

```
from google.colab import files
upload=files.upload()
```

Netflix Dataset.csv

- **Netflix Dataset.csv**(text/csv) - 2962357 bytes, last modified: 7/11/2022 - 100% done  
Saving Netflix Dataset.csv to Netflix Dataset.csv

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
import warnings
warnings.filterwarnings("ignore")
```

```
df=pd.read_csv("Netflix Dataset.csv")
```

## ▼ Rows & Columns in Dataset

```
df.shape
```

```
(7789, 11)
```

## ▼ Columns in Dataset

```
list(df.columns)
```

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

## ▼ Dataset

```
df.head()
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating
0	s1	TV Show	3%	NaN	João Miguel, Bianca Comparato, Michel Gomes, R...	Brazil	August 14, 2020	TV-MA
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

```
df.tail()
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	D
7784	s7783	Movie	Zozo	Josef Fares	Imad Creidi, Antoinette Turk, Elias Gergi, Car...	Sweden, Czech Republic, United Kingdom, Denmar...	October 19, 2020	TV-MA	
7785	s7784	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan...	India	March 2, 2019	TV-14	
7786	s7785	Movie	Zulu Man in Japan	NaN	Nasty C	NaN	September 25, 2020	TV-MA	
7787	s7786	TV Show	Zumbo's Just Desserts	NaN	Adriano Zumbo, Rachel Khoo	Australia	October 31, 2020	TV-PG	1

## ▼ Size of Dataset

```
df.size
```

```
85679
```

## ▼ Datatype

```
df.dtypes
```

```
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
```

## ▼ Dataset Info

```
df.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
```

## ▼ Data Cleaning

### ▼ Removing Duplicates Values

```
df.head()
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating
0	s1	TV Show	3%	NaN	João Miguel, Bianca Comparato, Michel Gomes, R...	Brazil	August 14, 2020	TV-MA
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

```
df[df.duplicated()]
```

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

**There is only two(2) Duplicated Values.**

```
df.drop_duplicates(inplace=True)
```

```
df.shape
```

```
(7787, 11)
```

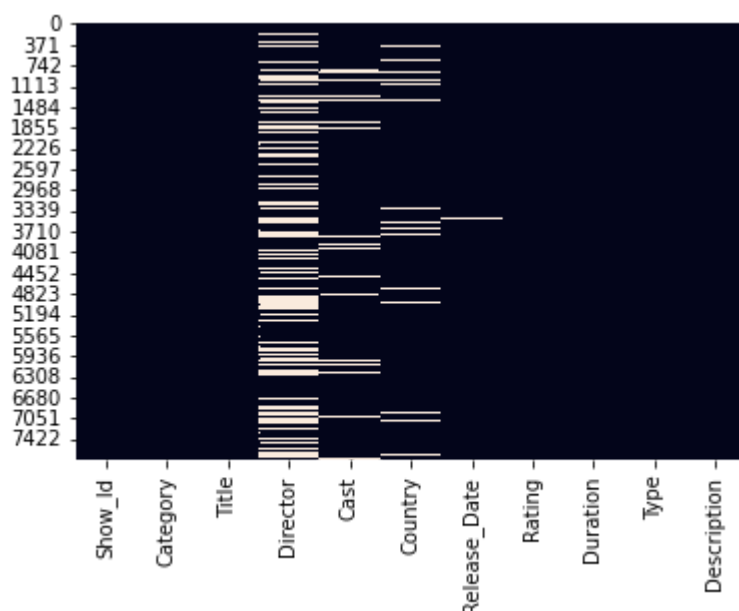
**Duplicates Values Removed.**

## ▼ Null Values.

```
df.isnull().sum()
```

```
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
```

```
sns.heatmap(df.isnull(),cbar=False)
sns.set(rc={'figure.facecolor':'lightblue'})
plt.show()
```



```
df_new = df.dropna()
```

```
df_new.shape
```

```
(4809, 11)
```

```
df["New_Date"] = pd.to_datetime(df["Release_Date"])
```

```
df.head()
```

	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 1
1	s2	Movie	07:19	Jorge Michel Grau	Demián Bichir, Héctor Bonilla, Oscar Serrano, ...	Mexico	December 23, 2016	TV-MA	93
2	s3	Movie	23:59	Gilbert Chan	Tedd Chan, Stella Chung, Henley Hii, Lawrence ...	Singapore	December 20, 2018	R	78

```
df.dtypes
```

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

```
df["New_Date"].dt.year.value_counts()
```

```

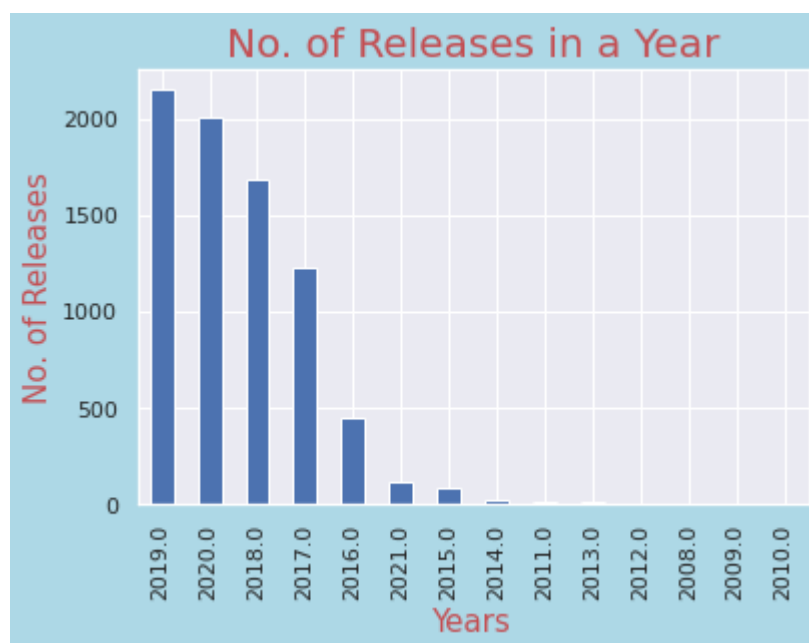
2019.0    2153
2020.0    2009
2018.0    1685
2017.0    1225
2016.0     443
2021.0     117
2015.0      88
2014.0      25
2011.0      13
2013.0      11
2012.0       3
2008.0       2
2009.0       2
2010.0       1
Name: New_Date, dtype: int64

```

```

df["New_Date"].dt.year.value_counts().plot(kind="bar")
plt.title("No. of Releases in a Year",fontsize=20,color='r')
plt.xlabel("Years",fontsize=15,color='r')
plt.ylabel("No. of Releases",fontsize=15,color='r')
plt.show()

```



```
df.groupby("Category").Category.count()
```

```

Category
Movie      5377
TV Show    2410
Name: Category, dtype: int64

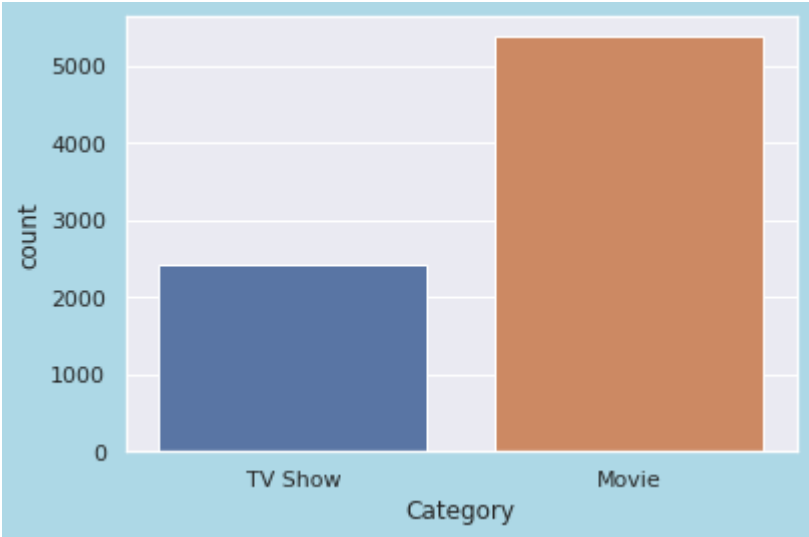
```

```

count=df['Category']
sns.countplot(count)

```

```
plt.show()
```



```
df.head(3)
```

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

```
df['Year'] = df["New_Date"].dt.year
```

```
df.head(2)
```



```

Show_Id  Category  Title  Director      Cast  Country  Release_Date  Rating  Durati
df[(df['Category']=="Movie") & (df["Year"]==2015)]

```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date
128	s129	Movie	6 Years	Hannah Fidell	Taissa Farmiga, Ben Rosenfield, Lindsay Burdge...	United States	September 20
247	s248	Movie	A Very Murray Christmas	Sofia Coppola	Bill Murray, Miley Cyrus, George Clooney, Chri...	United States	December 20
316	s317	Movie	Advantageous	Jennifer Phang	Jacqueline Kim, James Urbaniak, Freya Adams, K...	United States	June 23, 20
535	s536	Movie	Anjelah Johnson: Not Fancy	Jay Karas	Anjelah Johnson-Reyes	United States	October 20
551	s552	Movie	Anthony Jeselnik: Thoughts and Prayers	Adam Dubin	Anthony Jeselnik	United States	October 1 20
648	s649	Movie	Aziz Ansari Live at Madison Square Garden	Aziz Ansari	Aziz Ansari	United States	March 6, 20
785	s786	Movie	Beasts of No Nation	Cary Joji Fukunaga	Idris Elba, Abraham Attah, Kurt Egyiawan, Jude...	United States	October 1 20
1013	s1014	Movie	Bob's Broken Sleigh	Jay Surridge	Cole Howard, Bruce Greenwood, Victor Garber, M...	Canada	December 1 20
1352	s1353	Movie	Chris D'Elia: Incurrigible	Bill D'Elia	Chris D'Elia	United States	April 17, 20
1357	s1358	Movie	Chris Tucker Live	Phil Joanou	Chris Tucker	United States	July 10, 20

1394	s1395	Movie	Circle	Aaron Hann, Mario Miscione	Julie Benz, Mercy Malick, Carter Jenkins, Moll...	United States	October 1, 2017
1513	s1514	Movie	Cowspiracy: The Sustainability Secret	Kip Andersen, Keegan Kuhn	Kip Andersen	United States	September 1, 2015
1530	s1531	Movie	Creep	Patrick Brice	Mark Duplass, Patrick Brice	United States	July 14, 2016
1696	s1697	Movie	Demetri Martin: Live (At the Time)	Jay Karas	Demetri Martin	United States	August 1, 2017
2154	s2155	Movie	Fifty	Biyi Bandele	Dakore Akande, Ireti Doyle, Nse Ikpe-Etim, Omo...	Nigeria	December 2, 2017
2177	s2178	Movie	Fireplace 4K: Classic Crackling Fireplace from...	George Ford	NaN	NaN	December 2, 2017
2178	s2179	Movie	Fireplace 4K: Crackling Birchwood from Firepla...	George Ford	NaN	NaN	December 2, 2017
2820	s2821	Movie	Hot Girls Wanted	Jill Bauer, Ronna Gradus	NaN	United States	May 29, 2017
2946	s2947	Movie	Iliza Shlesinger: Freezing Hot	NaN	Iliza Shlesinger	NaN	January 2, 2020
3145	s3146	Movie	Jen Kirkman: I'm Gonna Die Alone (And I Feel F...	Lance Bangs	Jen Kirkman	United States	May 22, 2019
3210	s3211	Movie	John Mulaney: The Comeback	Rhys	John Mulaney	United States	November 1, 2018

				Kid	Thomas		States	20
3332	s3333	Movie	Keith Richards: Under the Influence		Morgan Neville	Keith Richards	United States	September 1 20
3456	s3457	Movie	Kristy		Oliver Blackburn	Haley Bennett, Ashley Greene, Erica Ash, Lucas...	United States	October 3 20
3601	s3602	Movie	Leo the Lion		Mario Cambi	Daniel Amerman, John Cygan, Matthew Mercer, Am...	United States, Italy	December 2 20
3856	s3857	Movie	Magic Snowflake		Luc Vinciguerra	Nathan Simony, Benoît Allemane, Vincent Grass,...	France, Belgium	December 2 20
3917	s3918	Movie	Manson Family Vacation		J. Davis	Jay Duplass, Linas Phillips, Leonora Pitts, Ad...	United States	October 2 20
3936	s3937	Movie	Marco Polo: One Hundred Eyes		Alik Sakharov	Tom Wu, Benedict Wong, Michelle Yeoh	United States	December 2 20
3958	s3959	Movie	Marvel & ESPN Films Present: 1 of 1: Genesis		Eric Drath	Manny Pacquiao, Michael Smith, Tony Hawk, Esth...	NaN	March 1 20
4094	s4095	Movie	Mike Epps: Don't Take It Personal		L. Frazier	Mike Epps	United States	December 1 20
4139	s4140	Movie	Miss Julie		Liv Ullmann	Jessica Chastain, Colin Farrell, Samantha Mort...	Norway, United Kingdom, France, Ireland	September 20
4186	s4187	Movie	Monster High: Boo York, Boo		William Lau	Karen Strassman, Celeste Henderson	United States	September 2 20

			York		Wendee Lee...		
4197	s4198	Movie	Monster High: Scaris, City of Frights	Dustin McKenzie, Andrew Duncan, Audu Paden	Laura Bailey, Cam Clarke, Erin Fitzgerald, Dee...	United States	July 7, 2010
4331	s4332	Movie	My Little Pony Equestria Girls: Friendship Games	Ishi Rudell, Jayson Thiessen	Tara Strong, Rebecca Shoichet, Ashleigh Ball, ...	United States, Canada	December 2010
4345	s4346	Movie	My Own Man	David Sampliner	David Sampliner	United States	March 6, 2010
4399	s4400	Movie	Naomi and Ely's No Kiss List	Kristin Hanggi	Victoria Justice, Pierson Fode, Matthew Daddar...	United States	November 1, 2010
5086	s5086	Movie	Ralphie May: Imperfectly Yours	Anthony Pierce	Ralphie May	United States	June 29, 2010
5087	s5087	Movie	Ralphie May: Unruly	John Asher	Ralphie May	United States	February 2, 2010
5172	s5172	Movie	Results	Andrew Bujalski	Guy Pearce, Cobie Smulders, Kevin Corrigan, Gi...	United States	October 2, 2010
5312	s5312	Movie	Russell Madness	Robert Vince	David Milchard, John Ratzenberger, Will Sasso,...	United States	May 10, 2010
5385	s5385	Movie	Santa's Apprentice	Luc Vinciguerra	Julie Gayet, Jean-Pierre Marielle, Lorànt Deut...	Australia, France, Ireland	December 2, 2010
5680	s5680	Movie	SMOSH: The Movie	Alex Winter	Ian Hecox, Anthony Padilla, Jenna Marbles,	United States	September 2, 2010

						Gra...		
5826	s5826	Movie	Stop at Nothing: The Lance Armstrong Story	Alex Holmes	NaN	Australia, United Kingdom, United States, New ...	February 1 20	
5867	s5867	Movie	Suburra	Stefano Sollima	Pierfrancesco Favino, Elio Germano, Claudio Am...	Italy, France	October 1 20	
6685	s6684	Movie	The Monster of Mangatiti	John Banas	Greta Gregory, Mark Mitchinson, Bruce Hopkins,...	New Zealand	December 1 20	
6732	s6731	Movie	The Other One: The Long Strange Trip of Bob Weir	Mike Fleiss	Bob Weir	United States	May 22, 20	
6750	s6749	Movie	The Perfect Dictatorship	Luis Estrada	Damián Alcázar, Alfonso Herrera, Joaquín Cosío...	Mexico	June 1, 20	
6758	s6757	Movie	The Physician	Philipp Stölzl	Tom Payne, Ben Kingsley, Stellan Skarsgård, Ol...	Germany	July 15, 20	
6821	s6820	Movie	The Ridiculous 6	Frank Coraci	Adam Sandler, Terry Crews, Jorge Garcia, Taylo...	United States	December 1 20	
7053	s7052	Movie	This Was Tomorrow	Wim Bonte	NaN	Belgium	December 1 20	
7082	s7081	Movie	Tig	Kristina Goolsby, Ashley York	Tig Notaro	United States	July 17, 20	
						Ginnifer Goodwin		
			Tinker Bell and					

```
df[(df["Category"]=="TV Show") & (df['Country']=="India")]["Title"]
```

```
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
```

```
df[(df["Category"]=="TV Show") & (df['Country']=="India")]["Title"].count()
```

```
71
```

```
df.head(2)
```

	Show_Id	Category	Title	Director	Cast	Country	Release_Date	Rating	Durati
0	s1	TV Show	3%	NaN	João Miguel, Bianca Comparato, Michel Gomes, R...	Brazil	August 14, 2020	TV-MA	Seaso
1	s2	Movie	07:19	Jorge Michel	Demián Bichir, Héctor Bonilla	Mexico	December 23, 2016	TV-MA	93 n

```
direc=df['Director'].value_counts().head(20)
direc
```

```
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
Lance Bangs               8
Kunle Afolayan            8
Ryan Polito               8
Shannon Hartman           8
```

```

Johnnie To          8
Quentin Tarantino   8
Robert Rodriguez    8
Omoni Oboli        7
McG                 7
Fernando Ayllón     7
Name: Director, dtype: int64

