```
pip install wordcloud
```

```
Collecting wordcloud
  Downloading wordcloud-1.9.4-cp311-cp311-win_amd64.whl.metadata (3.5
kB)
Requirement already satisfied: numpy>=1.6.1 in c:\users\bharath\
anaconda3\lib\site-packages (from wordcloud) (1.26.4)
Requirement already satisfied: pillow in c:\users\bharath\anaconda3\
lib\site-packages (from wordcloud) (10.2.0)
Requirement already satisfied: matplotlib in c:\users\bharath\
anaconda3\lib\site-packages (from wordcloud) (3.8.4)
Requirement already satisfied: contourpy>=1.0.1 in c:\users\bharath\
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Requirement already satisfied: cycler>=0.10 in c:\users\bharath\
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Requirement already satisfied: fonttools>=4.22.0 in c:\users\bharath\
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anaconda3\lib\site-packages (from matplotlib->wordcloud) (1.4.4)
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anaconda3\lib\site-packages (from matplotlib->wordcloud) (23.1)
Requirement already satisfied: pyparsing>=2.3.1 in c:\users\bharath\
anaconda3\lib\site-packages (from matplotlib->wordcloud) (3.0.9)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\
bharath\anaconda3\lib\site-packages (from matplotlib->wordcloud)
(2.8.2)
Requirement already satisfied: six>=1.5 in c:\users\bharath\anaconda3\
lib\site-packages (from python-dateutil>=2.7->matplotlib->wordcloud)
(1.16.0)
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   ----- --------------------------------- 41.0/299.9 kB 130.7 kB/s
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   ------- ------------------------------- 61.4/299.9 kB 116.9 kB/s
eta 0:00:03
   ---------- ---------------------------- 92.2/299.9 kB 163.8 kB/s
eta 0:00:02
   ---------- ---------------------------- 92.2/299.9 kB 163.8 kB/s
eta 0:00:02
```

```
   -------------- ---------------------- 122.9/299.9 kB 194.5 kB/s
eta 0:00:01
   -------------------- -------------- 174.1/299.9 kB 262.1 kB/s
eta 0:00:01
   ---------------------- ------------- 184.3/299.9 kB 265.0 kB/s
eta 0:00:01
   ------------------------- -------- 225.3/299.9 kB 292.6 kB/s
eta 0:00:01
   ---------------------------------- ---- 266.2/299.9 kB 327.4 kB/s
eta 0:00:01
   ---------------------------------------- 299.9/299.9 kB 356.3 kB/s
eta 0:00:00
Installing collected packages: wordcloud
Successfully installed wordcloud-1.9.4
Note: you may need to restart the kernel to use updated packages.
```

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
from wordcloud import WordCloud

data = pd.read_csv ('netflix1.csv')

data.head()
```

```
  show_id     type                              title         director
\
0      s1    Movie               Dick Johnson Is Dead  Kirsten Johnson

1      s3  TV Show                          Ganglands  Julien Leclercq

2      s6  TV Show                      Midnight Mass    Mike Flanagan

3     s14    Movie  Confessions of an Invisible Girl    Bruno Garotti

4      s8    Movie                            Sankofa     Haile Gerima


         country date_added  release_year rating  duration  \
0  United States  9/25/2021          2020  PG-13    90 min
1         France  9/24/2021          2021  TV-MA  1 Season
2  United States  9/24/2021          2021  TV-MA  1 Season
3         Brazil  9/22/2021          2021  TV-PG    91 min
4  United States  9/24/2021          1993  TV-MA   125 min

                                          listed_in
0                                    Documentaries
1  Crime TV Shows, International TV Shows, TV Act...
2                 TV Dramas, TV Horror, TV Mysteries
```

```
3                  Children & Family Movies, Comedies
4   Dramas, Independent Movies, International Movies
```

```
data.tail()
```

```
     show_id     type               title   director        country  \
8785   s8797  TV Show          Yunus Emre  Not Given         Turkey
8786   s8798  TV Show           Zak Storm  Not Given  United States
8787   s8801  TV Show  Zindagi Gulzar Hai  Not Given       Pakistan
8788   s8784  TV Show                Yoko  Not Given       Pakistan
8789   s8786  TV Show                 YOM  Not Given       Pakistan

      date_added  release_year rating   duration  \
8785   1/17/2017          2016  TV-PG  2 Seasons
8786   9/13/2018          2016  TV-Y7  3 Seasons
8787  12/15/2016          2012  TV-PG   1 Season
8788   6/23/2018          2016   TV-Y   1 Season
8789    6/7/2018          2016  TV-Y7   1 Season

                                              listed_in
8785                  International TV Shows, TV Dramas
8786                                         Kids' TV
8787  International TV Shows, Romantic TV Shows, TV ...
8788                                         Kids' TV
8789                                         Kids' TV
```

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

```
show_id         0
type            0
title           0
director        0
country         0
date_added      0
release_year    0
rating          0
duration        0
listed_in       0
dtype: int64
```

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

```
data.dropna(subset = ['director' ,'country'], inplace=True)
```

```
 data['date_added'] = pd.to_datetime(data['date_added'])
```

```
print(data.dtypes)
```

```
show_id                 object
type                    object
title                   object
```

```
director                object
country                 object
date_added      datetime64[ns]
release_year             int64
rating                  object
duration                object
listed_in               object
dtype: object
```

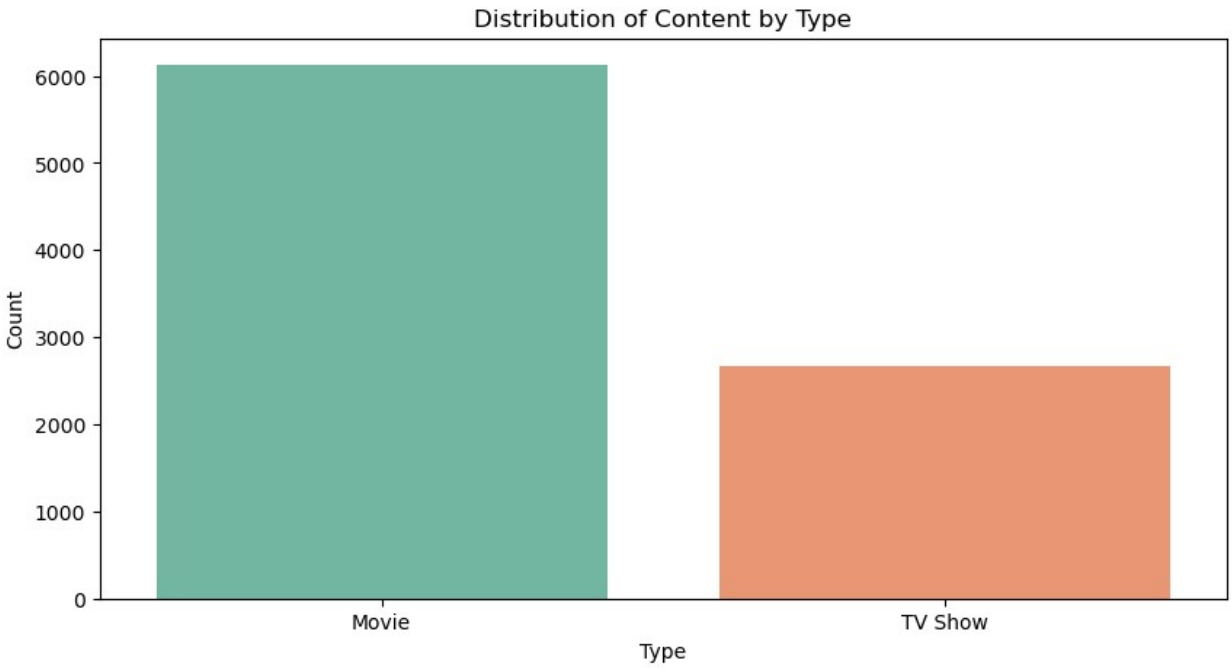
```
type_counts = data['type'].value_counts()

