

```
import pandas as pd
data = pd.read_csv('netflix_titles.csv')
```

data

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train l...
...	...	...	...	...	...	...	...	...	...	...	...	...
8802	s8803	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	November 20, 2019	2007	R	158 min	Cult Movies, Dramas, Thrillers	A political cartoonist, a crime reporter and a...
8803	s8804	TV Show	Zombie Dumb	NaN	NaN	NaN	July 1, 2019	2018	TV-Y7	2 Seasons	Kids' TV, Korean TV Shows, TV Comedies	While living alone in a spooky town, a young g...
8804	s8805	Movie	Zombieland	Ruben Fleischer	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	United States	November 1, 2019	2009	R	88 min	Comedies, Horror Movies	Looking to survive in a world taken over by zo...
8805	s8806	Movie	Zoom	Peter Hewitt	Tim Allen, Courteney Cox, Chevy Chase, Kate Ma...	United States	January 11, 2020	2006	PG	88 min	Children & Family Movies, Comedies	Dragged from civilian life, a former superhero...
8806	s8807	Movie	Zubaan	Mozez Singh	Vicky Kaushal, Sarah-Jane Dias, Raaghav Chanan...	India	March 2, 2019	2015	TV-14	111 min	Dramas, International Movies, Music & Musicals	A scrappy but poor boy worms his way into a ty...

8807 rows × 12 columns

data.head(2)

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...

data.dtypes

show_id	object
type	object
title	object
director	object
cast	object

```
country      object
date_added   object
release_year  int64
rating       object
duration     object
listed_in    object
description  object
dtype: object
```

```
data.shape
```

```
(8807, 12)
```

```
data.isnull()
```

```

show_id  type  title  director  cast  country  date_added  release_year  rating  duration  listed_in  description
0      False  False  False      False  True   False      False      False  False  False  False  False
1      False  False  False      True   False  False      False      False  False  False  False  False
2      False  False  False     False  False  True       False      False  False  False  False  False
3      False  False  False     True   True   True       False      False  False  False  False  False
4      False  False  False     True   False  False      False      False  False  False  False  False
...      ...    ...    ...      ...    ...    ...        ...        ...    ...    ...    ...    ...
8802   False  False  False     False  False  False      False      False  False  False  False  False
8803   False  False  False     True   True   True       False      False  False  False  False  False
8804   False  False  False     False  False  False      False      False  False  False  False  False
8805   False  False  False     False  False  False      False      False  False  False  False  False
8806   False  False  False     False  False  False      False      False  False  False  False  False

```

```
8807 rows × 12 columns
```

```
data.isnull().sum()
```

```

show_id      0
type         0
title        0
director    2634
cast        825
country     831
date_added   10
release_year  0
rating       4
duration     3
listed_in    0
description  0
dtype: int64

```


```
data.notnull()
```



	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	True	True	True	True	False	True	True	True	True	True	True	True
1	True	True	True	False	True	True	True	True	True	True	True	True
2	True	True	True	True	True	False	True	True	True	True	True	True
3	True	True	True	False	False	False	True	True	True	True	True	True
4	True	True	True	False	True	True	True	True	True	True	True	True
...	...	...	...	...	...	...	...	...	...	...	...	...
8802	True	True	True	True	True	True	True	True	True	True	True	True
8803	True	True	True	False	False	False	True	True	True	True	True	True
8804	True	True	True	True	True	True	True	True	True	True	True	True
8805	True	True	True	True	True	True	True	True	True	True	True	True
8806	True	True	True	True	True	True	True	True	True	True	True	True


8807 rows × 12 columns

```
data.notnull().sum()
```



show_id	8807
type	8807
title	8807
director	6173
cast	7982
country	7976
date_added	8797
release_year	8807
rating	8803
duration	8804
listed_in	8807
description	8807
dtype:	int64

```
data.describe()
```



	release_year
count	8807.000000
mean	2014.180198
std	8.819312
min	1925.000000
25%	2013.000000
50%	2017.000000
75%	2019.000000
max	2021.000000

```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8807 entries, 0 to 8806
Data columns (total 12 columns):
#   Column          Non-Null Count  Dtype
---  ---
0   show_id         8807 non-null   object
1   type            8807 non-null   object
2   title           8807 non-null   object
3   director        6173 non-null   object
4   cast            7982 non-null   object
5   country         7976 non-null   object
6   date_added      8797 non-null   object
7   release_year    8807 non-null   int64
8   rating          8803 non-null   object
9   duration        8804 non-null   object
10  listed_in       8807 non-null   object
11  description     8807 non-null   object
dtypes: int64(1), object(11)
memory usage: 825.8+ KB
```

✓ 1) Is there any duplicate record in the dataset? if Yes, then remove the duplicate record.

```
data.head()
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train l...

