TV Streaming Platform Analysis

Contents

1 Import packages

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

2 Load data

```
movies = pd.read_csv(
    'data/MoviesOnStreamingPlatforms_updated.csv',
    index_col=0
)
tv = pd.read_csv('data/tv_shows.csv', index_col=0)
```

2.1 Check Data of MOVIES

```
movies.head()
movies.describe()
movies.isnull().sum()
```

- Data Cleaning

```
movies.Age = movies.Age.fillna('Unknown')
movies.IMDb = movies.IMDb.fillna(0)
movies['Rotten Tomatoes'] = movies['Rotten Tomatoes'].str.rstrip('%').astype('float') # get rid o
movies['Rotten Tomatoes'] = movies['Rotten Tomatoes'].fillna(0)
```

2.1.1 Check Data of TV

```
tv.head()
tv.describe()
tv.isnull().sum()
```

- Data Cleaning

```
tv.Age = tv.Age.fillna('Unknown')
tv.IMDb = tv.IMDb.fillna(0)
tv['Rotten Tomatoes'] = tv['Rotten Tomatoes'].str.rstrip('%').astype('float') # get rid of the %
tv['Rotten Tomatoes'] = tv['Rotten Tomatoes'].fillna(0)
```

2.2 Streaming Platform Breakdown

```
#Creating different dataframes for each platform FOR EACH SERVICE TYPE (movies or tv)
Hulu_movies = movies.loc[(movies['Hulu'] > 0) ]
Disney_movies = movies.loc[(movies['Disney+'] > 0) ]
Prime_movies = movies.loc[(movies['Prime Video'] > 0)  ]
Netflix_movies = movies.loc[(movies['Netflix'] > 0)  ]
Hulu_tv = tv.loc[(tv['Hulu'] > 0) ]
Disney_tv = tv.loc[(tv['Disney+'] > 0) ]
Prime_tv = tv.loc[(tv['Prime Video'] > 0)  ]
Netflix_tv = tv.loc[(tv['Netflix'] > 0)  ]
```

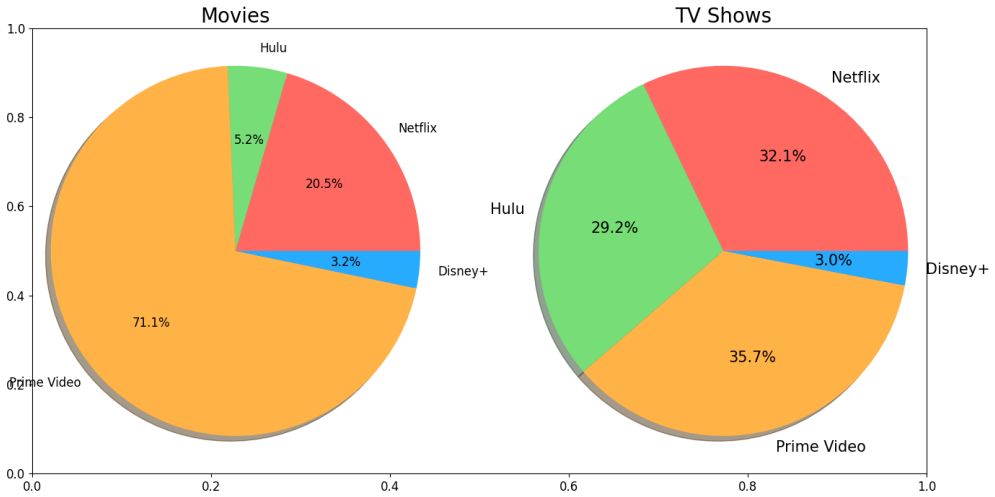
3 Settings

Colour Scheme per Streaming Platform

```
n_col = '#ff6961'  #'#e50914' # red
h_col = '#77DD77'  #'#1ce783' # green
d_col = '#26abff'  #'#113CCF' # blue
p_col = '#FFB347'  #'#FF9900' # orange
```

