Investigating Netflix movies

Netflix! What started in 1997 as a DVD rental service has since exploded into one of the largest entertainment and media companies.

Given the large number of movies and series available on the platform, it is a perfect opportunity to flex your exploratory data analysis skills and dive into the entertainment industry. Our friend has also been brushing up on their Python skills and has taken a first crack at a CSV file containing Netflix data. They believe that the average duration of movies has been declining. Using your friends initial research, you'll delve into the Netflix data to see if you can determine whether movie lengths are actually getting shorter and explain some of the contributing factors, if any.

You have been supplied with the dataset `netflix_data.csv` , along with the following table detailing the column names and descriptions. This data does contain null values and some outliers, but handling these is out of scope for the project. Feel free to experiment after submitting!

The data

netflix_data.csv

Column	Description
show_id	The ID of the show
type	Type of show
title	Title of the show
director	Director of the show
cast	Cast of the show
country	Country of origin
date_added	Date added to Netflix
release_year	Year of Netflix release
duration	Duration of the show in minutes
description	Description of the show
genre	Show genre

In [ ]:

```
# Importing pandas and matplotlib
import pandas as pd
import matplotlib.pyplot as plt

# Start coding!
```

Netflix movies

First, we will import the csv file as a *pandas dataframe* and then we will filter out TV Shows to only keep the movies.

In [ ]:

```
netflix_df = pd.read_csv('netflix_data.csv')
print(netflix_df)
```

```
     show_id  ...             genre
0         s1  ...  International TV
1         s2  ...            Dramas
2         s3  ...     Horror Movies
3         s4  ...            Action
4         s5  ...            Dramas
...      ...  ...               ...
7782   s7783  ...            Dramas
7783   s7784  ...            Dramas
7784   s7785  ...     Documentaries
7785   s7786  ...  International TV
7786   s7787  ...     Documentaries

[7787 rows x 11 columns]
```

In [ ]:
```
# Filtering out TV Shows
netflix_subset = netflix_df.loc[netflix_df['type'] != 'TV Show']
print(netflix_subset)
```

```
     show_id  ...          genre
1         s2  ...         Dramas
2         s3  ...  Horror Movies
3         s4  ...         Action
4         s5  ...         Dramas
6         s7  ...  Horror Movies
...      ...  ...            ...
7781   s7782  ...       Children
7782   s7783  ...         Dramas
7783   s7784  ...         Dramas
7784   s7785  ...  Documentaries
7786   s7787  ...  Documentaries

[5377 rows x 11 columns]
```

In [ ]:
```
# Keeping only the title, country, genre, release year and duration
netflix_movies = netflix_subset[['title', 'country', 'genre', 'release_year'
print(netflix_movies)
```

```
                                        title  ... duration
1                                        7:19  ...       93
2                                       23:59  ...       78
3                                           9  ...       80
4                                          21  ...      123
6                                         122  ...       95
...                                       ...  ...      ...
7781                                     Zoom  ...       88
7782                                     Zozo  ...       99
7783                                   Zubaan  ...      111
7784                        Zulu Man in Japan  ...       44
7786  ZZ TOP: THAT LITTLE OL' BAND FROM TEXAS  ...       90

[5377 rows x 5 columns]
```

Short movies

In [ ]:
```
# Filtering out movies longer than 59 minutes
short_movies = netflix_movies.loc[netflix_movies['duration'] < 60]
print(short_movies)
```