```
data.duplicated()
```

```
0    False
1    False
2    False
3    False
4    False
...
8802  False
8803  False
8804  False
8805  False
```

```
8806      False
Length: 8807, dtype: bool
```

```
data[data.duplicated()]
```



```
show_id type title director cast country date_added release_year rating duration listed_in description
```

2) Is there any null values present in the any columns? Show with heat map.

```
data.head()
```



	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train l...

```
data.isnull()
```



	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	False	False	False	False	True	False	False	False	False	False	False	False
1	False	False	False	True	False	False	False	False	False	False	False	False
2	False	False	False	False	False	True	False	False	False	False	False	False
3	False	False	False	True	True	True	False	False	False	False	False	False
4	False	False	False	True	False	False	False	False	False	False	False	False
...	...	...	...	...	...	...	...	...	...	...	...	...
8802	False	False	False	False	False	False	False	False	False	False	False	False
8803	False	False	False	True	True	True	False	False	False	False	False	False
8804	False	False	False	False	False	False	False	False	False	False	False	False
8805	False	False	False	False	False	False	False	False	False	False	False	False
8806	False	False	False	False	False	False	False	False	False	False	False	False

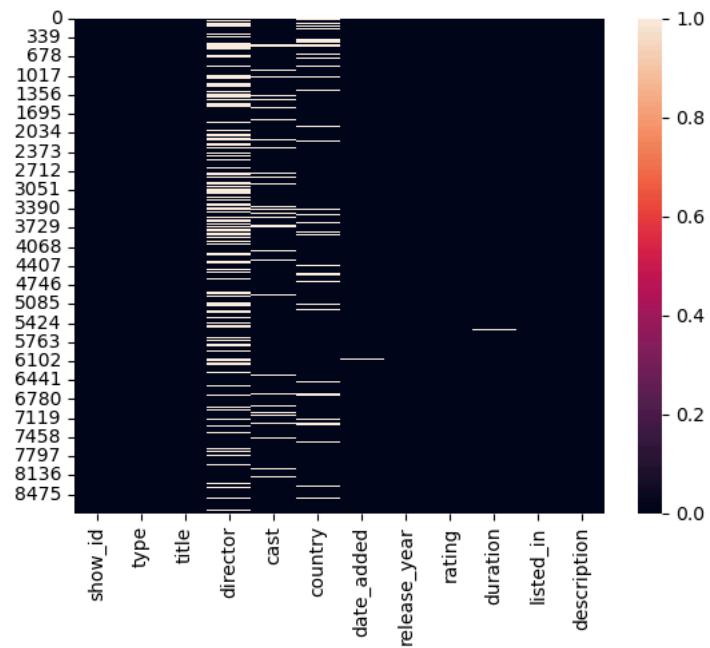
```
8807 rows x 12 columns
```

```
data.isnull().sum()
```

```
show_id      0
type         0
title        0
director    2634
cast         825
country      831
date_added   10
release_year  0
rating       4
duration     3
listed_in    0
description  0
dtype: int64
```

```
import seaborn as sns
sns.heatmap(data.isnull())
```

<Axes: >



✓ 3) For 'House of Cards', What is the Show Id and Who is the Director of this show?

```
data.head(2)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...

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

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
1050	s1060	TV	House of	NaN	Kevin Spacey, Robin Wright, Kate Mara,	United	April 14,	2018	TV-MA	6	TV Dramas, TV	A ruthless politician will stop at nothing

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

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
1050	s1060	TV	House of	NaN	Kevin Spacey, Robin Wright, Kate Mara,	United	April 14,	2018	TV-MA	6	TV Dramas, TV	A ruthless politician will stop at nothing

4) In which year the highest number of the TV Shows & Movies were released ? Show with Bar Graph.

```
data.dtypes
```

```
show_id      object
type         object
title        object
director     object
cast         object
country      object
date_added   object
release_year  int64
rating       object
duration     object
listed_in    object
description  object
dtype: object
```

```
data.head(2)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...

```
data['release_year'].value_counts()
```

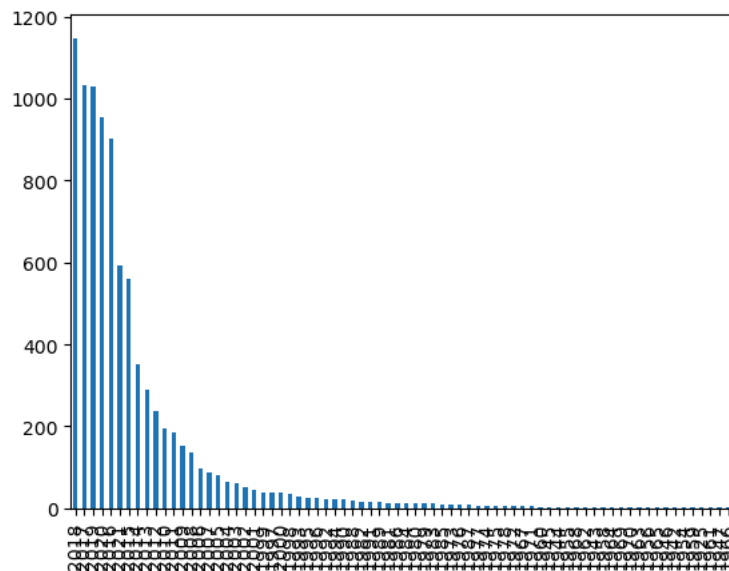
```