4 Who has the biggest catalog?

```
def donut(i,df,sizes,title):
    plt.subplot(i)
    plt.pie(sizes, explode=explode, labels=labels, colors=colors,
                autopct='%1.1f%%', shadow=True, startangle=0)

    #centre_circle = plt.Circle((0,0),0.5,color='black', fc='white',linewidth=1.25)
    fig = plt.gcf()
    #fig.gca().add_artist(centre_circle)
    plt.title(title, fontsize=20)
    plt.rcParams['font.size'] = 15
    plt.axis('equal')
```

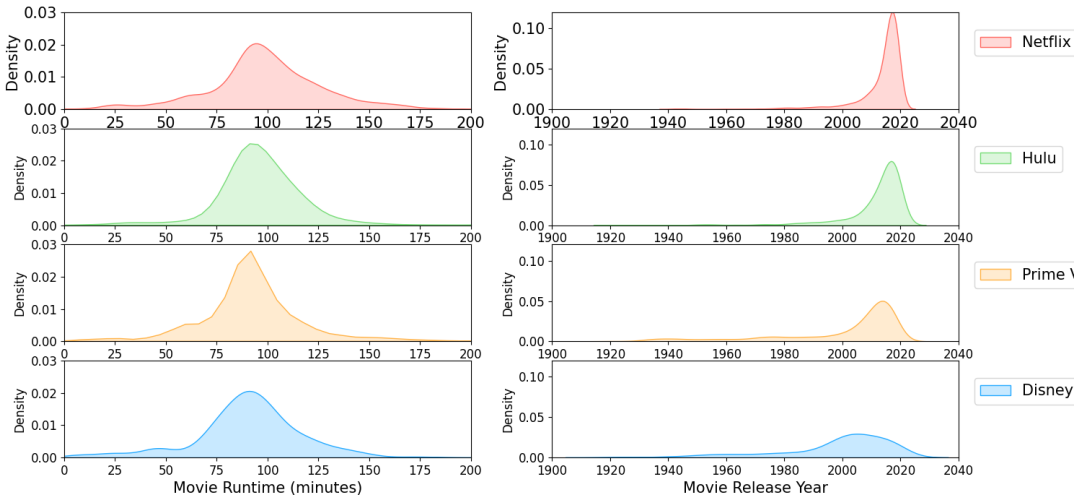


- Can we evaluate the 'unique' movies/tv shows to each platform?