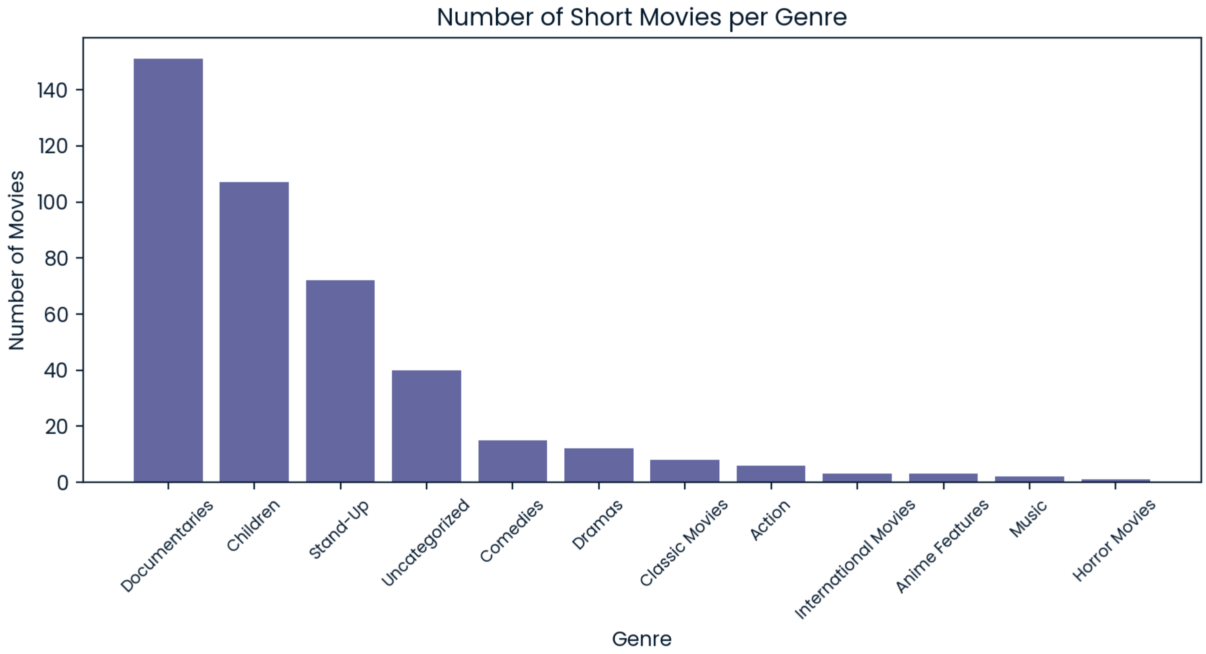
```
                                                  title  ...  duration
35                                            #Rucker50  ...        56
55                  100 Things to do Before High School  ...        44
67    13TH: A Conversation with Oprah Winfrey & Ava ...  ...        37
101                                   3 Seconds Divorce  ...        53
146                                      A 3 Minute Hug  ...        28
...                                                 ...  ...       ...
7679                    WWII: Report from the Aleutians  ...        45
7692  Ya no estoy aquí: Una conversación entre Guill...  ...        15
7718                     Yoo Byung Jae: Discomfort Zone  ...        54
7771                                               Zion  ...        12
7784                                  Zulu Man in Japan  ...        44

[420 rows x 5 columns]
```

In [ ]:

```
# Counting the number of short movies per genre
genre_counts = short_movies['genre'].value_counts()

# Creating the bar plot using plt.bar()
plt.figure(figsize=(10, 4))
plt.bar(genre_counts.index, genre_counts.values)
plt.title('Number of Short Movies per Genre')
plt.xlabel('Genre')
plt.ylabel('Number of Movies')
plt.xticks(rotation=45, size=8)
plt.show()
```



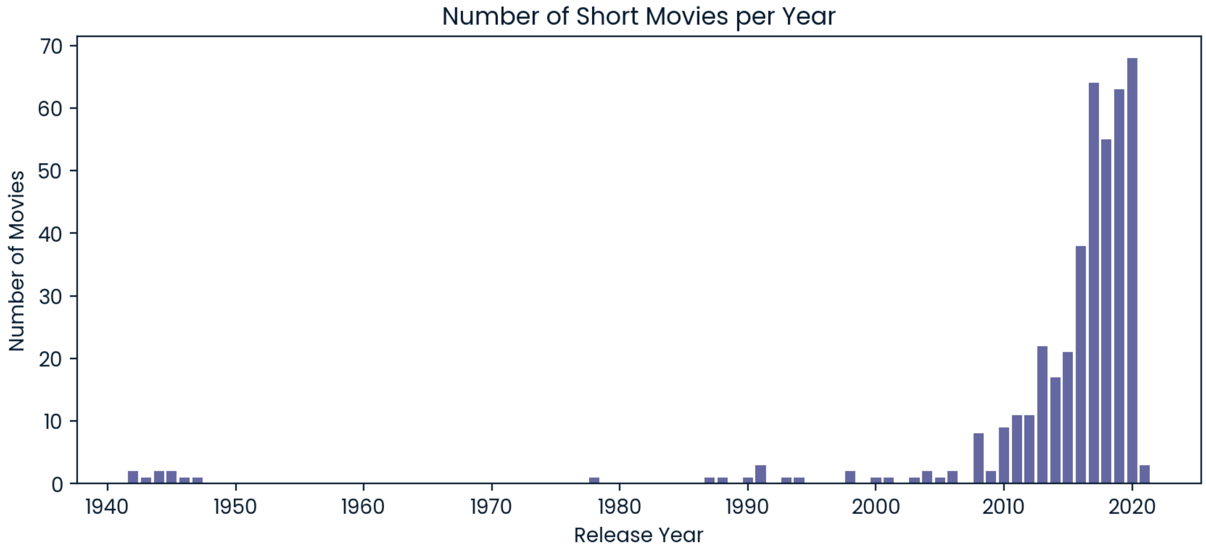
From the above data, we can observe that short movies are mostly concentrated in 3 genres : Documentaries, Children and Stand-Up. Ignoring the Uncategorized category, other genres all have less than 20 short movies.