↵ 2018    1147
   2017    1032
   2019    1030
   2020     953
   2016     902
   ...
   1959      1
   1925      1
   1961      1
   1947      1
   1966      1
Name: release_year, Length: 74, dtype: int64

```

```
data['release_year'].value_counts().plot(kind='bar')
```

↵ <Axes: >



✓ 5) How many Movies and Tv Shows are in the datasets? Show with bar plot

```
data.head()
```



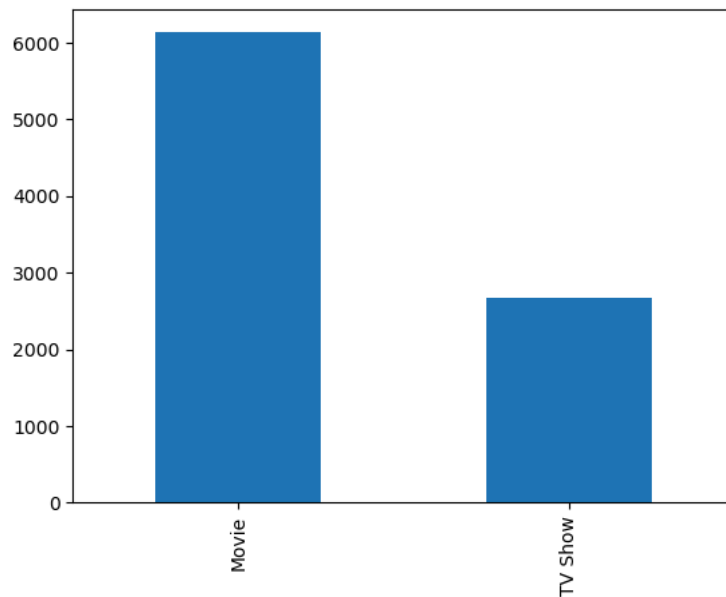
	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...	2021-09-25
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mablane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...	2021-09-24
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...	2021-09-24
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...	2021-09-24
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train l...	2021-09-24

```
data['type'].value_counts()
```

```
Movie      6131
TV Show    2676
Name: type, dtype: int64
```

```
data['type'].value_counts().plot(kind = 'bar')
```

```
<Axes: >
```



6) Show all the movies that were released in year 2000.

```
data.head(2)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...	2021-09-25
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalone, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...	2021-09-24

```
data[(data['type'] == 'Movie') & (data['release_year'] == 2000)]
```