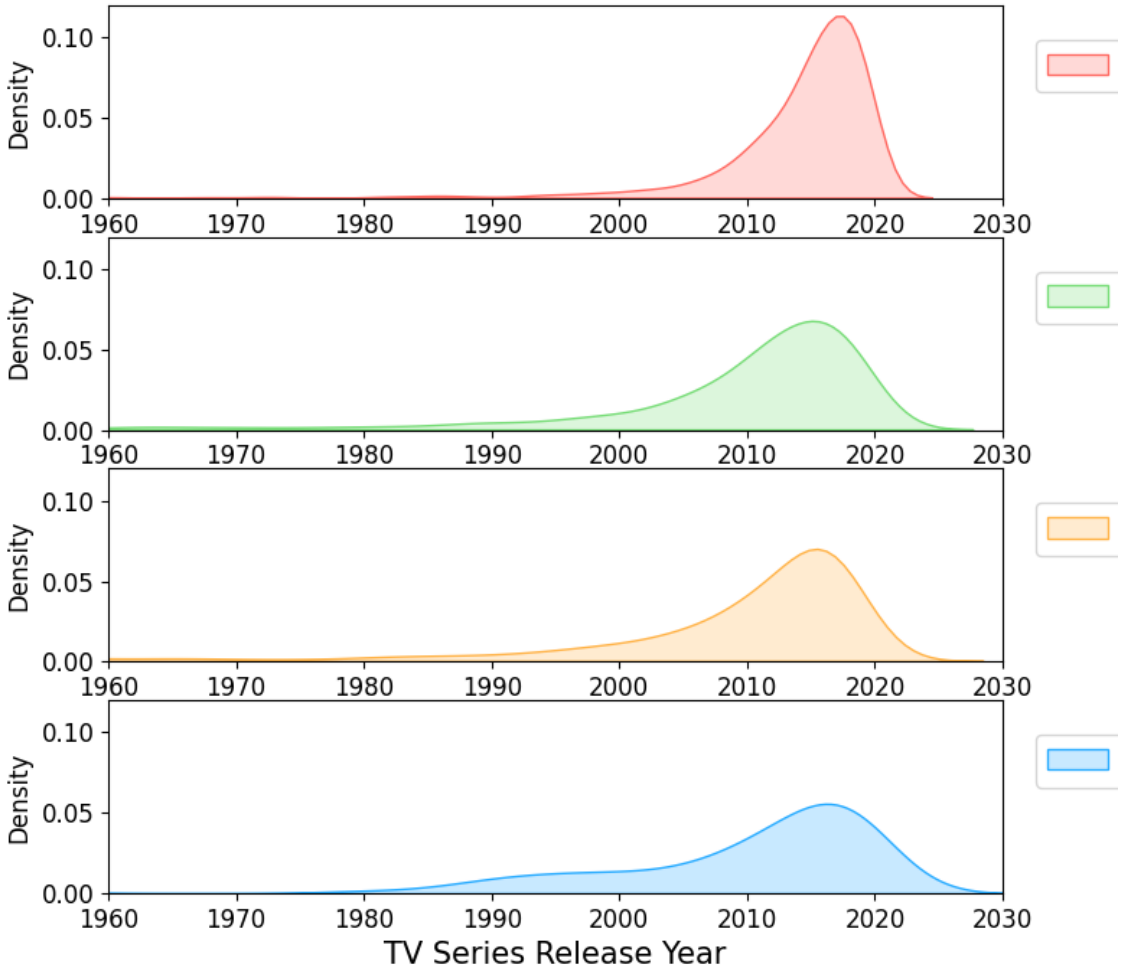
				Title	Year	Age	IMDb	Rotten Tomatoes	type
Netflix	Hulu	Prime Video	Disney+						
0	0	0	1	156	156	156	156	156	156
		1	0	1889	1889	1889	1889	1889	1889
	1	0	0	1452	1452	1452	1452	1452	1452
			1	18	18	18	18	18	18
		1	0	165	165	165	165	165	165
1	0	0	0	1748	1748	1748	1748	1748	1748
			1	5	5	5	5	5	5
		1	0	59	59	59	59	59	59
	1	0	0	87	87	87	87	87	87
			1	1	1	1	1	1	1
		1	0	31	31	31	31	31	31

5 Release year breakdown of movies and TV shows in each catalog?

```
def kde(i,dataframe,platform,c):
    plt.subplot(i)
    dataframe=dataframe.loc[dataframe[platform] == 1]
    sns.kdeplot(data=dataframe['Runtime'], color=colors[c],shade=True)
    plt.xlabel('Movie Runtime (minutes)', fontsize = 15)
    plt.xlim(0,200)
    plt.ylim(0,.03)
    plt.subplot(i+1)
    sns.kdeplot(data=dataframe['Year'], color=colors[c],shade=True)
    plt.xlabel('Movie Release Year', fontsize = 15)
    plt.xlim(1900,2040)
    plt.ylim(0,0.12)
    plt.rcParams['font.size'] = 12
    plt.legend([platform], fontsize = 15, bbox_to_anchor=(1.02,.9), loc="upper left");
```




```
def kdetv(i,dataframe,platform,c):
    plt.subplot(i)
    dataframe=dataframe.loc[dataframe[platform] == 1]
    sns.kdeplot(data=dataframe['Year'], color=colors[c],shade=True)
    plt.xlabel('TV Series Release Year', fontsize = 15)
    plt.xlim(1960,2030)
    plt.ylim(0,0.12)
    plt.legend([platform], fontsize = 15, bbox_to_anchor=(1.02,.9), loc="upper left");
```

