
9 Seasons        8
10 Seasons        6
11 Seasons        3
12 Seasons        2
13 Seasons        2
15 Seasons        2
16 Seasons        1
Name: Duration, dtype: int64
```

In [191...

```
# Maximum Seasons in TV Show
print("Maximum Seasons in TV Show is",data[data["Category"]=="TV Show"].Minuts.max(),"Seasons.")
```

Maximum Seasons in TV Show is 16 Seasons.

13- Maximum duration in Moive.

In [190...

```
# Maximum Duration of Movie
print("Maximum duration in Movie is",data[data["Category"]=="Movie"].Minuts.max(),"minuts.")
```

Maximum duration in Movie is 312 minuts.

14 Country with release of maximum number of TV Show.

In [194...

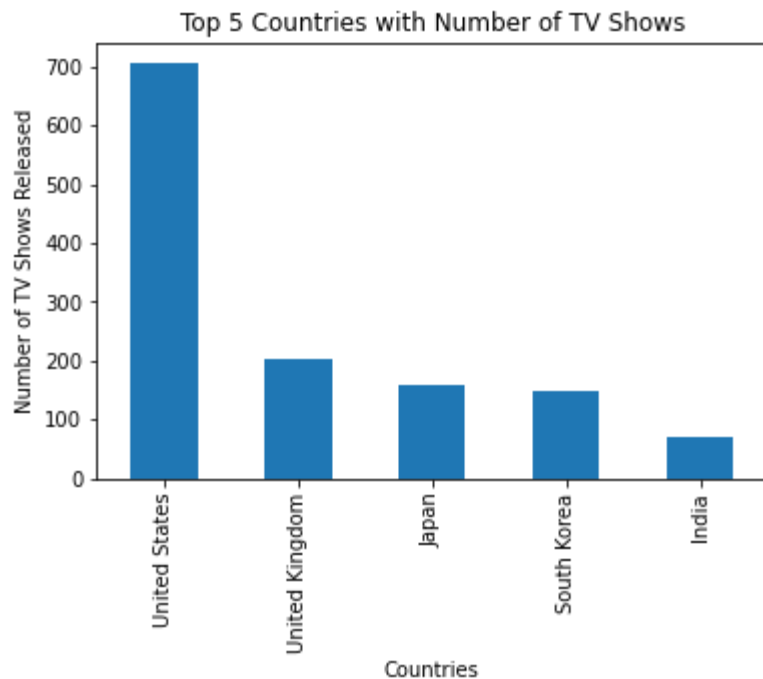
```
#Country with maximum TV Shows
data[data["Category"]=="TV Show"].Country.value_counts().head(1)
```

Out[194...

United States 705
Name: Country, dtype: int64

In [197...

```
# Top 5 Countries in terms of shows
data[data["Category"]=="TV Show"].Country.value_counts().head(5).plot(kind="bar")
plt.xlabel("Countries")
plt.ylabel("Number of TV Shows Released")
plt.title("Top 5 Countries with Number of TV Shows")
plt.show()
```

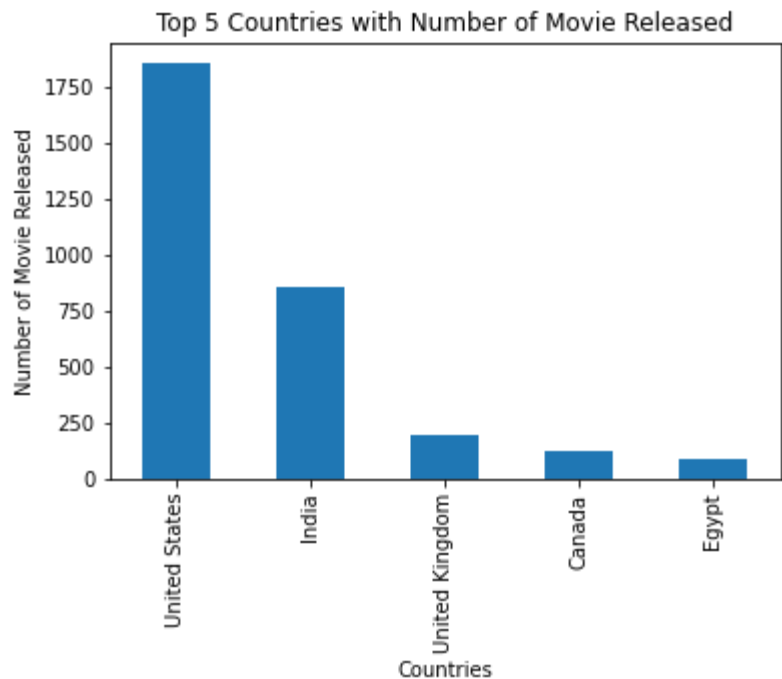


15 Country with release of maximum number of movies.