														
	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N	
180	s181	Movie	The Nutty Professor II: The Klumps	Peter Segal	Eddie Murphy, Janet Jackson, Larry Miller, Joh...	NaN	September 1, 2021	2000	PG-13	107 min	Comedies, Romantic Movies	After getting engaged, Sherman Klump prepares ...	2021-09-01	
350	s351	Movie	Space Cowboys	Clint Eastwood	Clint Eastwood, Tommy Lee Jones, Donald Suther...	United States	August 1, 2021	2000	PG-13	130 min	Action & Adventure, Dramas, Sci-Fi & Fantasy	A retired engineer agrees to help NASA prevent...	2021-08-01	
359	s360	Movie	The Original Kings of Comedy	Spike Lee	Steve Harvey, D.L. Hughley, Cedric the Enterta...	United States	August 1, 2021	2000	R	111 min	Stand-Up Comedy	Comedians Steve Harvey, Cedric the Entertainer...	2021-08-01	
566	s567	Movie	Charlie's Angels	McG	Cameron Diaz, Drew Barrymore, Lucy Liu, Bill M...	United States, Germany	July 1, 2021	2000	PG-13	98 min	Action & Adventure, Comedies	A tight-knit trio of specially trained agents ...	2021-07-01	
593	s594	Movie	Snow Day	Chris Koch	Chris Elliott, Mark Webber, Jean Smart, Schuyl...	United States	July 1, 2021	2000	PG	89 min	Children & Family Movies, Comedies	When a snow day shuts down the whole town, the...	2021-07-01	
779	s780	Movie	Battlefield Earth	Roger Christian	John Travolta, Barry Pepper, Forest Whitaker, ...	United States	June 2, 2021	2000	PG-13	118 min	Action & Adventure, Cult Movies, Sci-Fi & Fantasy	In the year 3000, an alien race known as the P...	2021-06-02	
952	s953	Movie	The Whole Nine Yards	Jonathan Lynn	Bruce Willis, Matthew Perry, Rosanna Arquette,...	United States	May 1, 2021	2000	R	99 min	Action & Adventure, Comedies	An unhappily married dentist becomes mixed up ...	2021-05-01	
3472	s3473	Movie	Rugrats in Paris: The Movie	Stig Bergqvist, Paul Demeyer	Elizabeth Daily, Tara Strong, Cheryl Chase, Ch...	Germany, United States	October 1, 2019	2000	G	79 min	Children & Family Movies, Comedies	The Rugrats take to the big screen and visit P...	2019-10-01	
4545	s4546	Movie	Monty Python: Before the Flying Circus	Will Yapp	Graham Chapman, Eric Idle, Terry Jones, Michae...	United Kingdom	October 2, 2018	2000	TV-MA	56 min	Comedies, Documentaries	Discover how six seemingly ordinary but suprem...	2018-10-02	
4723	s4724	Movie	Fiza	Khalid Mohamed	Karisma Kapoor, Jaya Bhaduri, Hrithik Roshan, ...	India	August 2, 2018	2000	TV-14	163 min	Dramas, International Movies, Music & Musicals	Fiza's brother disappears during Mumbai's horr...	2018-08-02	
4956	s4957	Movie	Phir Bhi Dil Hai Hindustani	Aziz Mirza	Shah Rukh Khan, Juhi Chawla, Paresh Rawal, Sat...	India	April 1, 2018	2000	TV-14	159 min	Comedies, Dramas, International Movies	In this Bollywood entertainment, two journalis...	2018-04-01	
5953	s5954	Movie	Joseph: King of Dreams	Rob LaDuca, Robert C. Ramirez	Ben Affleck, Mark Hamill, Richard Herd, Mauree...	United States, France, United Kingdom	September 27, 2011	2000	TV-PG	75 min	Children & Family Movies, Dramas, Faith & Spir...	With his gift of dream interpretation and his ...	2011-09-27	
6006	s6007	Movie	28 Days	Betty Thomas	Sandra Bullock, Viggo Mortensen, Dominic West,...	United States	September 30, 2020	2000	PG-13	104 min	Comedies, Dramas	After her drunken antics result in property da...	2020-09-30	
6147	s6148	Movie	American Psycho	Mary Harron	Christian Bale, Willem Dafoe, Jared Leto, Rees...	United States, Canada	September 1, 2019	2000	R	102 min	Comedies, Cult Movies, Dramas	With chiseled good looks that belie his insani...	2019-09-01	
6154	s6155	Movie	An American Tail: The Treasures of Manhattan I...	Larry Latham	Thomas Dekker, Dom DeLuise, Pat Musick, Nehemi...	United States	April 1, 2018	2000	G	79 min	Children & Family Movies	When Fievel and friends go hunting for buried ...	2018-04-01	
6311	s6312	Movie	Billy Elliot	Stephen Daldry	Jamie Bell, Gary Lewis, Stuart Wells, ...	United Kingdom, France	February 1, 2019	2000	R	110 min	Dramas, Independent Movies, International ...	When a boy trades boxing school for ballet ...	2019-02-01	

<https://colab.research.google.com/drive/1coLWirAU60yLIZSLLeGVW3JVvWSfxBWCP>

7) Show only the Titles of all TV Show that released in India only.

data.head()

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...	2021-09-25
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...	2021-09-24
2	s3	TV Show	Ganglands	Julien Leclercq	Sami Bouajila, Tracy Gotoas, Samuel Jouy, Nabi...	NaN	September 24, 2021	2021	TV-MA	1 Season	Crime TV Shows, International TV Shows, TV Act...	To protect his family from a powerful drug lor...	2021-09-24
3	s4	TV Show	Jailbirds New Orleans	NaN	NaN	NaN	September 24, 2021	2021	TV-MA	1 Season	Docuseries, Reality TV	Feuds, flirtations and toilet talk go down amo...	2021-09-24
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train l...	2021-09-24

data[(data['type'] == 'TV Show') & (data['country'] == 'India')]