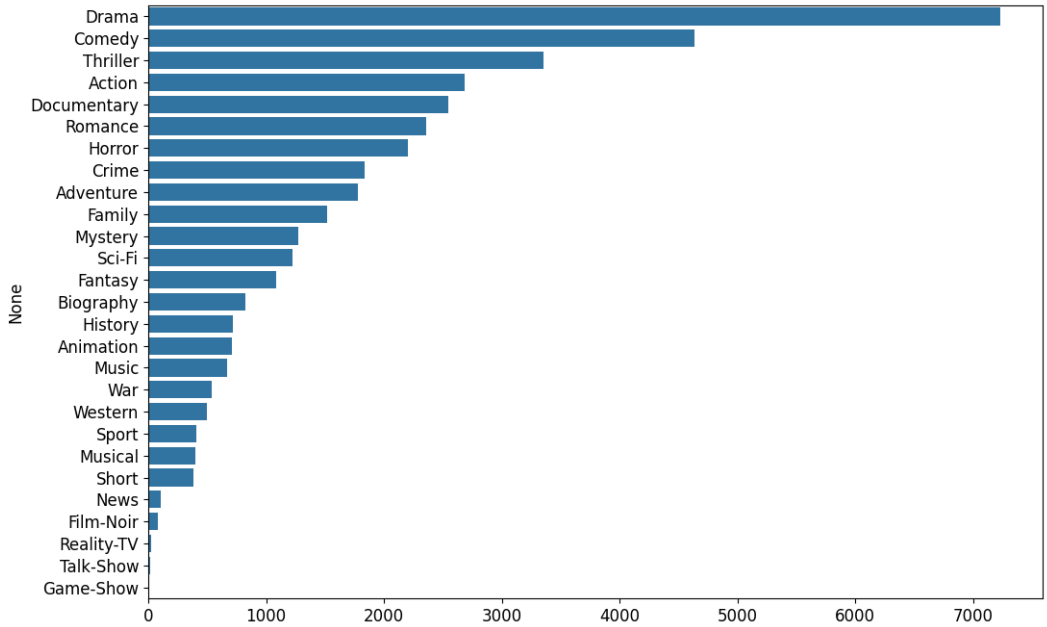


6 What are the popular genres in each catalog?

```
#creating helper function that receives a column and returns a new dataframe
#containing bolean values for each possible option

def split_multicolumn(genres):
    result_df = genres.to_frame()
    options = []
    # Iterate over the column
    for idx, value  in genres[genres.notnull()].items():
        # Break each value into list of options
        for option in value.split(','):
            # Add the option as a column to result
            if not option in result_df.columns:
                options.append(option)
                result_df[option] = False
            # Mark the value in the option column as True
```