```
In [201... data[data["Category"]=="Movie"].Country.value_counts().head(1)
```

```
Out[201... United States    1850  
Name: Country, dtype: int64
```

```
In [202... # Top 5 Countries in terms of Movie released  
data[data["Category"]=="Movie"].Country.value_counts().head(5).plot(kind="bar")  
plt.xlabel("Countries")  
plt.ylabel("Number of Movie Released")  
plt.title("Top 5 Countries with Number of Movie Released")  
plt.show()
```



16 Find total number of Drama Movies and display records.

```
In [212... #Count of Drama Movies
print("Total Number of Drama Movies",data[(data["Category"]=="Movie") & data["Type"].str.contains("Dramas")])
```

Total Number of Drama Movies 2106 .

```
In [213... # Drama movie records
data[(data["Category"]=="Movie") & data["Type"].str.contains("Dramas")]
```

```
Out[213...
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93 min	Dramas, International Movies	After a devastating earthquake hits Mexico Cit...	2016-12-23

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N	
	4	s5	Movie	21	Robert Luketic	Jim Sturgess, Kevin Spacey, Kate Bosworth, Aar...	United States	January 1, 2020	PG-13	123 min	Dramas	A brilliant group of students become card-coun...	2020-01-01
	7	s8	Movie	187	Kevin Reynolds	Samuel L. Jackson, John Heard, Kelly Rowan, Cl...	United States	November 1, 2019	R	119 min	Dramas	After one of his high school students attacks ...	2019-11-01
	10	s11	Movie	1922	Zak Hilditch	Thomas Jane, Molly Parker, Dylan Schmid, Kaitl...	United States	October 20, 2017	TV-MA	103 min	Dramas, Thrillers	A farmer pens a confession admitting to his wi...	2017-10-20
	15	s16	Movie	Oct-01	Kunle Afolayan	Sadiq Daba, David Bailie, Kayode Olaiya, Kehin...	Nigeria	September 1, 2019	TV-14	149 min	Dramas, International Movies, Thrillers	Against the backdrop of Nigeria's looming inde...	2019-09-01

	7776	s7775	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	November 20, 2019	R	158 min	Cult Movies, Dramas, Thrillers	A political cartoonist, a crime reporter and a...	2019-11-20
	7778	s7777	Movie	Zokkomon	Satyajit Bhatkal	Darsheel Safary,	India	November 1, 2018	PG	104 min	Children & Family	When his cruel uncle	2018-11-01

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N
					Anupam Kher, Manjari Fadnis, ...					Movies, Dramas	abandons him, a young orp...	
7782	s7781	Movie	Zoo	Shlok Sharma	Shashank Arora, Shweta Tripathi, Rahul Kumar, ...	India	July 1, 2018	TV-MA	94 min	Dramas, Independent Movies, International Movies	A drug dealer starts having doubts about his t...	2018-07-01
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	Dramas, International Movies	When Lebanon's Civil War deprives Zozo of his ...	2020-10-19
7785	s7784	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav	India	March 2, 2019	TV-14	111 min	Dramas, International Movies, Music & Musicals	A scrappy but poor boy worms his way into ...	2019-03-02

17- Find total number of Kids TV Show and display records.

In [214...

```
#Count of Drama Movies
print("Total Number of Kids TV Shows",data[(data["Category"]=="TV Show") & data["Type"].str.contains("Kids")])
```

Total Number of Kids TV Shows 414 .

In [215...

```
# Kids TV Shows
data[(data["Category"]=="TV Show") & data["Type"].str.contains("Kids")]
```

Out[215...