In [ ]:

```
# Counting the number of short movies per genre
year_counts = short_movies['release_year'].value_counts()

# Creating the bar plot using plt.bar()
```

```
plt.figure(figsize=(10, 4))
plt.bar(year_counts.index, year_counts.values)
plt.title('Number of Short Movies per Year')
plt.xlabel('Release Year')
plt.ylabel('Number of Movies')
plt.show()
```

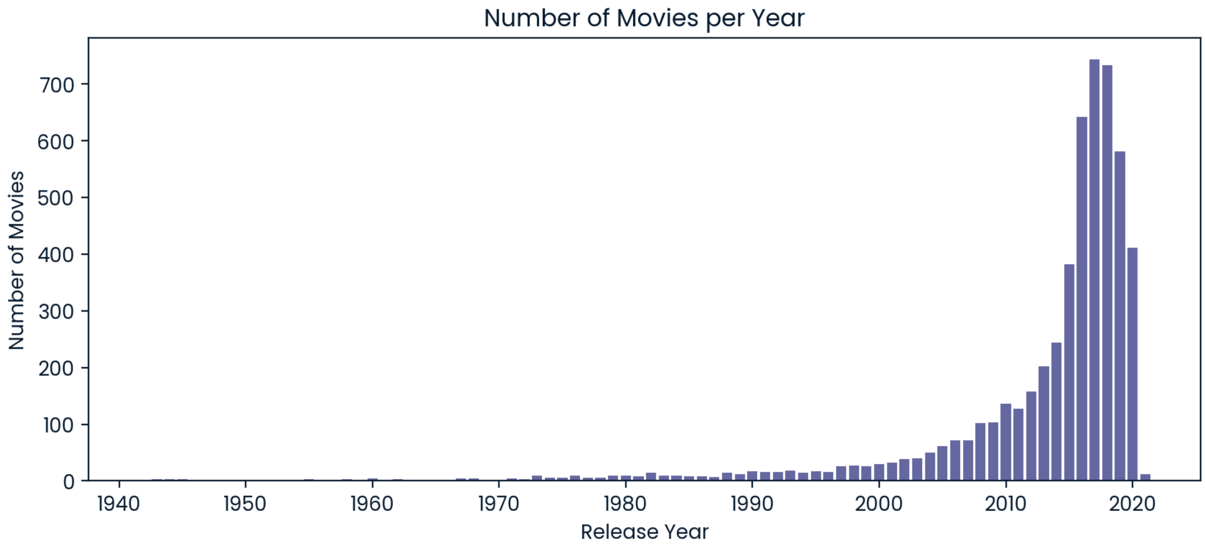


The above plot shows that there a lot more short_movies nowadays (starting from around 2008) than thre used to be. We can observe what seems to be an exponential growth in short movies being released from 2010 to 2020. This may say two things : movies are getting shorter, or more documentaries, stand-ups and children movies are being released than before. Our data set here is only limited to short movies. We cannot say that movies are getting shorter as we can assume that there are just more movies being released on Netflix every year, and that these movies are recent. To conclude on whether or not movies are getting shorter, we must compare the count of short movies proportionally to the count of all movies.

In [ ]:

```
# Counting the number of short movies per genre
year_counts = netflix_movies['release_year'].value_counts()

# Creating the bar plot using plt.bar()
plt.figure(figsize=(10, 4))
plt.bar(year_counts.index, year_counts.values)
plt.title('Number of Movies per Year')
plt.xlabel('Release Year')
plt.ylabel('Number of Movies')
plt.show()
```



In [ ]:

Out[ ]:

	title	country	genre	release_year	duration
1	7:19	Mexico	Dramas	2016	93
2	23:59	Singapore	Horror Movies	2011	78
3	9	United States	Action	2009	80
4	21	United States	Dramas	2008	123
6	122	Egypt	Horror Movies	2019	95
...	...	...	...	...	...
7781	Zoom	United States	Children	2006	88
7782	Zozo	Sweden	Dramas	2005	99
7783	Zubaan	India	Dramas	2015	111
7784	Zulu Man in Japan	NaN	Documentaries	2019	44
7786	ZZ TOP: THAT LITTLE OL' BAND FROM TEXAS	United Kingdom	Documentaries	2019	90

5377 rows × 5 columns

This interactive plot confirms that Netflix mostly has recent movies. It correlates with the previous short movies plot.