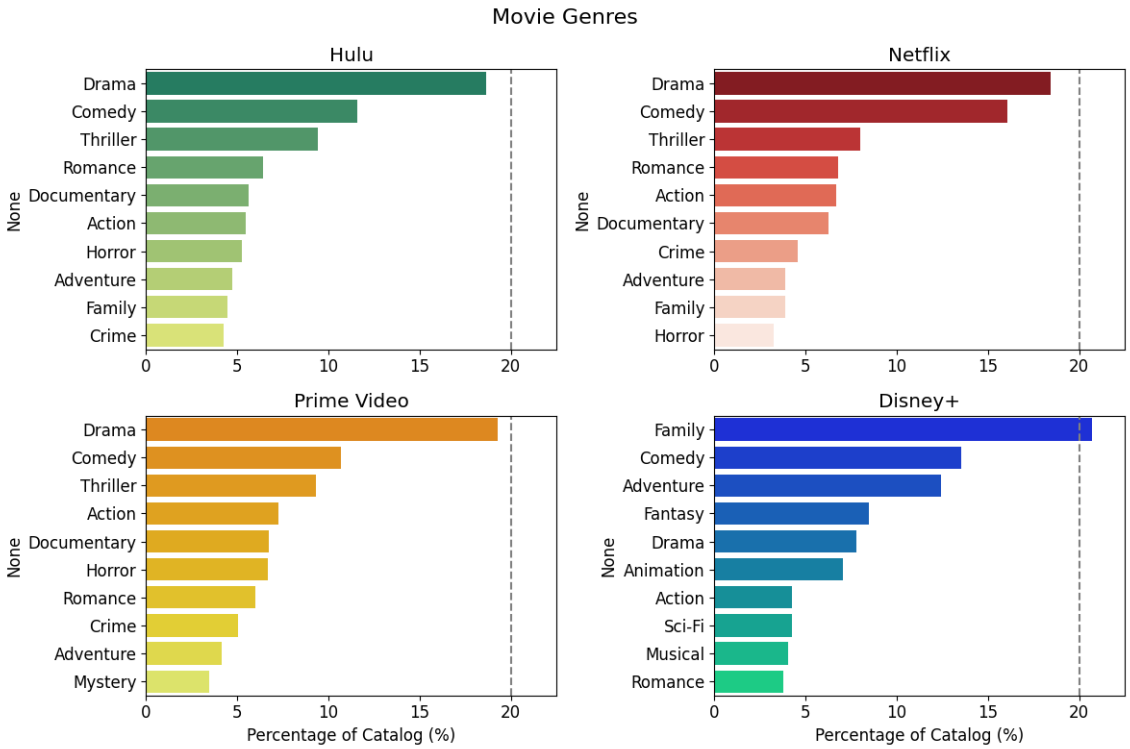
```
            result_df.at[idx, option] = True
    return result_df[options]
```

```
mGenres = split_multicolumn(movies.Genres)
Hulu_mG = Hulu_movies.join(mGenres)
Netflix_mG = Netflix_movies.join(mGenres)
Prime_mG = Prime_movies.join(mGenres)
Disney_mG = Disney_movies.join(mGenres)
```



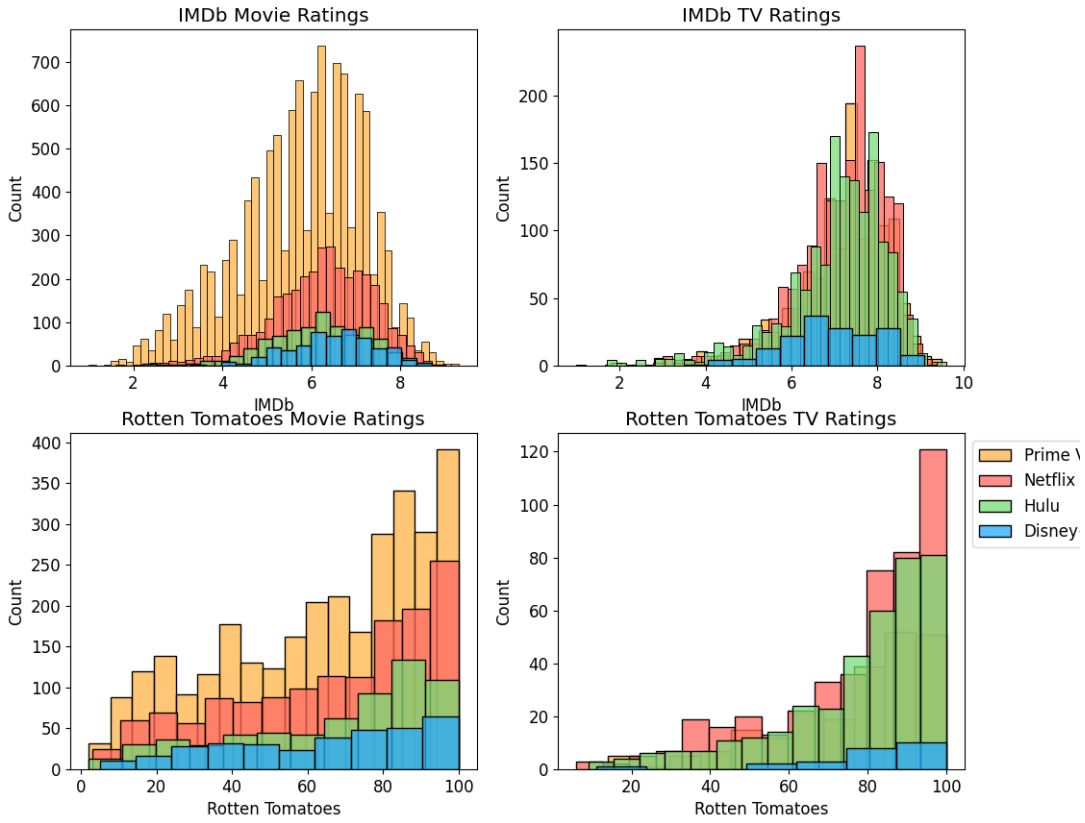

```
genre_col = movie_genres.index.tolist()
```

```
Hulu_mG = Hulu_mG[genre_col]
Netflix_mG = Netflix_mG[genre_col]
Prime_mG = Prime_mG[genre_col]
Disney_mG = Disney_mG[genre_col]

#since each dataframe above contains only boolean values, now we can use sum() to find
#the quantities for each platform and save it into a new variable we will use in our barplot:
hulu_genres_list = Hulu_mG.sum().sort_values(ascending=False).head(10)/sum(Hulu_mG.sum())*100
netflix_genres_list = Netflix_mG.sum().sort_values(ascending=False).head(10)/sum(Netflix_mG.sum())*100
primevideo_genres_list = Prime_mG.sum().sort_values(ascending=False).head(10)/sum(Prime_mG.sum())*100
disney_genres_list = Disney_mG.sum().sort_values(ascending=False).head(10)/sum(Disney_mG.sum())*100
```

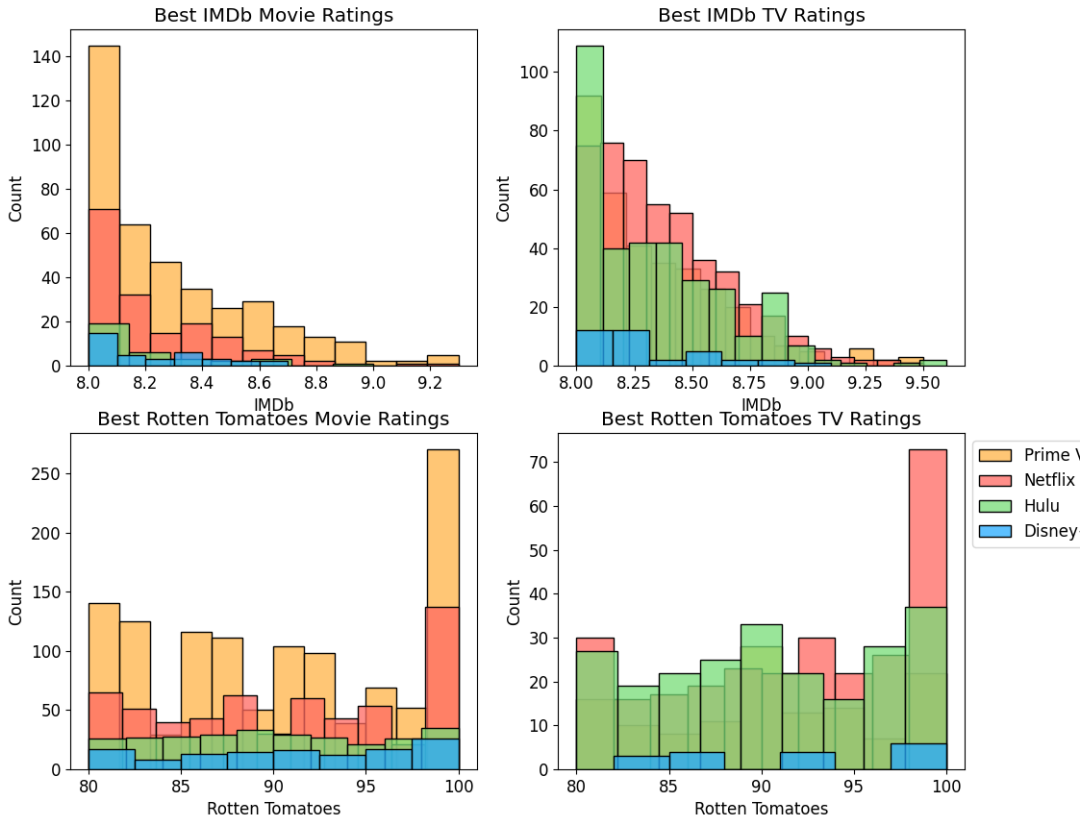


7 IMDb and Rotten Tomatoes Scoring per platform?

```
Hulu_mIMDb = Hulu_movies.loc[Hulu_movies['IMDb']>0]
Netflix_mIMDb = Netflix_movies.loc[Netflix_movies['IMDb']>0]
Prime_mIMDb = Prime_movies.loc[Prime_movies['IMDb']>0]
Disney_mIMDb = Disney_movies.loc[Disney_movies['IMDb']>0]

Hulu_mRotten = Hulu_movies.loc[Hulu_movies['Rotten Tomatoes']>0]
Netflix_mRotten = Netflix_movies.loc[Netflix_movies['Rotten Tomatoes']>0]
Prime_mRotten = Prime_movies.loc[Prime_movies['Rotten Tomatoes']>0]
Disney_mRotten = Disney_movies.loc[Disney_movies['Rotten Tomatoes']>0]

Hulu_tvIMDb = Hulu_tv.loc[Hulu_tv['IMDb']>0]
Netflix_tvIMDb = Netflix_tv.loc[Netflix_tv['IMDb']>0]
Prime_tvIMDb = Prime_tv.loc[Prime_tv['IMDb']>0]
Disney_tvIMDb = Disney_tv.loc[Disney_tv['IMDb']>0]

Hulu_tvRotten = Hulu_tv.loc[Hulu_tv['Rotten Tomatoes']>0]
Netflix_tvRotten = Netflix_tv.loc[Netflix_tv['Rotten Tomatoes']>0]
Prime_tvRotten = Prime_tv.loc[Prime_tv['Rotten Tomatoes']>0]
Disney_tvRotten = Disney_tv.loc[Disney_tv['Rotten Tomatoes']>0]
```