plt.figure(figsize = (10,5))
sns.barplot(x=type_counts.index, y=type_counts.values, palette='Set2')
plt.title('Distribution of Content by Type')
plt.xlabel('Type')
plt.ylabel('Count')
plt.show()
```

```
C:\Users\Bharath\AppData\Local\Temp\ipykernel_20164\2634262977.py:2:
FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be
removed in v0.14.0. Assign the `x` variable to `hue` and set
`legend=False` for the same effect.

  sns.barplot(x=type_counts.index, y=type_counts.values,
palette='Set2')
```

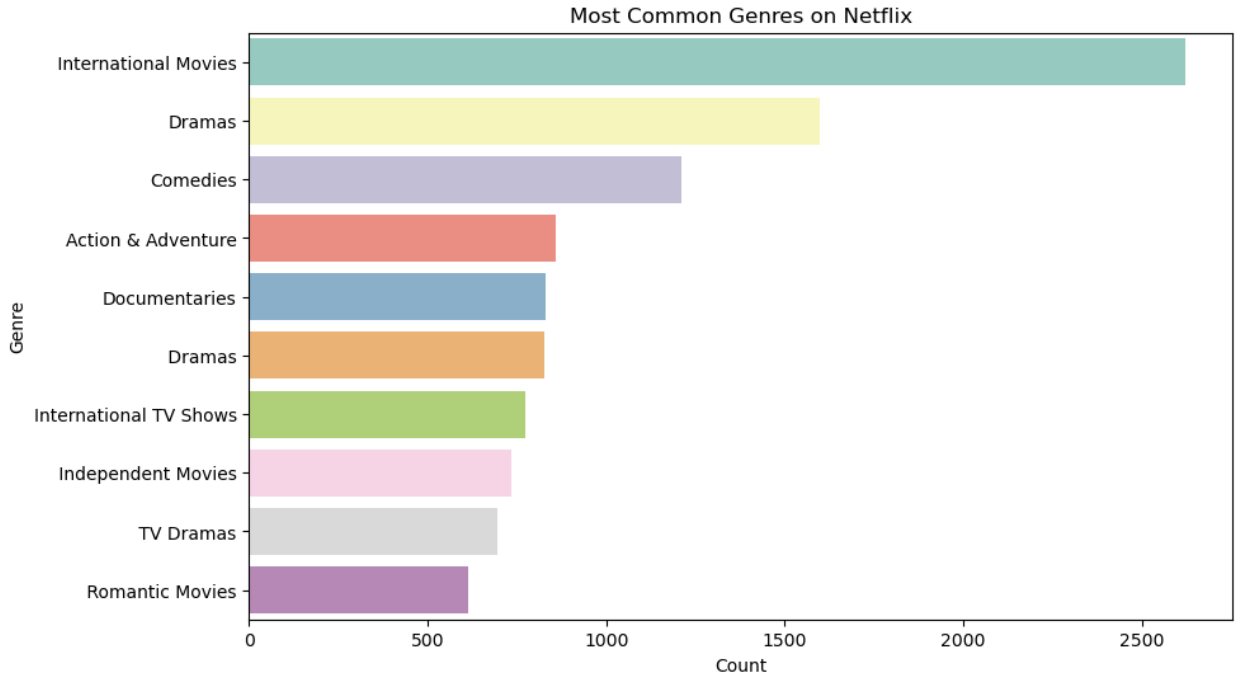


```
data['genres'] = data['listed_in'].apply(lambda x: x.split(','))
all_genres = sum(data['genres'], [])
genre_counts = pd.Series(all_genres).value_counts().head(10)
plt.figure(figsize=(10, 6))
sns.barplot(x=genre_counts.values, y= genre_counts.index,
palette='Set3')
plt.title('Most Common Genres on Netflix')
plt.xlabel('Count')
plt.ylabel('Genre')
plt.show()
```

```
C:\Users\Bharath\AppData\Local\Temp\ipykernel_20164\1180341023.py:5:
FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be
removed in v0.14.0. Assign the `y` variable to `hue` and set
`legend=False` for the same effect.

  sns.barplot(x=genre_counts.values, y= genre_counts.index,
palette='Set3')
```



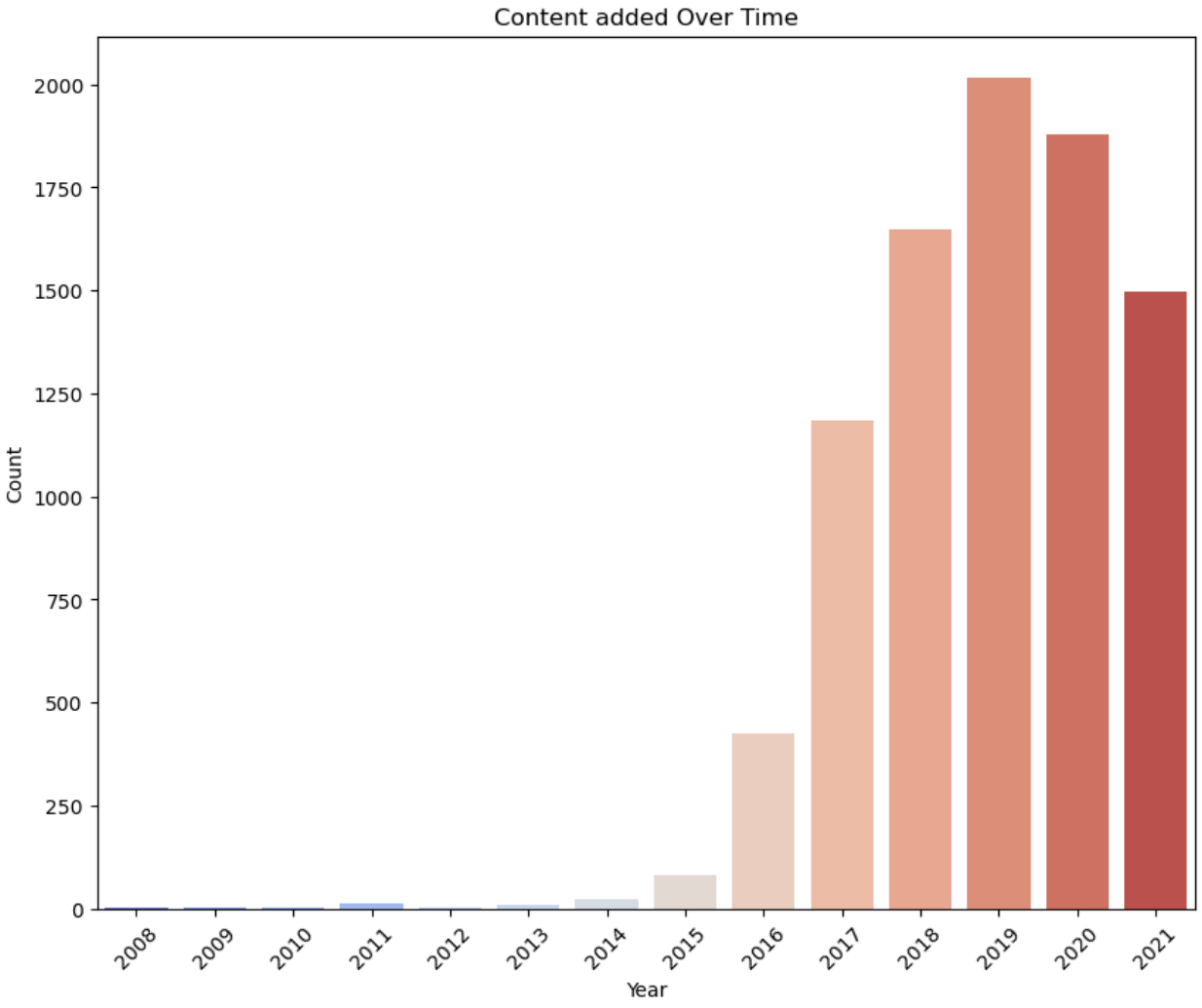

```
data['year_added'] = data['date_added'].dt.year
data['month_added'] = data['date_added'].dt.month
plt.figure(figsize=(10,8))
sns.countplot(x='year_added', data=data, palette='coolwarm')
plt.title('Content added Over Time')
plt.xlabel('Year')
plt.ylabel('Count')
```

```
plt.xticks(rotation=45)
plt.show()
```

```
C:\Users\Bharath\AppData\Local\Temp\ipykernel_20164\3311374113.py:4:
FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be
removed in v0.14.0. Assign the `x` variable to `hue` and set
`legend=False` for the same effect.

  sns.countplot(x='year_added', data=data, palette='coolwarm')
```



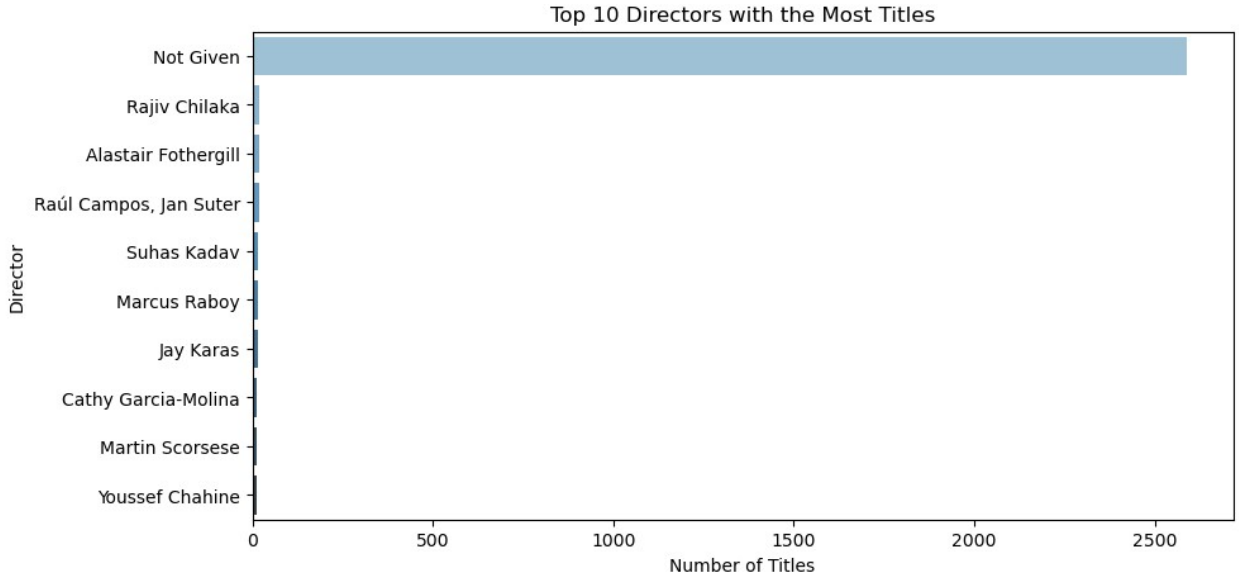

```
top_directors = data['director'].value_counts().head(10)
plt.figure(figsize = (10,5))
sns.barplot(x=top_directors.values, y=top_directors.index,
palette='Blues_d')
plt.title('Top 10 Directors with the Most Titles')
plt.xlabel('Number of Titles')
```

```
plt.ylabel('Director')
plt.show()
```

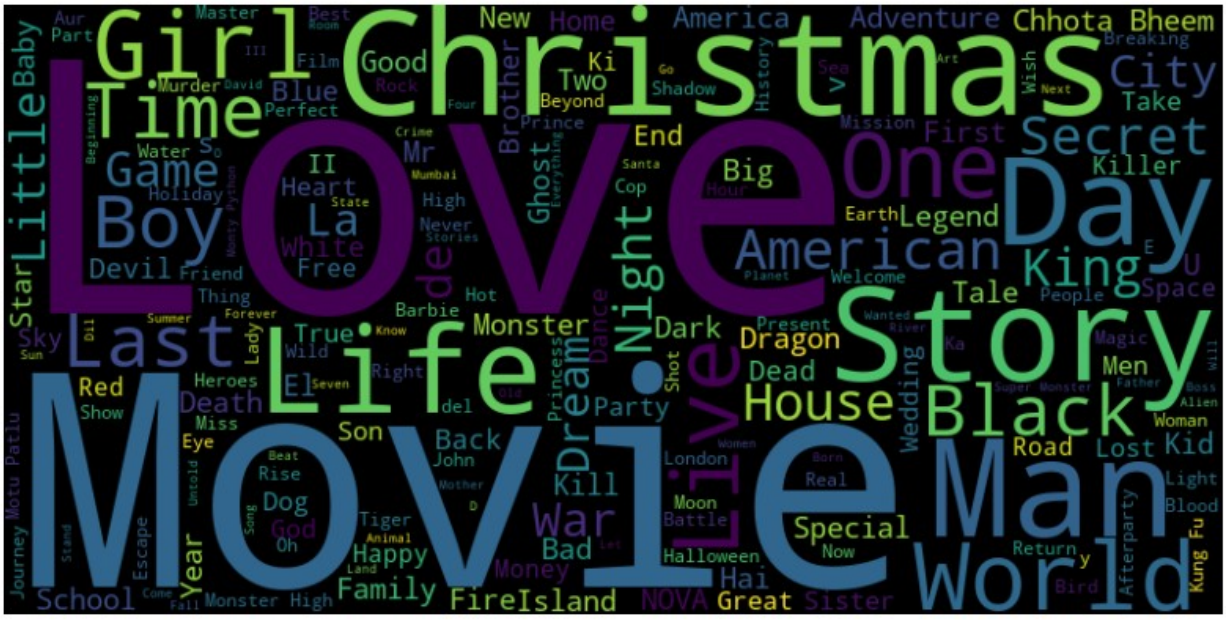
```
C:\Users\Bharath\AppData\Local\Temp\ipykernel_20164\614173089.py:3:
FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be
removed in v0.14.0. Assign the `y` variable to `hue` and set
`legend=False` for the same effect.

  sns.barplot(x=top_directors.values, y=top_directors.index,
palette='Blues_d')
```




```
movie_titles = data[data['type'] == 'Movie']['title']
wordcloud = WordCloud(width=800, height=400,
background_color='black').generate(' '.join(movie_titles))
plt.figure(figsize=(10,6))
plt.imshow(wordcloud, interpolation='bilinear')
plt.axis('off')
plt.show()
```




```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

data = pd.read_csv('netflix1.csv')

data.head()
```

```
  show_id     type                                  title         director
\
0      s1    Movie                 Dick Johnson Is Dead  Kirsten Johnson

1      s3  TV Show                            Ganglands  Julien Leclercq

2      s6  TV Show                       Midnight Mass    Mike Flanagan

3     s14    Movie  Confessions of an Invisible Girl    Bruno Garotti

4      s8    Movie                              Sankofa     Haile Gerima


          country date_added  release_year rating  duration  \
0  United States  9/25/2021          2020  PG-13    90 min
1         France  9/24/2021          2021  TV-MA  1 Season
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3         Brazil  9/22/2021          2021  TV-PG    91 min
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                                        listed_in
0                                   Documentaries
```

```
1  Crime TV Shows, International TV Shows, TV Act...
2                 TV Dramas, TV Horror, TV Mysteries
3                 Children & Family Movies, Comedies
4   Dramas, Independent Movies, International Movies
```

```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8790 entries, 0 to 8789
Data columns (total 10 columns):
 #   Column        Non-Null Count  Dtype 
---  ------        --------------  ----- 
 0   show_id       8790 non-null   object
 1   type          8790 non-null   object
 2   title         8790 non-null   object
 3   director      8790 non-null   object
 4   country       8790 non-null   object
 5   date_added    8790 non-null   object
 6   release_year  8790 non-null   int64 
 7   rating        8790 non-null   object
 8   duration      8790 non-null   object
 9   listed_in     8790 non-null   object
dtypes: int64(1), object(9)
memory usage: 686.8+ KB
```

```
data.shape
```

```
(8790, 10)
```

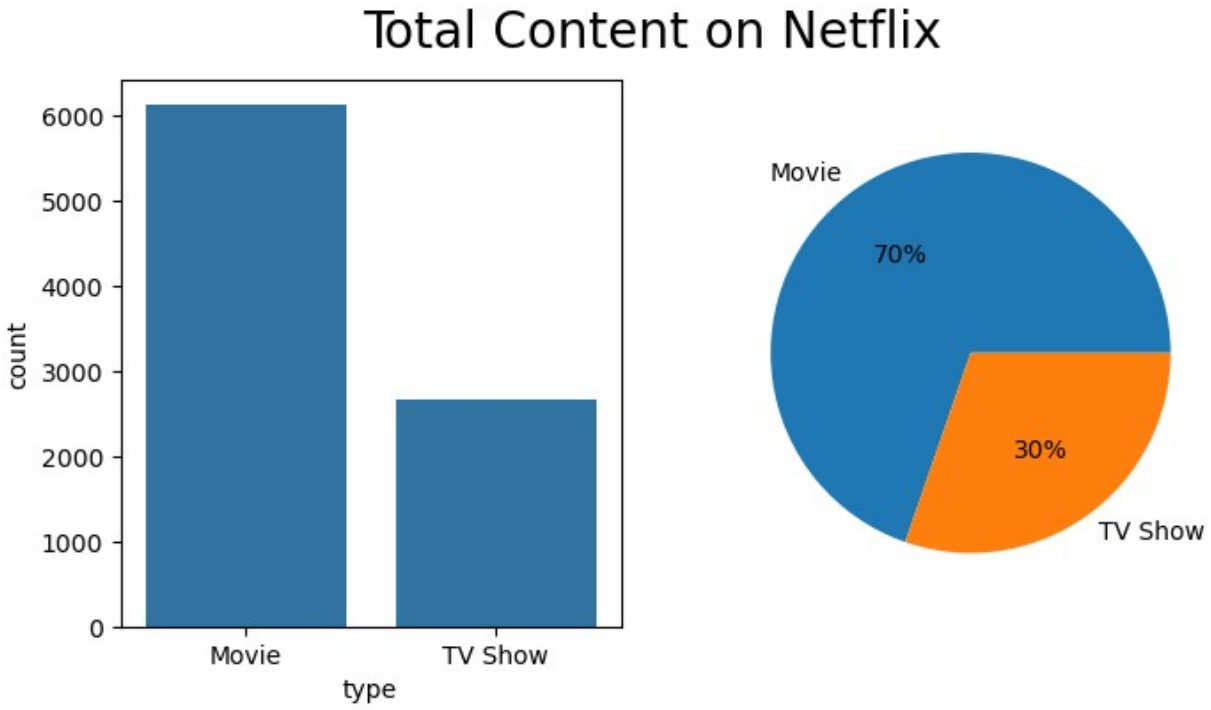
```
data=data.drop_duplicates()
```

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

```
type
Movie      6126
TV Show    2664
Name: count, dtype: int64
```

```
freq = data['type'].value_counts()
fig, axes=plt.subplots(1,2, figsize=(8,4))
sns.countplot(data, x=data['type'], ax=axes[0])
plt.pie(freq, labels=['Movie', 'TV Show'], autopct='%.0f%%')
plt.suptitle('Total Content on Netflix', fontsize=20)
```

```
Text(0.5, 0.98, 'Total Content on Netflix')
```




```
data.info()
```

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<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8790 entries, 0 to 8789
Data columns (total 10 columns):
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 2   title         8790 non-null   object
 3   director      8790 non-null   object
 4   country       8790 non-null   object
 5   date_added    8790 non-null   object
 6   release_year  8790 non-null   int64 
 7   rating        8790 non-null   object
 8   duration      8790 non-null   object
 9   listed_in     8790 non-null   object
dtypes: int64(1), object(9)
memory usage: 686.8+ KB
```

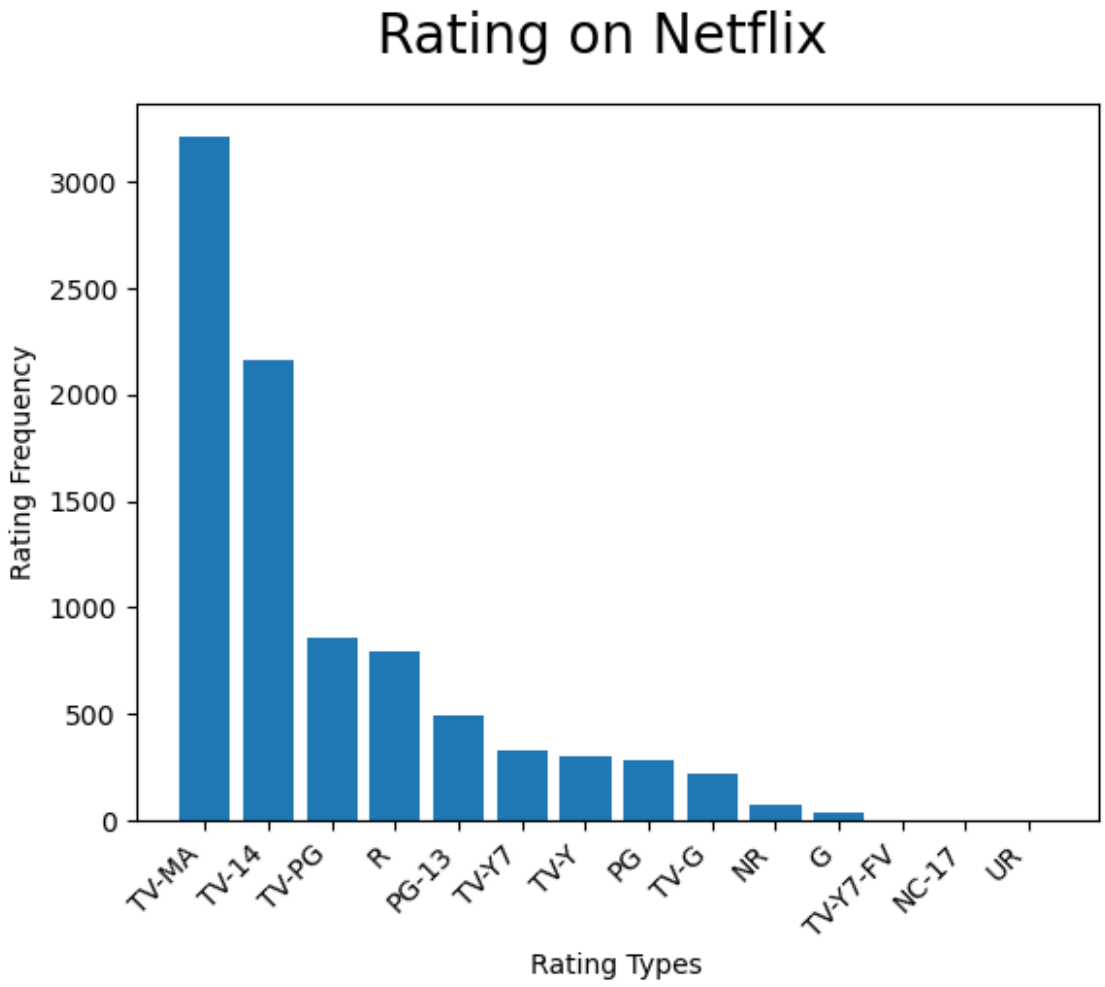
```
data['rating'].value_counts()
```

```
rating
TV-MA       3205
TV-14       2157
TV-PG        861
R            799
PG-13        490
```

```
TV-Y7         333
TV-Y          306
PG            287
TV-G          220
NR             79
G              41
TV-Y7-FV        6
NC-17           3
UR              3
Name: count, dtype: int64
```