Release years per genre

Adding colors to the genres

In [ ]:

```
import matplotlib
colors = []
zorders = []

# Let's iterate through netflix_movies and assign a color to the genres

for genre in list(netflix_movies['genre']):
    if genre == 'Documentaries':
        colors.append('#1833AC')
        zorders.append(2)
    elif genre == 'Children':
        colors.append('#FF2D33')
        zorders.append(2)
    elif genre == 'Stand-Up':
        colors.append('#FFE502')
        zorders.append(2)
    else:
        colors.append('#4C5566')
        zorders.append(1)
```

Let's plot the results

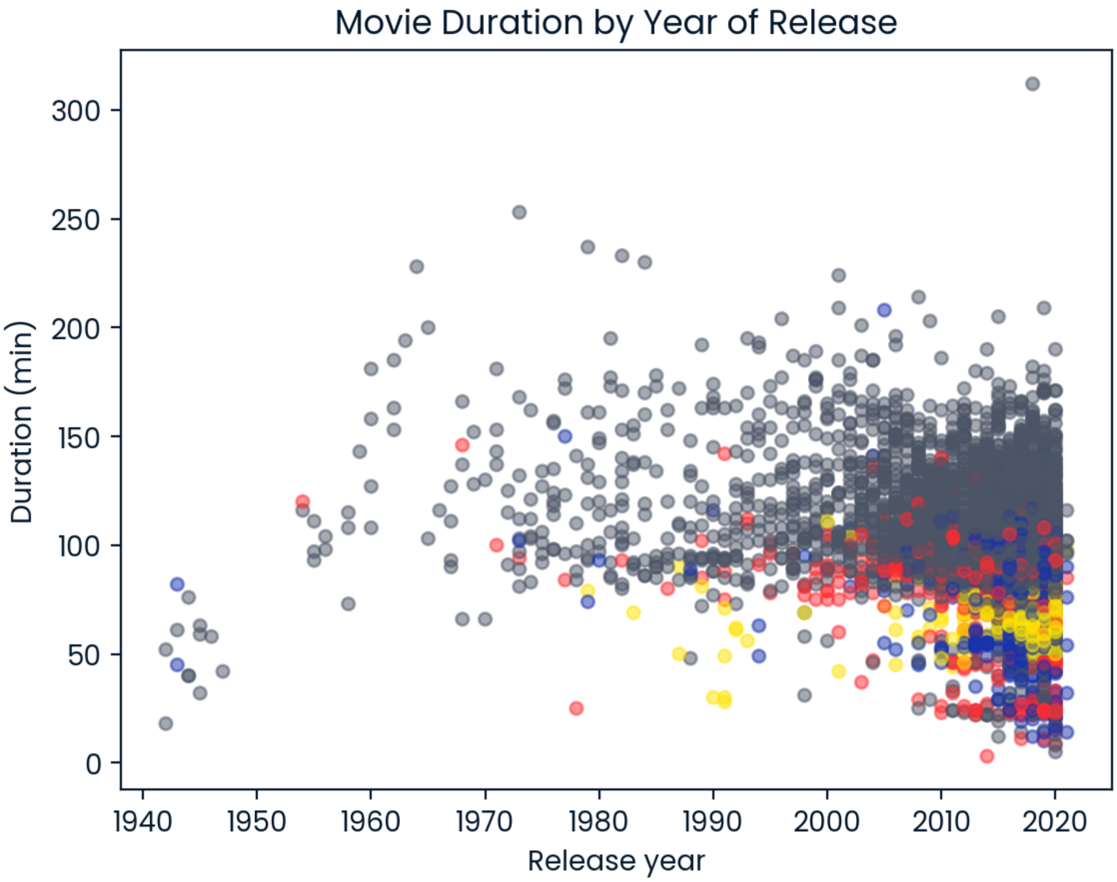
In [ ]:

```
fig, ax = plt.subplots()

# Create a scatter plot for movie duration by release year
# Using the colors list to color the points
ax.scatter(netflix_movies['release_year'], netflix_movies['duration'], c=col

# Setting the labels and title
ax.set_xlabel('Release year')
ax.set_ylabel('Duration (min)')
ax.set_title('Movie Duration by Year of Release')

plt.show()
```



In [ ]:

```
answer="no"
```

As we can see above, there are more documentaries, children movies and stand-up shows from 2010 to 2020 on Netflix than ones released before 2010, which can explain why previous plots could hint at movies getting shorter. We can also clearly see that movies as a whole are not getting shorter, there are just more movies than there used to be, at least according to Netflix' catalogue.