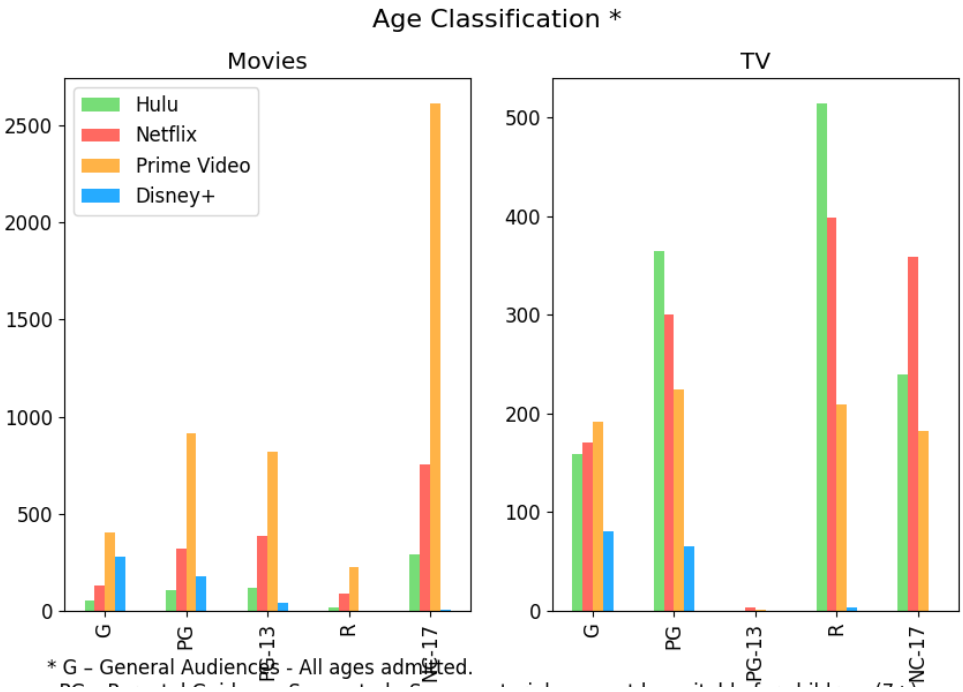



```
Hulu_mIMDb = Hulu_movies.loc[Hulu_movies['IMDb']>=8]
Netflix_mIMDb = Netflix_movies.loc[Netflix_movies['IMDb']>=8]
Prime_mIMDb = Prime_movies.loc[Prime_movies['IMDb']>=8]
Disney_mIMDb = Disney_movies.loc[Disney_movies['IMDb']>=8]

Hulu_mRotten = Hulu_movies.loc[Hulu_movies['Rotten Tomatoes']>=80]
Netflix_mRotten = Netflix_movies.loc[Netflix_movies['Rotten Tomatoes']>=80]
Prime_mRotten = Prime_movies.loc[Prime_movies['Rotten Tomatoes']>=80]
Disney_mRotten = Disney_movies.loc[Disney_movies['Rotten Tomatoes']>=80]

Hulu_tvIMDb = Hulu_tv.loc[Hulu_tv['IMDb']>=8]
Netflix_tvIMDb = Netflix_tv.loc[Netflix_tv['IMDb']>=8]
Prime_tvIMDb = Prime_tv.loc[Prime_tv['IMDb']>=8]
Disney_tvIMDb = Disney_tv.loc[Disney_tv['IMDb']>=8]

Hulu_tvRotten = Hulu_tv.loc[Hulu_tv['Rotten Tomatoes']>=80]
Netflix_tvRotten = Netflix_tv.loc[Netflix_tv['Rotten Tomatoes']>=80]
Prime_tvRotten = Prime_tv.loc[Prime_tv['Rotten Tomatoes']>=80]
Disney_tvRotten = Disney_tv.loc[Disney_tv['Rotten Tomatoes']>=80]
```



8 Age of Audience Suggested?

```
hulu_mages = Hulu_movies.Age.value_counts().drop('Unknown')
netflix_mages = Netflix_movies.Age.value_counts().drop('Unknown')
primevideo_mages = Prime_movies.Age.value_counts().drop('Unknown')
disney_mages = Disney_movies.Age.value_counts().drop('Unknown')

hulu_tvages = Hulu_tv.Age.value_counts().drop('Unknown')
netflix_tvages = Netflix_tv.Age.value_counts().drop('Unknown')
primevideo_tvages = Prime_tv.Age.value_counts().drop('Unknown')
disney_tvages = Disney_tv.Age.value_counts().drop('Unknown')
```


Age Classification *
Movies
TV
Hulu
Netflix
Prime Video
Disney+
2500
2000
1500
1000
500
0
500
400
300
200
100
0
G
PG
PG-13
R
NC-17
* G – General Audiences - All ages admitted.