```

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

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

```
df['Rating'].unique()
```

```

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)

```

```
df.groupby('Rating').Rating.count()
```

```

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

```

```

sns.countplot(df['Rating'])
plt.show()

```





	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	Sea
5	s6	TV Show	46	Serdar Akar	Erdal Beşikçioğlu, Yasemin Allen, Melis Birkan...	Turkey	July 1, 2017	TV-MA	1 Se
11	s12	TV Show	1983	NaN	Robert Więckiewicz, Maciej Musiał, Michalina O...	Poland, United States	November 30, 2018	TV-MA	1 Se
12	s13	TV Show	1994	Diego Enrique Osorno	NaN	Mexico	May 17, 2019	TV-MA	1 Se
16	s17	TV Show	Feb-09	NaN	Shahd El Yaseen, Shaila Sabt, Hala, Hanadi	NaN	March 20, 2019	TV-14	1 Se

```
tvshow['Country'].value_counts()
```

```

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
```

```
tvshow['Country'].nunique()
```

```
183
```

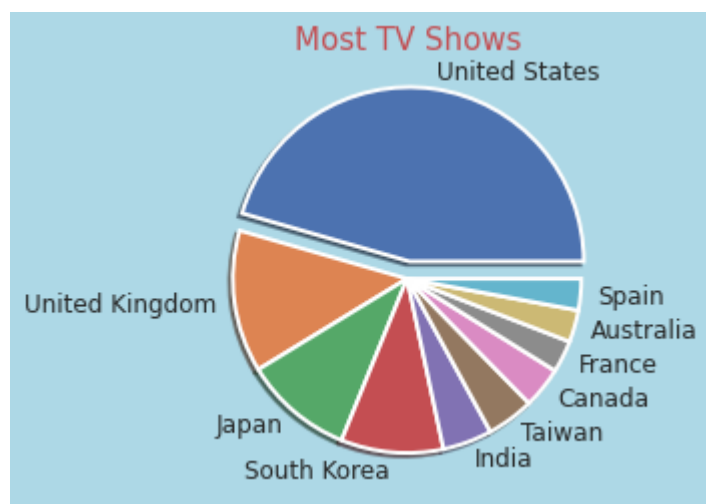
```
top10_tvshow = tvshow['Country'].value_counts().head(10)
```

```
Dict_top10_tvshow = dict(top10_tvshow)
```

```
labels = list(Dict_top10_tvshow.keys())
```

```
values = list(Dict_top10_tvshow.values())
```

```
explode=[0.1,0,0,0,0,0,0,0,0,0]
plt.title("Most TV Shows",fontsize=15,color='r')
wedgeprops={"linewidth":2,"edgecolor":"w"}
textprops={"fontsize" : 12}
plt.pie(values,labels=labels,shadow=True,explode=explode,wedgeprops=wedgeprops,textprops=text
plt.show()
```



```
df.head(2)
```

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



```
df['Type'].value_counts().head(10)
```

Documentaries	334
Stand-Up Comedy	321
Dramas, International Movies	320
Comedies, Dramas, International Movies	243
Dramas, Independent Movies, International Movies	215
Kids' TV	205
Children & Family Movies	177
Documentaries, International Movies	172
Children & Family Movies, Comedies	169
Comedies, International Movies	161

Name: Type, dtype: int64

```
df['Type'].value_counts().tail(10)
```

Action & Adventure, International Movies, Thrillers	1
Anime Series, TV Horror, TV Thrillers	1
Anime Series, Crime TV Shows, TV Thrillers	1
Action & Adventure, Faith & Spirituality, Sci-Fi & Fantasy	1
TV Dramas, TV Sci-Fi & Fantasy, Teen TV Shows	1
Crime TV Shows, Romantic TV Shows, Spanish-Language TV Shows	1
Crime TV Shows, International TV Shows, Reality TV	1
International Movies, Romantic Movies, Sci-Fi & Fantasy	1
Stand-Up Comedy & Talk Shows, TV Mysteries, TV Sci-Fi & Fantasy	1
International TV Shows, Spanish-Language TV Shows, Stand-Up Comedy & Talk Shows	1

Name: Type, dtype: int64