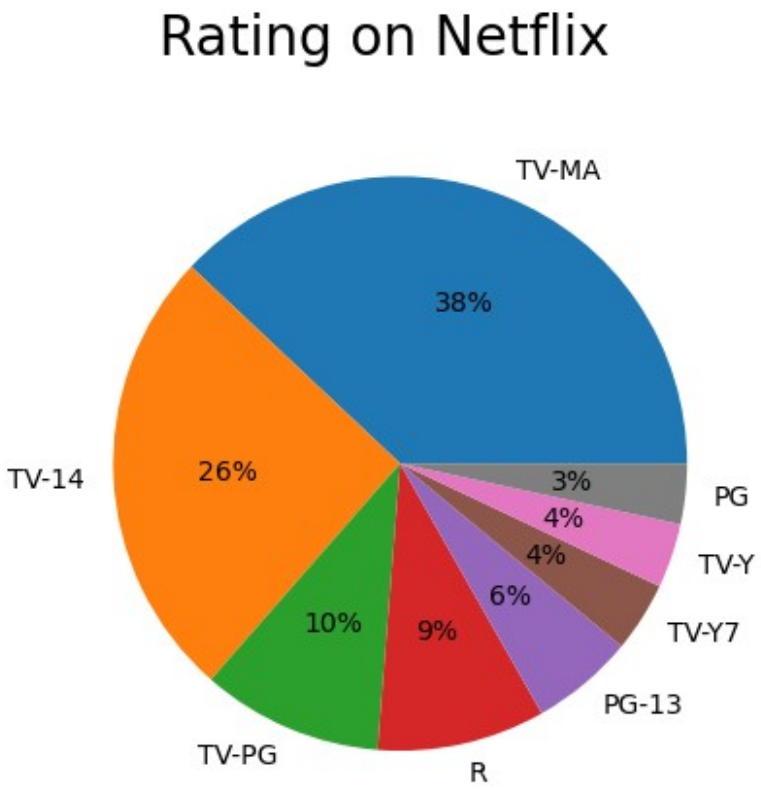
```
ratings=data['rating'].value_counts().reset_index().sort_values(by='co
unt', ascending=False)
plt.bar(ratings['rating'], ratings['count'])
plt.xticks(rotation=45, ha='right')
plt.xlabel("Rating Types")
plt.ylabel("Rating Frequency")
plt.suptitle('Rating on Netflix', fontsize = 20)
```

```
Text(0.5, 0.98, 'Rating on Netflix')
```




```
plt.pie(ratings['count'][:8], labels=ratings['rating'][:8],
autopct='%.0f%%')
plt.suptitle('Rating on Netflix', fontsize=20)
```

```
Text(0.5, 0.98, 'Rating on Netflix')
```



lets convert column date_added to datetime.

```
 data['date_added']=pd.to_datetime(data['date_added'])

data.describe()
```

	date_added	release_year
count	8790	8790.000000
mean	2019-05-17 21:44:01.638225408	2014.183163
min	2008-01-01 00:00:00	1925.000000
25%	2018-04-06 00:00:00	2013.000000
50%	2019-07-03 00:00:00	2017.000000
75%	2020-08-19 18:00:00	2019.000000
max	2021-09-25 00:00:00	2021.000000
std	NaN	8.825466

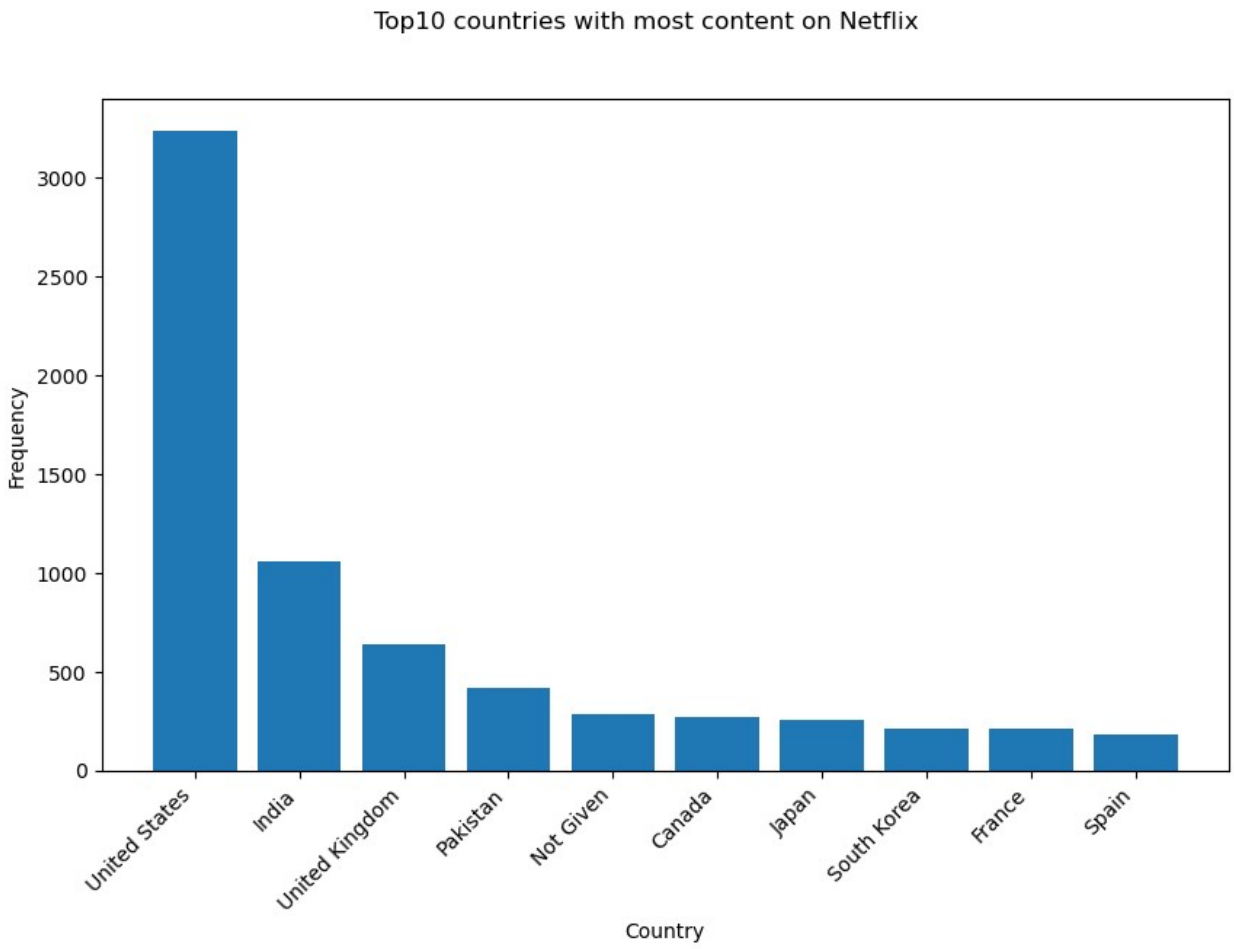
```
data['country'].value_counts()
```

```
country
United States     3240
India             1057
United Kingdom     638
Pakistan           421
```

```
Not Given           287
                    ...
Iran                  1
West Germany          1
Greece                1
Zimbabwe              1
Soviet Union          1
Name: count, Length: 86, dtype: int64
```

Top Ten Countries with Most Content on Netflix

```
top_ten_countries=data['country'].value_counts().reset_index().sort_va
lues(by='count',ascending=False)[:10]
plt.figure(figsize=(10,6))
plt.bar(top_ten_countries['country'],top_ten_countries['count'])
plt.xticks(rotation=45,ha='right')
plt.xlabel("Country")
plt.ylabel("Frequency")
plt.suptitle("Top10 countries with most content on Netflix")
plt.show()
```

