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

## Display all the columns of the dataframes
pd.pandas.set_option('display.max_columns', None) ## (set option is used so that we can see all the columns otherwise it will sh
```

In [ ]:
```
dataset = pd.read_csv('netflix__titles.csv')
```

In [ ]:
```
dataset.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8807 entries, 0 to 8806
Data columns (total 11 columns):
 #   Column        Non-Null Count  Dtype 
---  ------        --------------  ----- 
 0   type          8807 non-null   object
 1   title         8807 non-null   object
 2   director      6173 non-null   object
 3   cast          7982 non-null   object
 4   country       7976 non-null   object
 5   date_added    8797 non-null   object
 6   release_year  8807 non-null   int64 
 7   rating        8803 non-null   object
 8   duration      8804 non-null   object
 9   listed_in     8807 non-null   object
 10  description   8807 non-null   object
dtypes: int64(1), object(10)
memory usage: 757.0+ KB
```

In [ ]:
```
dataset.shape
```

Out[ ]:
```
(8807, 11)
```

In [ ]:
```
dataset.head(5)
```

Out[ ]:

	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	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	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	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	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	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 I...

In [ ]:
```
dataset.drop('show_id', axis=1, inplace=True)
```

In [ ]:
```
dataset.isnull().sum()
```

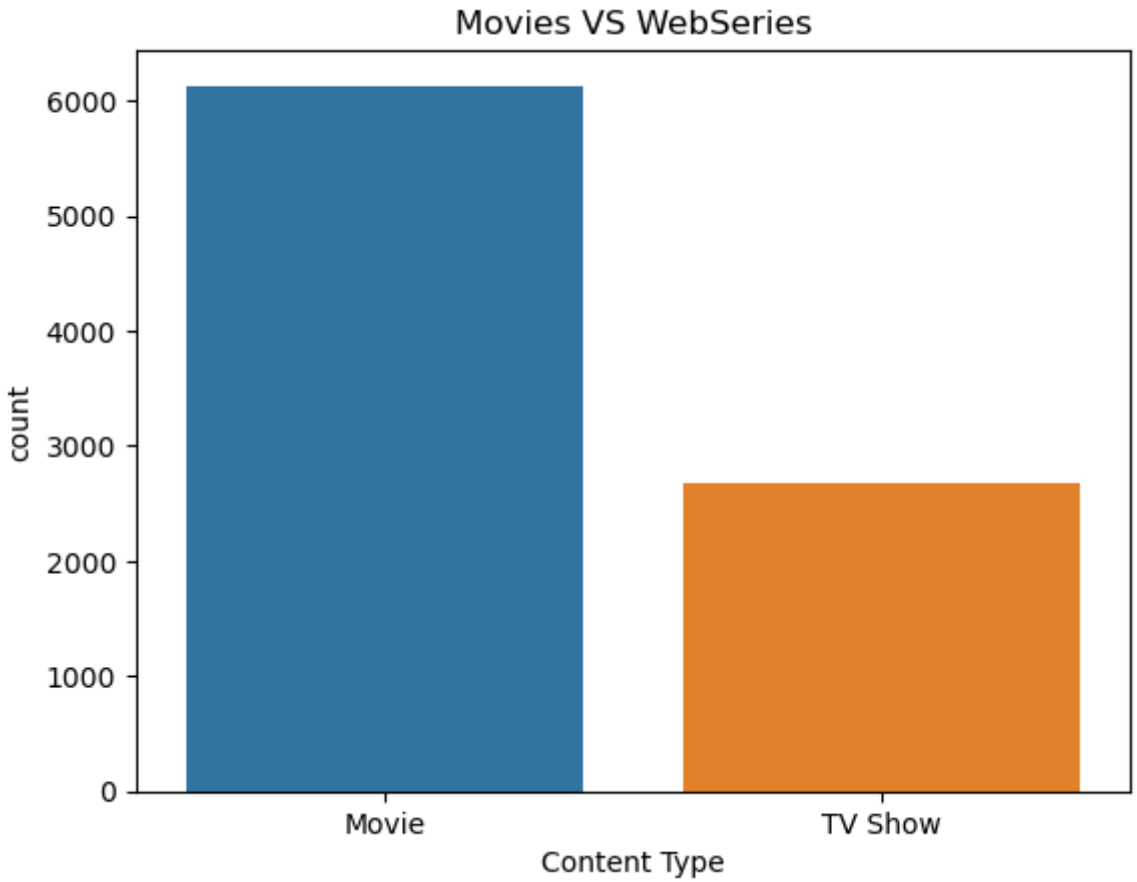
Out[ ]:
```
type              0
title             0
director       2634
cast            825
country         831
date_added       10
release_year      0
rating            4
duration          3
listed_in         0
description       0
dtype: int64
```

In [ ]:
```
dataset['country'].dropna(inplace=True, how='all')
```

In [ ]:
```
dataset['type'].unique()
```

Out[ ]:
```
array(['Movie', 'TV Show'], dtype=object)
```

In [ ]:
```
sns.countplot(dataset['type'])
plt.title('Movies VS WebSeries')
plt.xlabel('Content Type')
plt.show()
```



Does Netflix has more focus on TV Shows than movies in recent years?

Observation from above: By the look of the count plot it looks like Netflix is still investing/focusing more on the movies in compare to the web series.

In [ ]:
```
features_with_NaN = [feature for feature in dataset.columns if dataset[feature].isnull().sum() >= 1]
```

In [ ]:
```
features_with_NaN
```

Out[ ]:
```
['director', 'cast', 'country', 'date_added', 'rating', 'duration']
```

In [ ]:
```
for feature in features_with_NaN:
    print(feature, np.round(dataset[feature].isnull().mean(), 3), "% missing values")
```

```
director 0.299 % missing values
cast 0.094 % missing values
country 0.094 % missing values
date_added 0.001 % missing values
rating 0.0 % missing values
duration 0.0 % missing values
```

In [ ]:
```
dataset['country'].mode().sum()
```

Out[ ]:
```
'United States'
```

In [ ]:
```
dataset['country'].isnull().sum()
```

Out[ ]:
```
831
```

In [ ]:
```
dataset['country'].unique()
```

In [ ]:
```
dataset['country'].dtype
```

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

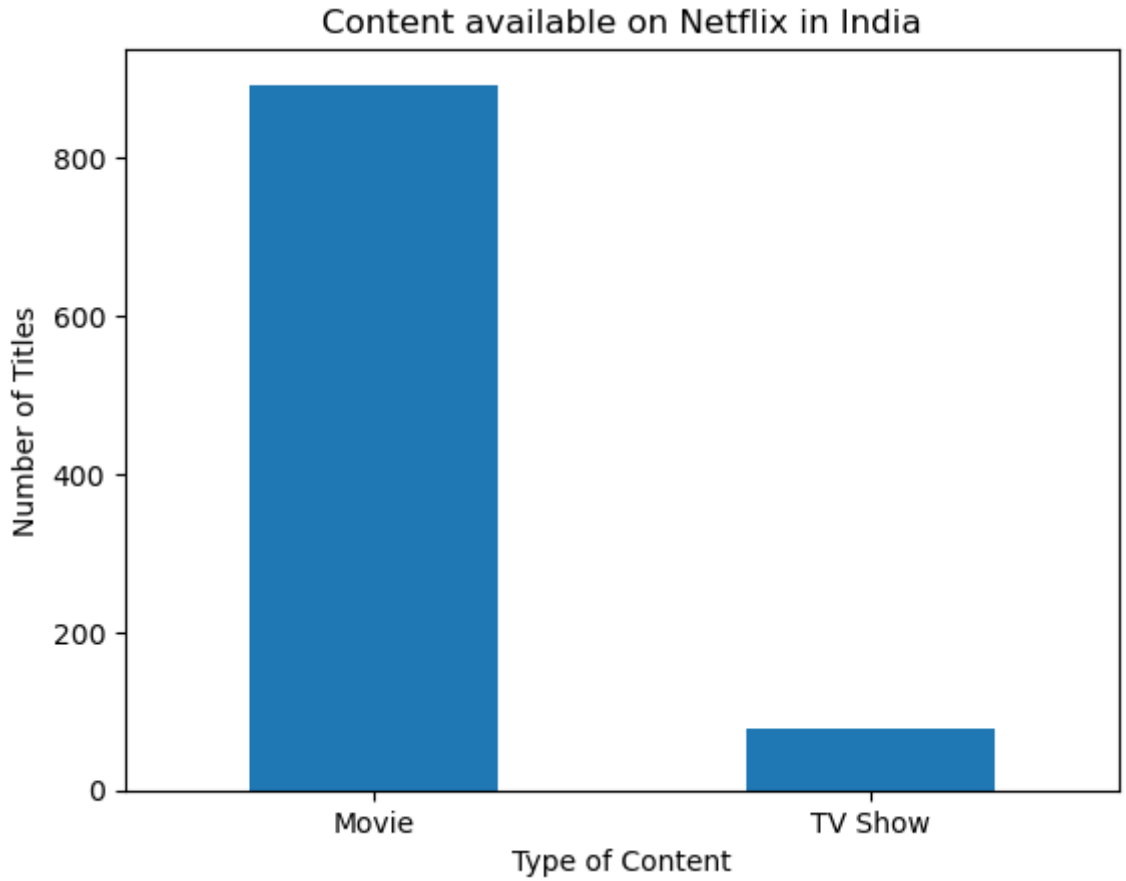
In [ ]:
```
dataset.listed_in.dtype
```

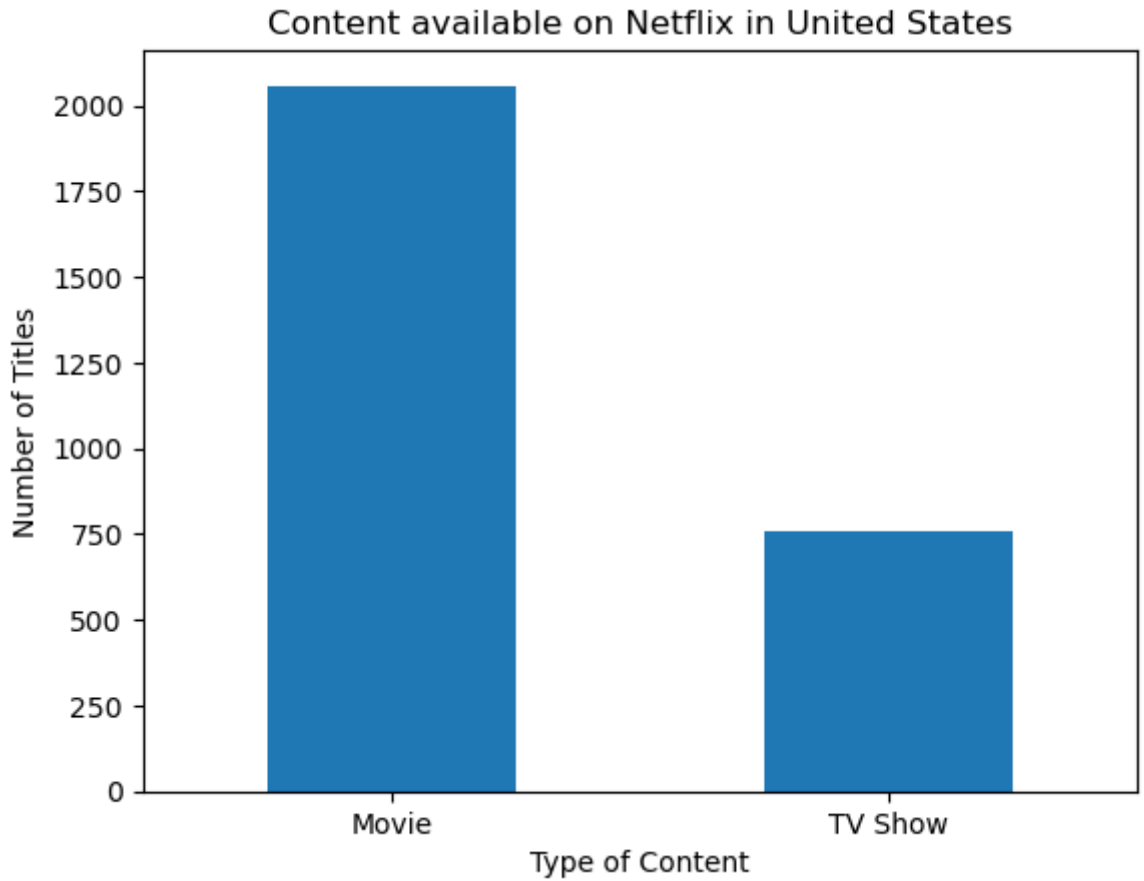
Out[ ]:
```
dtype('O')
```

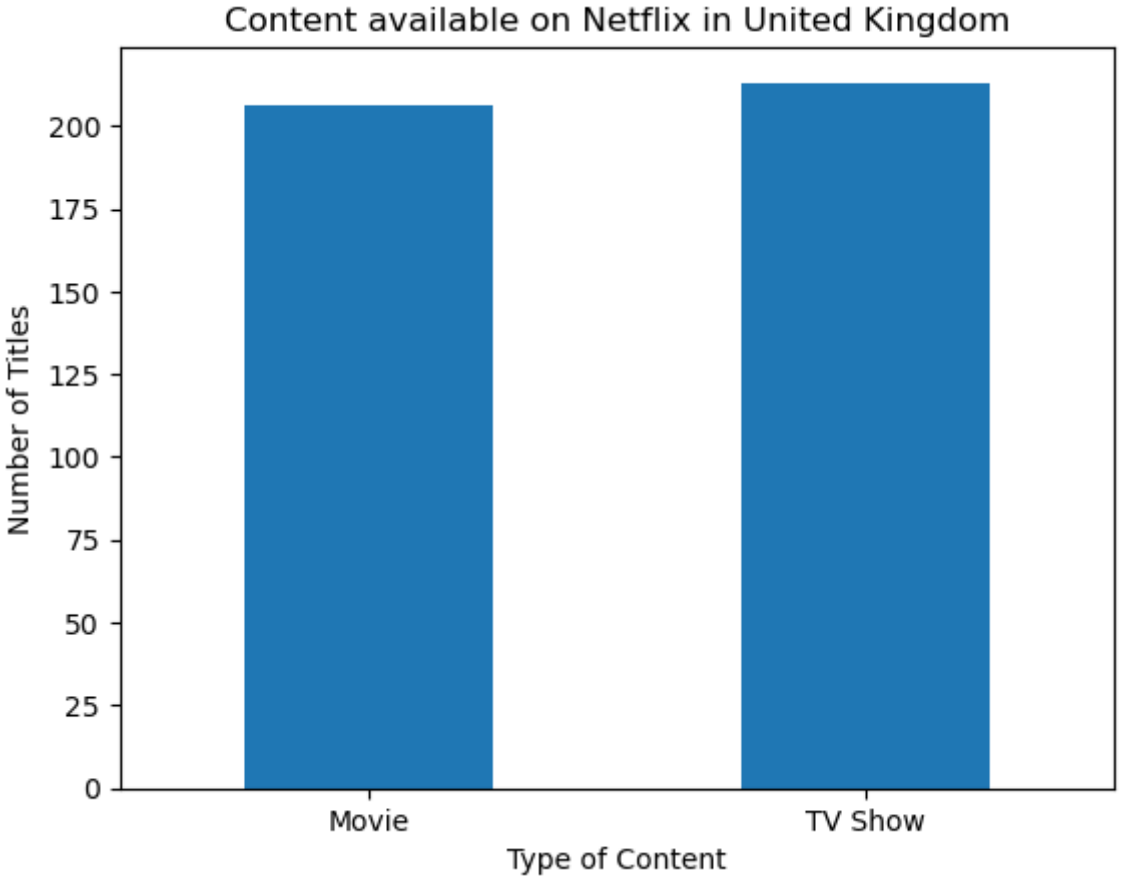
In [ ]:
```
dataset['country'].dropna(inplace=True, axis=0, how=all)
```

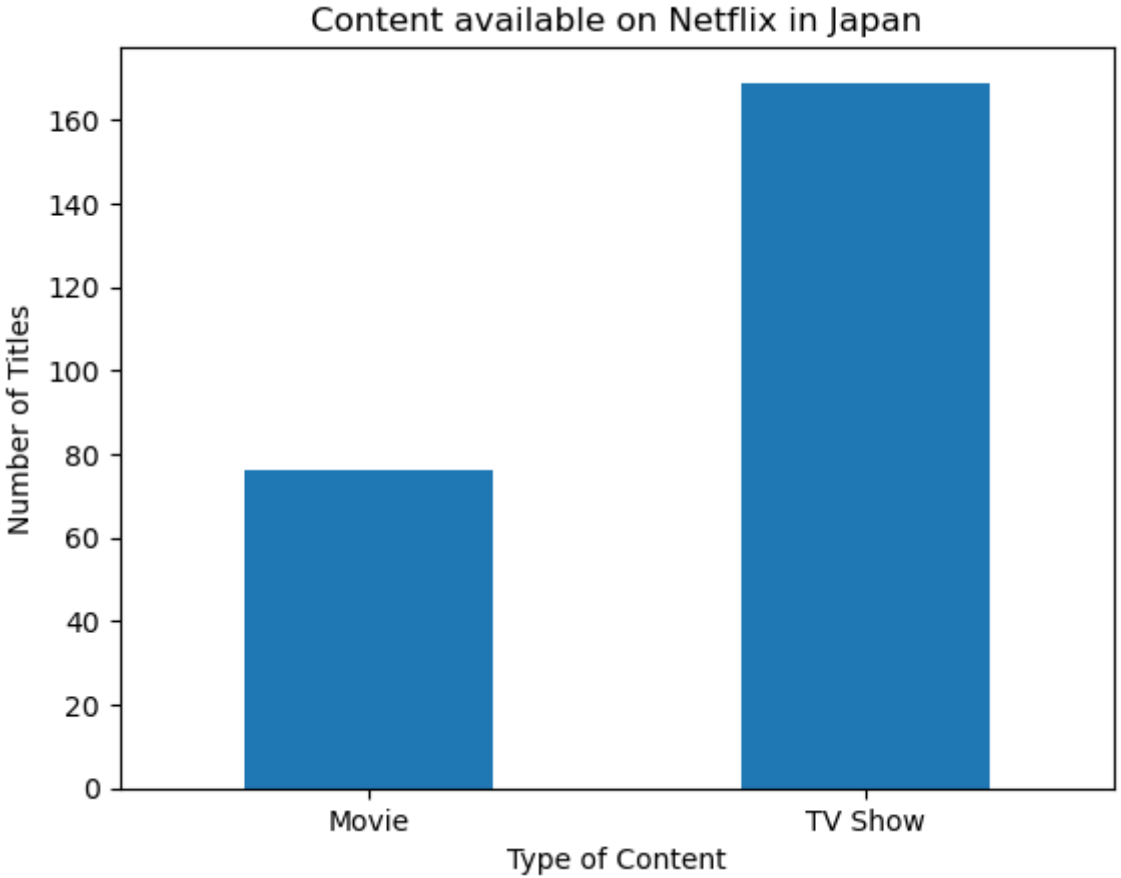
In [ ]:
```
# Taking some of the major countries into consideration to see the type of content which is widely available.

countries = ['India', 'United States', 'United Kingdom', 'Japan', 'China']
```

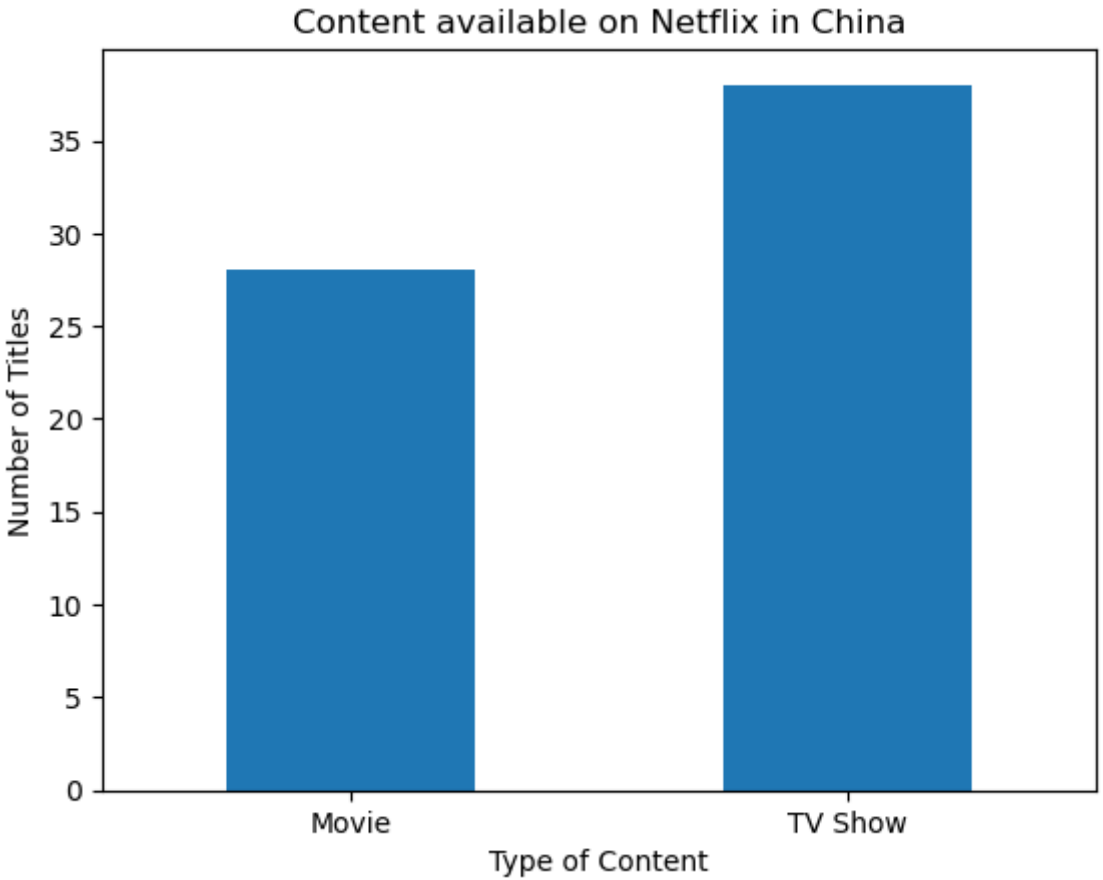
```
for country in countries:
    data_country = dataset[dataset['country'] == country]
    data_grouped = data_country.groupby('type')['title'].count()
    data_grouped.plot(kind='bar', title=f'Content available on Netflix in {country}', rot=0)
    plt.xlabel('Type of Content')
    plt.ylabel('Number of Titles')
    plt.show()
```




Content available on Netflix in United States
Number of Titles
2000
1750
1500
1250
1000
750
500
250
0
Movie
TV Show
Type of Content


Content available on Netflix in United Kingdom
Number of Titles
0
25
50
75
100
125
150
175
200
Movie
TV Show
Type of Content


Content available on Netflix in Japan
Number of Titles
0
20
40
60
80
100
120
140
160
Movie
TV Show
Type of Content



Contents availabilty observation for 5 of the major countries:

From the above bar plots the key points which we were able to observe country-wise:

1. **India**: The type of content which is mostly available and we can say widely consumed by the consumers are "Movies" with more than **800** titles available in compare to "Web Series" which is less than **200**.
2. **United States**: The type of content which is mostly available and we can say widely consumed by the consumers are "Movies" with more than **2000** titles available in compare to "Web Series" >= **750**.
3. **United Kingdom**: In case of UK the titles available in both the types are almost equal. Looks like people over their do not discriminate in terms of their content consumption between both the types and titles available is more than **200** in both the cases.

4. **Japan**: In case of Japan the titles available are more inclined towards "TV Shows" which is more than **160** compare to "Movies" which is less than **80**. This can be because of the fact that Japan is one of the major country where most of the ***Anime*** series are made.