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
4	s5	TV Show	Kota Factory	NaN	Mayur More, Jitendra Kumar, Ranjan Raj, Alam K...	India	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, Romantic TV Shows, TV ...	In a city of coaching centers known to train l...	2021-09-24
39	s40	TV Show	Chhota Bheem	NaN	Vatsal Dubey, Julie Tejwani, Rupa Bhimani, Jig...	India	September 16, 2021	2021	TV-Y7	3 Seasons	Kids' TV	A brave, energetic little boy with superhuman ...	2021-09-16
50	s51	TV Show	Dharmakshetra	NaN	Kashmira Irani, Chandan Anand, Dinesh Mehta, A...	India	September 15, 2021	2014	TV-PG	1 Season	International TV Shows, TV Dramas, TV Sci-Fi &...	After the ancient Great War, the god Chitragup...	2021-09-15
66	s67	TV Show	Raja Rasoi Aur Anya Kahaniyan	NaN	NaN	India	September 15, 2021	2014	TV-G	1 Season	Docuseries, International TV Shows	Explore the history and flavors of regional In...	2021-09-15
69	s70	TV Show	Stories by Rabindranath Tagore	NaN	NaN	India	September 15, 2021	2015	TV-PG	1 Season	International TV Shows, TV Dramas	The writings of Nobel Prize winner Rabindranat...	2021-09-15
...	...	...	...	...	...	...	...	...	...	...	...	...	...
8173	s8174	TV Show	Thackeray	NaN	NaN	India	May 25, 2019	2019	TV-MA	1 Season	TV Shows	From controversial cartoonist to powerful Mumb...	2019-05-25
8235	s8236	TV Show	The Calling	Bumpy	NaN	India	April 1, 2019	2018	TV-MA	1 Season	International TV Shows, Reality TV	Food-crazed travel junkies journey across Indi...	2019-04-01
8321	s8322	TV Show	The Golden Years with Javed Akhtar	NaN	NaN	India	June 1, 2017	2016	TV-G	1 Season	Docuseries, International TV Shows	Writer, poet and lyricist Javed Akhtar hosts t...	2017-06-01
8349	s8350	TV Show	The House That Made Me	NaN	Vinay Pathak	India	March 31, 2017	2015	TV-PG	3 Seasons	International TV Shows, Reality TV	With host Vinay Pathak, Indian celebrities ret...	2017-03-31
8775	s8776	TV Show	Yeh Meri Family	NaN	Vishesh Bansal, Mona Singh, Akarsh Khurana, Ah	India	August 31, 2018	2018	TV-PG	1 Season	International TV Shows, TV Comedies	In the summer of 1998, middle child Harshu bal...	2018-08-31

```
data[(data['type'] == 'TV Show') & (data['country'] == 'India')] ['title']
```

```

4          Kota Factory
39         Chhota Bheem
50         Dharmakshetra
66      Raja Rasoi Aur Anya Kahaniyan
69  Stories by Rabindranath Tagore
...
8173          Thackeray
8235         The Calling
8321  The Golden Years with Javed Akhtar
8349         The House That Made Me
8775         Yeh Meri Family
Name: title, Length: 79, dtype: object
```

8) Show Top 10 Directors, who gave the highest number of TV Shows & Movies to Netflix ?

```
data['director'].value_counts().head(10)
```

```

Rajiv Chilaka          19
Raúl Campos, Jan Suter  18
Marcus Raboy           16
Suhas Kadav            16
Jay Karas              14
Cathy Garcia-Molina    13
Martin Scorsese         12
Youssef Chahine         12
Jay Chapman            12
Steven Spielberg       11
Name: director, dtype: int64
```

9) Show all the Records, where "Type is Movie and release\_year is above 2000" or "Country is United Kingdom".

```
data.head(2)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...	2021-09-25
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalanane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...	2021-09-24

```
data[(data['type'] == 'Movie') & (data['release_year'] > 2000) | (data['country'] == 'United Kingdom')]
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...	2021-09-25
6	s7	Movie	My Little Pony: A New Generation	Robert Cullen, José Luis Ucha	Vanessa Hudgens, Kimiko Glenn, James Marsden, ...	NaN	September 24, 2021	2021	PG	91 min	Children & Family Movies	Equestria's divided. But a bright-eyed hero be...	2021-09-24
8	s9	TV Show	The Great British Baking Show	Andy Devonshire	Mel Giedroyc, Sue Perkins, Mary Berry, Paul Ho...	United Kingdom	September 24, 2021	2021	TV-14	9 Seasons	British TV Shows, Reality TV	A talented batch of amateur bakers face off in...	2021-09-24
9	s10	Movie	The Starling	Theodore Melfi	Melissa McCarthy, Chris O'Dowd, Kevin Kline, T...	United States	September 24, 2021	2021	PG-13	104 min	Comedies, Dramas	A woman adjusting to life after a loss contend...	2021-09-24
12	s13	Movie	Je Suis Karl	Christian Schwochow	Luna Wedler, Jannis Niewöhner, Milan Peschel, ...	Germany, Czech Republic	September 23, 2021	2021	TV-MA	127 min	Dramas, International Movies	After most of her family is murdered in a terr...	2021-09-23
...	...	...	...	...	...	...	...	...	...	...	...	...	...
8801	s8802	Movie	Zinzana	Majid Al Ansari	Ali Suliman, Saleh Bakri, Yasa, Ali Al-Jabri, ...	United Arab Emirates, Jordan	March 9, 2016	2015	TV-MA	96 min	Dramas, International Movies, Thrillers	Recovering alcoholic Talal wakes up inside a s...	2016-03-09
8802	s8803	Movie	Zodiac	David Fincher	Mark Ruffalo, Jake Gyllenhaal, Robert Downey J...	United States	November 20, 2019	2007	R	158 min	Cult Movies, Dramas, Thrillers	A political cartoonist, a crime reporter and a...	2019-11-20
8804	s8805	Movie	Zombieland	Ruben Fleischer	Jesse Eisenberg, Woody Harrelson, Emma Stone, ...	United States	November 1, 2019	2009	R	88 min	Comedies, Horror Movies	Looking to survive in a world taken over by zo...	2019-11-01
Tim Allen, Courteney													

✓ 10) In how many movies/shows, Tom Cruise was cast ?

```
data[data['cast'] == 'Tom Cruise']
```

```
show_id type title director cast country date_added release_year rating duration listed_in description Date_N
```

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



```

ValueError                                Traceback (most recent call last)
Cell In[105], line 1
----> 1 data[data['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

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

```
data_new.head(2)
```



	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
7	s8	Movie	Sankofa	Haile Gerima	Kofi Ghanaba, Oyafunmike Ogunlano, Alexandra D...	United States, Ghana, Burkina Faso, United Kin...	September 24, 2021	1993	TV-MA	125 min	Dramas, Independent Movies, International Movies	On a photo shoot in Ghana, an American model s...	2021-09-24
	TV		The Great	Andy	Mal Giedroyc, Sue Perkins		September 24			0	British TV Shows, Reality	A talented batch of amateur	2021

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



	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
341	s342	Movie	Magnolia	Paul Thomas Anderson	John C. Reilly, Philip Baker Hall, Tom Cruise,...	United States	August 1, 2021	1999	R	189 min	Dramas, Independent Movies	Through chance, history and divine interventio...	2021-08-01
1254	s1255	Movie	Rain Man	Barry Levinson	Dustin Hoffman, Tom Cruise, Valeria Golino, Ge...	United States	March 1, 2021	1988	R	134 min	Classic Movies, Dramas	Motivated by money, a selfish workaholic seeki...	2021-03-01

## 11) What is different rating definition by Netflix?

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



```

array(['PG-13', 'TV-MA', 'PG', 'TV-14', 'TV-PG', 'TV-Y', 'TV-Y7', 'R',
      'TV-G', 'G', 'NC-17', '74 min', '84 min', '66 min', 'NR', nan,
      'TV-Y7-FV', 'UR'], dtype=object)

```



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

 17


✓ 12) How many movies got the 'TV-14' rating. In canada?

```
data[(data['type'] == 'Movie') & (data['rating'] == 'TV-14') & (data['country'] == 'Canada')]
```



	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
157	s158	Movie	Level 16	Danishka Esterhazy	Katie Douglas, Celina Martin, Peter Outerbridge...	Canada	September 1, 2021	2018	TV-14	102 min	Sci-Fi & Fantasy, Thrillers	In a bleak academy that teaches girls the virt...	2021-09-01
1279	s1280	Movie	Made You Look: A True Story About Fake Art	Barry Avrich	NaN	Canada	February 23, 2021	2020	TV-14	90 min	Documentaries, International Movies	A woman walks into a New York gallery with a c...	2021-02-23
2769	s2770	Movie	There's Something in the Water	Ellen Page, Ian Daniel	Ellen Page	Canada	March 27, 2020	2019	TV-14	72 min	Documentaries, International Movies	This documentary spotlights the struggle of mi...	2020-03-27
3424	s3425	Movie	Martin Matte: La vie, la mort...eh la la..!	Jean-François Blais	Martin Matte	Canada	October 14, 2019	2019	TV-14	62 min	Stand-Up Comedy	Quebecois comedy star Martin Matte serves up e...	2019-10-14
5972	s5973	Movie	#cats_the_mewvie	Michael Margolis	NaN	Canada	February 5, 2020	2020	TV-14	90 min	Documentaries, International Movies	This pawesome documentary explores how our fel...	2020-02-05
5973	s5974	Movie	#Roxy	Michael Kennedy	Jake Short, Sarah Fisher, Booboo Stewart, Dann...	Canada	April 10, 2019	2018	TV-14	105 min	Comedies, Romantic Movies	A teenage hacker with a huge nose helps a cool...	2019-04-10
6192	s6193	Movie	At First Light	Jason Stone	Stefanie Scott, Theodore Pellerin, Percy Hynes...	Canada	December 27, 2018	2018	TV-14	91 min	Dramas, Sci-Fi & Fantasy	After mysterious lights imbue her with extraor...	2018-12-27
6537	s6538	Movie	Counterfeiting in Suburbia	Jason Bourque	Sarah Butler, Larissa Albuquerque, Kayla Walla...	Canada	July 1, 2018	2018	TV-14	88 min	Dramas, Thrillers	Two teenagers print counterfeit money in their...	2018-07-01
7334	s7335	Movie	Long Time Running	Jennifer Baichwal, Nicholas de Pencier	Gord Downie, Paul Langlois, Gord Sinclair, Rob...	Canada	November 12, 2017	2017	TV-14	96 min	Documentaries, International Movies, Music & M...	This documentary follows the 2016 tour of belo...	2017-11-12
7916	s7917	Movie	Sadie's Last Days on Earth	Michael Seater	Morgan Taylor Campbell, Clark Backo, Ricardo H...	Canada	August 22, 2017	2016	TV-14	94 min	Comedies, Sci-Fi & Fantasy	High schooler Sadie Mitchell believes the worl...	2017-08-22

```
data[(data['type'] == 'Movie') & (data['rating'] == 'TV-14') & (data['country'] == 'Canada')].shape
```

 (13, 13)

✓ 13) How many Movie got the 'R' rating, after the 2020?

```
data.head(2)
```

	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
0	s1	Movie	Dick Johnson Is Dead	Kirsten Johnson	NaN	United States	September 25, 2021	2020	PG-13	90 min	Documentaries	As her father nears the end of his life, filmm...	2021-09-25
1	s2	TV Show	Blood & Water	NaN	Ama Qamata, Khosi Ngema, Gail Mabalanane, Thaban...	South Africa	September 24, 2021	2021	TV-MA	2 Seasons	International TV Shows, TV Dramas, TV Mysteries	After crossing paths at a party, a Cape Town t...	2021-09-24

```
data[(data['type'] == 'Movie') & (data['rating'] == 'R') & (data['release_year'] > 2020)]
```



	show_id	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description	Date_N
81	s82	Movie	Kate	Cedric Nicolas-Troyan	Mary Elizabeth Winstead, Jun Kunimura, Woody H...	United States	September 10, 2021	2021	R	106 min	Action & Adventure	Slipped a fatal poison on her final job, a rut...	2021-09-10
214	s215	Movie	SAS: Rise of the Black Swan	Magnus Martens	Sam Heughan, Ruby Rose, Andy Serkis, Hannah Jo...	NaN	August 27, 2021	2021	R	124 min	Action & Adventure, International Movies	A special forces operative traveling from Lond...	2021-08-27
247	s248	Movie	Sweet Girl	Brian Andrew Mendoza	Jason Momoa, Isabela Merced, Manuel Garcia-Rul...	United States	August 20, 2021	2021	R	110 min	Action & Adventure, Dramas	He lost the love of his life to a pharmaceutic...	2021-08-20
363	s364	Movie	The Vault	Jaume Balagueró	Freddie Highmore, Astrid Bergès-Frisbey, Sam R...	NaN	July 31, 2021	2021	R	118 min	Action & Adventure, International Movies, Thri...	A genius engineer and his crew of amateur thie...	2021-07-31
437	s438	Movie	Cosmic Sin	Edward Drake	Frank Grillo, Bruce Willis, Brandon Thomas Lee...	United States	July 17, 2021	2021	R	88 min	Action & Adventure	In the year 2524, a disgraced retired general ...	2021-07-17
441	s442	Movie	Fear Street Part 3: 1666	Leigh Janiak	Kiana Madeira, Ashley Zukerman, Gillian Jacobs...	NaN	July 16, 2021	2021	R	114 min	Horror Movies, LGBTQ Movies	Thrust back to 1666, Deena learns the truth ab...	2021-07-16
464	s465	Movie	Gunpowder Milkshake	Navot Papushado	Karen Gillan, Lena Headey, Carla Gugino, Chloe...	NaN	July 14, 2021	2021	R	115 min	Action & Adventure, Comedies	When an assassin veers off mission to rescue a...	2021-07-14
479	s480	Movie	Fear Street Part 2: 1978	Leigh Janiak	Sadie Sink, Emily Rudd, Ryan Simpkins, McCabe ...	NaN	July 9, 2021	2021	R	111 min	Horror Movies	In the cursed town of Shadyside, a killer's mu...	2021-07-09
550	s551	Movie	Fear Street Part 1: 1994	Leigh Janiak	Kiana Madeira, Olivia Scott Welch, Benjamin Fl...	NaN	July 2, 2021	2021	R	107 min	Horror Movies, LGBTQ Movies	After a series of brutal slayings, a teen and ...	2021-07-02
643	s644	Movie	The Seventh Day	Justin P. Lange	Guy Pearce, Vadhir Derbez, Stephen Lang, Brady...	United States	June 24, 2021	2021	R	87 min	Horror Movies	An inexperienced priest teams up with a harden...	2021-06-24
853	s854	Movie	Army of the Dead	Zack Snyder	Dave Bautista, Ella Purnell, Omari Hardwick, G...	United States	May 21, 2021	2021	R	148 min	Action & Adventure, Horror Movies	After a zombie outbreak in Las Vegas, a group ...	2021-05-21
889	s890	Movie	The Woman in the Window	Joe Wright	Amy Adams, Gary Oldman, Anthony Mackie, Fred H...	United States	May 14, 2021	2021	R	102 min	Dramas, Thrillers	Confined to her home by agoraphobia, a psychol...	2021-05-14
1105	s1106	Movie	Concrete Cowboy	Ricky Staub	Idris Elba, Caleb McLaughlin, Jharrel Jerome, ...	United Kingdom, United States	April 2, 2021	2021	R	112 min	Dramas, Independent Movies	Sent to live with his estranged father for the...	2021-04-02
1187	s1188	Movie	Deadly Illusions	Anna Elizabeth James	Kristin Davis, Dermot Mulroney, Greer Grammer,...	United States	March 18, 2021	2021	R	115 min	Thrillers	After a bestselling novelist suffering from wr...	2021-03-18
1195	s1196	Movie	Operation Varsity Blues: The College Admission...	Chris Smith	Matthew Modine	United States	March 17, 2021	2021	R	100 min	Documentaries	Reenactments drive this documentary investigat...	2021-03-17

## ✓ 14) What is Maximum duration of a Movie/TV Show on Netflix?

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

```
array(['90 min', '2 Seasons', '1 Season', '91 min', '125 min',
      '9 Seasons', '104 min', '127 min', '4 Seasons', '67 min', '94 min',
      '5 Seasons', '161 min', '61 min', '166 min', '147 min', '103 min',
      '97 min', '106 min', '111 min', '3 Seasons', '110 min', '105 min',
      '96 min', '124 min', '116 min', '98 min', '23 min', '115 min',
      '122 min', '99 min', '88 min', '100 min', '6 Seasons', '102 min',
      '93 min', '95 min', '85 min', '83 min', '113 min', '13 min',
      '182 min', '48 min', '145 min', '87 min', '92 min', '80 min',
      '117 min', '128 min', '119 min', '143 min', '114 min', '118 min',
      '108 min', '63 min', '121 min', '142 min', '154 min', '120 min',
      '82 min', '109 min', '101 min', '86 min', '229 min', '76 min',
      '89 min', '156 min', '112 min', '107 min', '129 min', '135 min',
      '136 min', '165 min', '150 min', '133 min', '70 min', '84 min',
      '140 min', '78 min', '7 Seasons', '64 min', '59 min', '139 min',
      '69 min', '148 min', '189 min', '141 min', '130 min', '138 min',
      '81 min', '132 min', '10 Seasons', '123 min', '65 min', '68 min',
      '66 min', '62 min', '74 min', '131 min', '39 min', '46 min',
      '38 min', '8 Seasons', '17 Seasons', '126 min', '155 min',
      '159 min', '137 min', '12 min', '273 min', '36 min', '34 min',
      '77 min', '60 min', '49 min', '58 min', '72 min', '204 min',
      '212 min', '25 min', '73 min', '29 min', '47 min', '32 min',
      '35 min', '71 min', '149 min', '33 min', '15 min', '54 min',
      '224 min', '162 min', '37 min', '75 min', '79 min', '55 min',
      '158 min', '164 min', '173 min', '181 min', '185 min', '21 min',
      '24 min', '51 min', '151 min', '42 min', '22 min', '134 min',
      '177 min', '13 Seasons', '52 min', '14 min', '53 min', '8 min',
      '57 min', '28 min', '50 min', '9 min', '26 min', '45 min',
      '171 min', '27 min', '44 min', '146 min', '20 min', '157 min',
      '17 min', '203 min', '41 min', '30 min', '194 min', '15 Seasons',
      '233 min', '237 min', '230 min', '195 min', '253 min', '152 min',
      '190 min', '160 min', '208 min', '180 min', '144 min', '5 min',
      '174 min', '170 min', '192 min', '209 min', '187 min', '172 min',
      '16 min', '186 min', '11 min', '193 min', '176 min', '56 min',
      '169 min', '40 min', '10 min', '3 min', '168 min', '312 min',
      '153 min', '214 min', '31 min', '163 min', '19 min', '12 Seasons',
      nan, '179 min', '11 Seasons', '43 min', '200 min', '196 min',
      '167 min', '178 min', '228 min', '18 min', '205 min', '201 min',
      '191 min'], dtype=object)
```

```
data['duration'].dtype
```

```
dtype('O')
```

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

```
data.head(2)
```