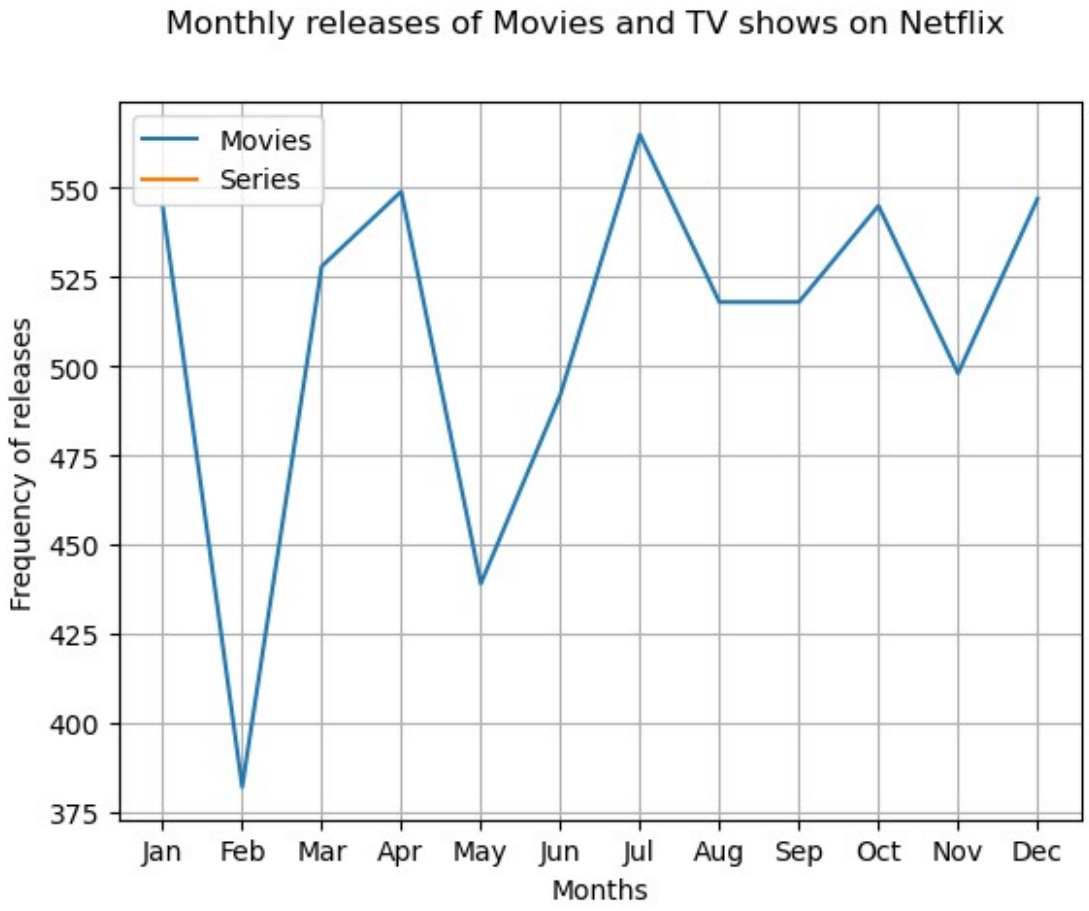



```
data['year']=data['date_added'].dt.year
data['month']=data['date_added'].dt.month
data['day']=data['date_added'].dt.day
```

Monthly releases of Movies and TV shows on Netflix

```
monthly_movie_release=data[data['type']=='Movie']
['month'].value_counts().sort_index()
monthly_series_release=data[data['type']=='TVShow']
['month'].value_counts().sort_index()
plt.plot(monthly_movie_release.index,monthly_movie_release.values,labe
l='Movies')
plt.plot(monthly_series_release.index,monthly_series_release.values,la
bel='Series')
plt.xlabel("Months")
plt.ylabel("Frequency of releases")
plt.xticks(range(1,13),
```

```
['Jan','Feb','Mar','Apr','May','Jun','Jul','Aug','Sep','Oct','Nov','De
c'])
plt.legend()
plt.grid(True)
plt.suptitle("Monthly releases of Movies and TV shows on Netflix")
plt.show()
```

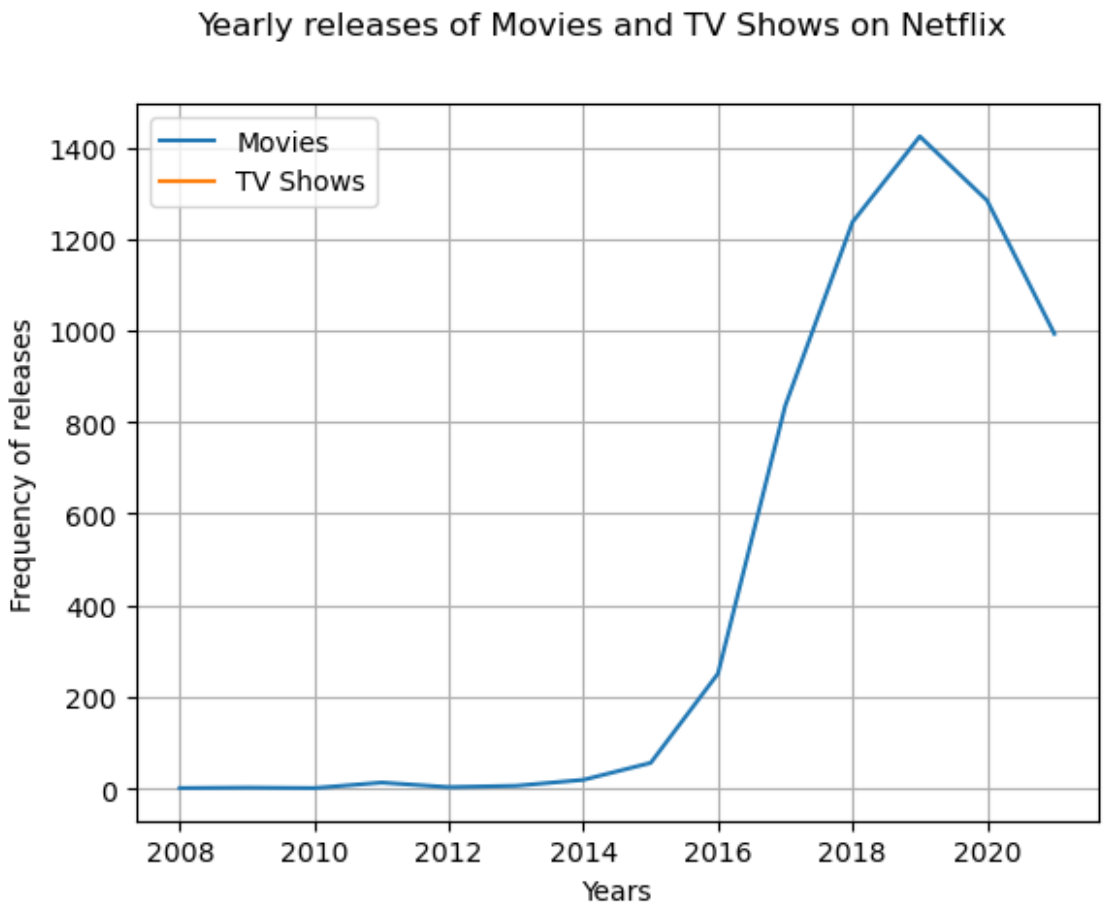


Yearly releases of Movies and TV Shows on Netflix

```
yearly_movie_releases=data[data['type']=='Movie']
['year'].value_counts().sort_index()
yearly_series_releases=data[data['type']=='TVShow']
['year'].value_counts().sort_index()
plt.plot(yearly_movie_releases.index,yearly_movie_releases.values,
label='Movies')
plt.plot(yearly_series_releases.index,yearly_series_releases.values,
label='TV Shows')
```

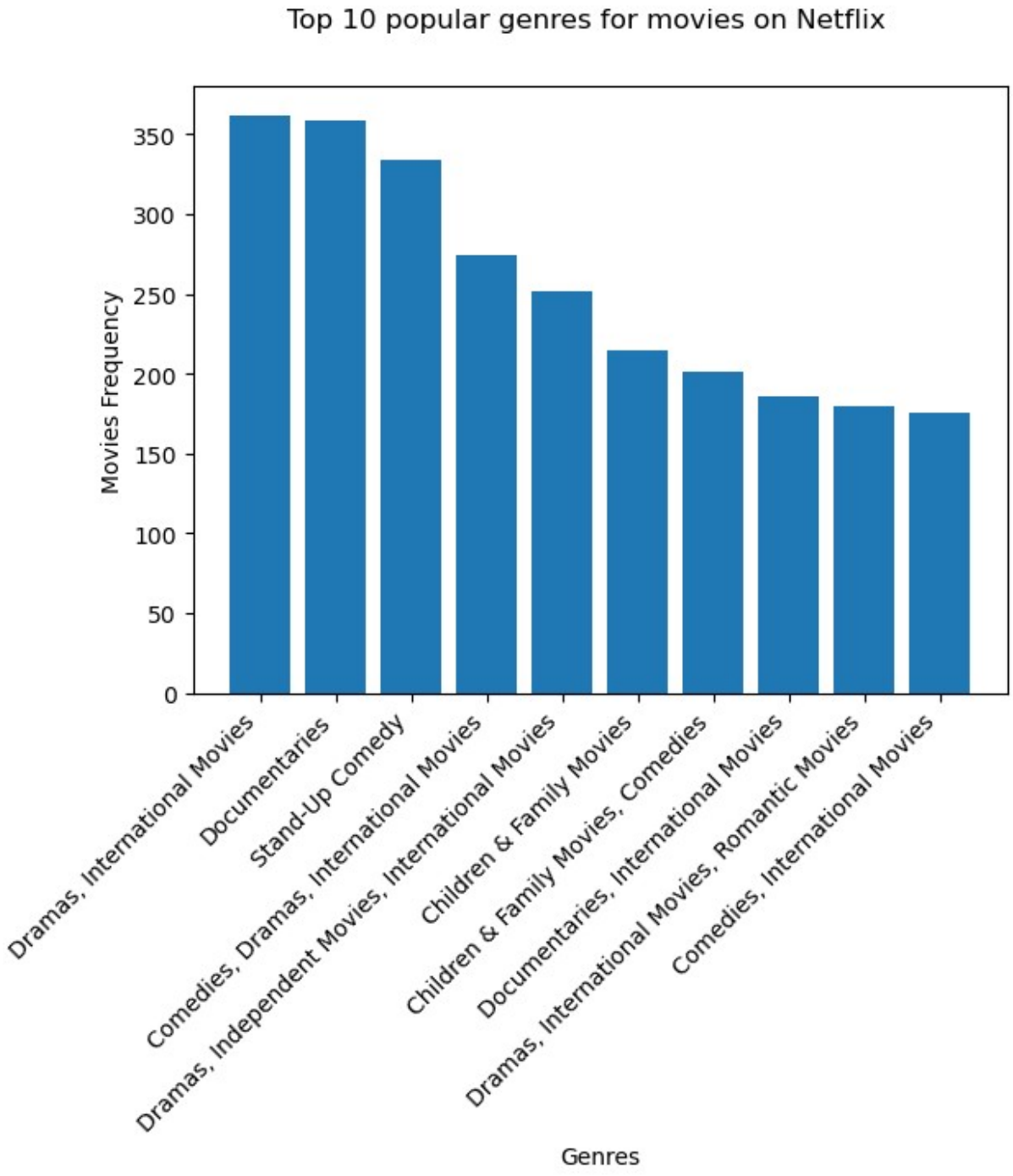
```
plt.xlabel("Years")
plt.ylabel("Frequency of releases")
plt.grid(True)
plt.suptitle("Yearly releases of Movies and TV Shows on Netflix")
plt.legend()
```

```
<matplotlib.legend.Legend at 0x2edc084d3d0>
```




```
popular_movie_genre=data[data['type']=='Movie'].groupby("listed_in").s
ize().sort_values(ascending=False)[:10]
popular_series_genre=data[data['type']=='TVShow'].groupby("listed_in")
.size().sort_values(ascending=False)

plt.bar(popular_movie_genre.index, popular_movie_genre.values)
plt.xticks(rotation=45, ha='right')
plt.xlabel("Genres")
plt.ylabel("Movies Frequency")
plt.suptitle("Top 10 popular genres for movies on Netflix")
plt.show()
```


Top 10 popular genres for movies on Netflix
Movies Frequency
0
50
100
150
200
250
300
350
Dramas, International Movies
Documentaries
Stand-Up Comedy
Comedies, Dramas, International Movies
Dramas, Independent Movies, International Movies
Children & Family Movies
Children & Family Movies, Comedies
Documentaries, International Movies
Dramas, International Movies, Romantic Movies
Comedies, International Movies
Genres