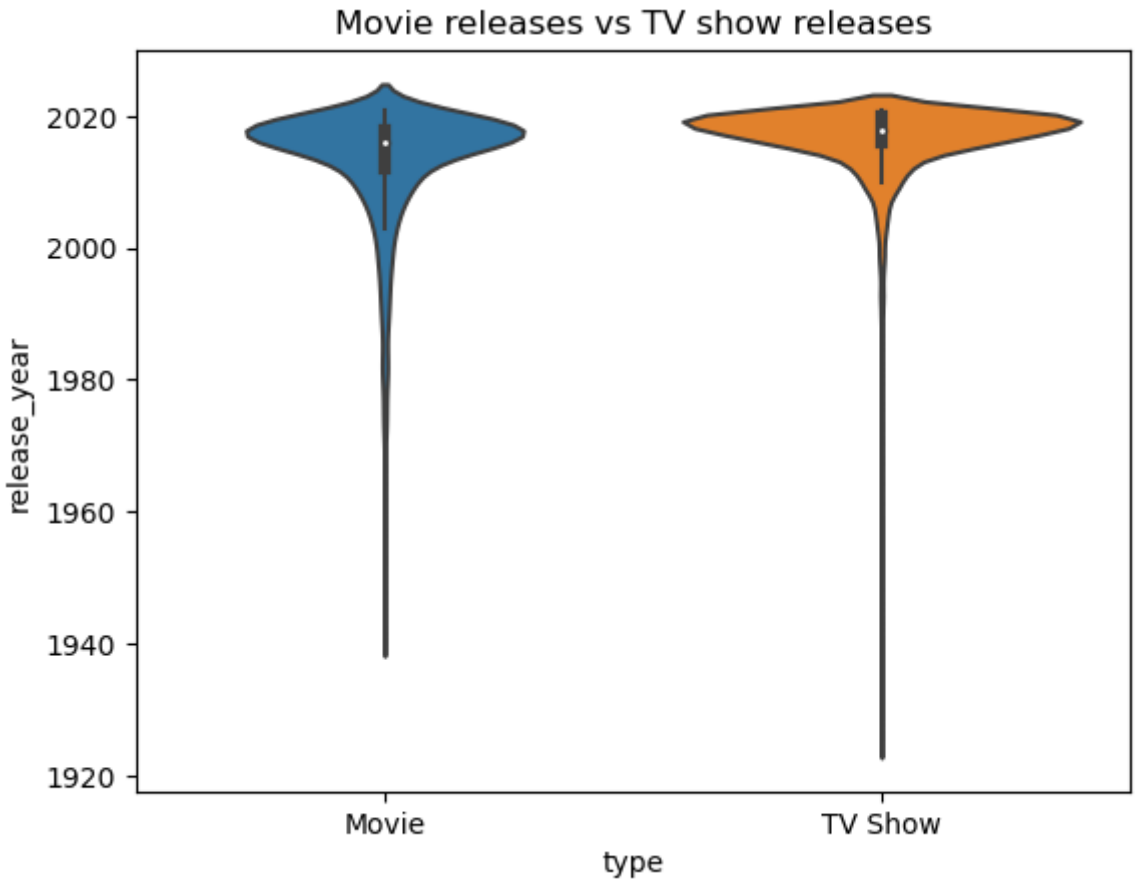
5. **China**: In case of our favourite rival China we see a very less of titles available overall. This can be because most of the ***outside contents are blocked*** in China and they only have access to insider contents/titles.

In [ ]:
```
dataset.head(2)
```

Out[ ]:

	type	title	director	cast	country	date_added	release_year	rating	duration	listed_in	description
0	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	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...

In [ ]:
```
sns.violinplot(x='type', y='release_year', data=dataset, split=True, scale='area', inner='box', bw=0.2)
plt.title('Movie releases vs TV show releases')
plt.show()
```



Observation from above:

From the above violin plot the key points which we are able to observe:

1. NetFlix has both **TV shows** & **Movies** in it's platform which were released long back even before ***1940's***.
2. In terms of content availability NetFlix goes even close to ***1920's*** in terms of TV shows in compare to Movies.
3. It is also to be observed that in case of **data dispersion** we can see TV shows are widely dispersed in compare to the Movies.