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N
108	s109	TV Show	3Below: Tales of Arcadia	NaN	Tatiana Maslany, Diego Luna,	United States	July 12, 2019	TV-Y7	2 Seasons	Kids' TV, TV Action &	After crash-landing on Earth, two	2019-07-12

Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N
111	s112	TV Show	44 Cats	NaN	Nick Offerman, Ni...	Italy	October 1, 2020	TV-Y7	2 Seasons	Adventure, TV Sci-Fi & F...	royal teen a...
					Sarah Natochenny, Suzy Myers, Simona Berman, E...					Kids' TV	Paw-esome tales abound when singing furry frie...
					Neil Patrick Harris, Patrick Warburton, Malina...					Kids' TV, TV Action & Adventure, TV Comedies	The extraordinary Baudelaire orphans face tria...
					Macy Drouin, Wyatt White, Paul Sun-Hyung Lee, ...					Kids' TV	A big-hearted girl helps her Fuzzly friends wh...
					Kiku Sharda, Vishal Kotian, Delnaaz Irani					Kids' TV, TV Comedies, TV Dramas	From battles of wit to fights for justice, Emp...
...
7758	s7757	TV Show	Z4	NaN	Apollo Costa, Gabriel Santana, Matheus Lustosa...	Brazil	February 22, 2019	TV-PG	2 Seasons	Kids' TV	Fading music biz veteran Zé realizes he has ju...

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Duration	Type	Description	Date_N
7761	s7760	TV Show	Zak Storm	NaN	Michael Johnston, Jessica Gee-George, Christin...	United States, France, South Korea, Indonesia	September 13, 2018	TV-Y7	3 Seasons	Kids' TV	Teen surfer Zak Storm is mysteriously transpor...	2018-09-13
7768	s7767	TV Show	Zig & Sharko	NaN	NaN	France	December 1, 2017	TV-Y7	1 Season	Kids' TV, TV Comedies	Zig, an island-bound hyena, will do anything t...	2017-12-01
7777	s7776	TV Show	Zoids Wild	NaN	Kensho Ono, Takahiro Sakurai, ...	Japan	August 14, 2020	TV-Y7	1 Season	Anime Series, Kids' TV	A quest for freedom and legendary treasure	2020-08-14

18- Find the number of Comedy Movies released for family and kids in india only and display their title.

In [226...

```
# number of Comedy Movies released for family and kids in india only.
print(data[(data["Category"]=="Movie") & (data["Country"]=="India") & (data["Type"].str.contains('Comedies|Fa

303 comedy movie released in India for kids and family.
```

In [237...

```
# Title of comedy movies released for kids and family in india
print("Title of comedy movies released for kids and family in india")
data[(data["Category"]=="Movie") & (data["Country"]=="India") & (data["Type"].str.contains('Comedies|Family|K
```

Title of comedy movies released for kids and family in india

Out[237...

```
18          15-Aug
78          2 States
100         3 Idiots
143          90 ML
244      A truthful Mother
...
7704      Yeh Hai Bakrapur
```



```

7764                Zed Plus
7766                Zero
7771    Zindagi Na Milegi Dobara
7778                Zokkomon
...

```

19- Find the number of adult movies released in india only along with title and duration of movie.

In [230...

```

#number of adult movies released in india only along with title and duration of movie.
print(data[(data["Category"]=="Movie") & (data["Country"]=="India") & (data["Type"].str.contains('Adult'))].s

0 adult movie released in India.

```

20- Find Adventure and Thriller movies released in india only along with title and duration of movie.

In [245...

```

# number of Thriller, Action and Adventure movies in india
print(data[(data["Category"]=="Movie") & (data["Country"]=="India") & (data["Type"].str.contains('Adventure|A

209 Thriller, Action and Adventure movie released in India.

```

In [249...

```

# Title of Thriller, Action and Adventure movies in india
print("Title of Thriller, Action and Adventure movie released in India\n",data[(data["Category"]=="Movie") &

Title of Thriller, Action and Adventure movie released in India
9                1920
21                Goli Soda 2
90                25 Kille
129               6-5=2
136               7 Khoon Maaf
...
7442             Vodka Diaries
7453                W/O Ram
7456             Waarrior Savitri
7496                Wazir
7698             Yamla Pagla Deewana 2
Name: Title, Length: 209, dtype: object

```

In []: