

IMDB DATA SET

```
In [1]: import pandas as pd  
import matplotlib.pyplot as plt  
import seaborn as sns
```

```
In [2]: data = pd.read_csv('C:\Data Analytics\Python Project\IMDB\IMDB-Movie-Data.csv')  
data
```

Out[2]:

	Rank	Title	Genre	Description	Director	Actors
0	1	Guardians of the Galaxy	Action, Adventure, Sci-Fi	A group of intergalactic criminals are forced ...	James Gunn	Chris Pratt, Dave Bautista, Zoe Saldana, Bradley Cooper, Karen Gillan
1	2	Prometheus	Adventure, Mystery, Sci-Fi	Following clues to the origin of mankind, a team of scientists travel to the far reaches of space to explore an alien planet.	Ridley Scott	Noomi Rapace, Michael Fassbender, Logan Marshall-Green, Michael Fassbender
2	3	Split	Horror, Thriller	Three girls are kidnapped by a man with a dissociative identity disorder.	M. Night Shyamalan	James McAvoy, Anya Taylor-Joy, Haley Lu Richardson
3	4	Sing	Animation, Comedy, Family	In a city of humanoid animals, a hustling theater owner tries to keep his business afloat while dealing with a new competitor.	Christophe Lourdelet	Matthew McConaughey, Reese Witherspoon, Seth Rogen, Meryl Streep
4	5	Suicide Squad	Action, Adventure, Fantasy	A secret government agency recruits some of the world's most dangerous supervillains to fight against extraterrestrial threats.	David Ayer	Will Smith, Jared Leto, Margot Robbie, Viola Davis
...
995	996	Secret in Their Eyes	Crime, Drama, Mystery	A tight-knit team of rising investigators, along with a detective from the past, work together to solve a cold case.	Billy Ray	Chiwetel Ejiofor, Nicole Kidman, Julianne Moore, Robert De Niro
996	997	Hostel: Part II	Horror	Three American college students studying abroad in Eastern Europe are held captive by a group of cannibalistic teenagers.	Eli Roth	Lauren German, Heather Matarazzo, Bijou Phillips
997	998	Step Up 2: The Streets	Drama, Music, Romance	Romantic sparks occur between two dance students who are competing in a national competition.	Jon M. Chu	Robert Hoffman, Briana Evigan, Casper Smart, Ventress White
998	999	Search Party	Adventure, Comedy	A pair of friends embark on a mission to reunite with their missing friend.	Scot Armstrong	Adam Pally, Miller, Thora Birch, Middleditch, Sam Rockwell

Rank	Title	Genre	Description	Director	Actors
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld Kevin Spacey Jennifer Garner Robbie Amell,C

1000 rows × 12 columns

Displaying the top 10 rows from the data sets

In [3]: `data.head(10)`

Out[3]:

	Rank	Title	Genre	Description	Director	Actor:
0	1	Guardians of the Galaxy	Action, Adventure, Sci-Fi	A group of intergalactic criminals are forced ...	James Gunn	Chris Pratt, Vin Diesel, Bradley Cooper, Zoe S.
1	2	Prometheus	Adventure, Mystery, Sci-Fi	Following clues to the origin of mankind, a te...	Ridley Scott	Noomi Rapace, Logan Marshall Green, Michael F.
2	3	Split	Horror, Thriller	Three girls are kidnapped by a man with a diag...	M. Night Shyamalan	James McAvoy, Anya Taylor-Joy, Haley Lu Richar.
3	4	Sing	Animation, Comedy, Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey, Reese Witherspoon, Seth Ma.
4	5	Suicide Squad	Action, Adventure, Fantasy	A secret government agency recruits some of th...	David Ayer	Will Smith, Jared Leto, Margo Robbie, Viola D.
5	6	The Great Wall	Action, Adventure, Fantasy	European mercenaries searching for black powde...	Yimou Zhang	Matt Damon, Tian Jing, Willem Dafoe, Andy Lau
6	7	La La Land	Comedy, Drama, Music	A jazz pianist falls for an aspiring actress i...	Damien Chazelle	Ryan Gosling, Emma Stone, Rosemarie DeWitt, J..
7	8	Mindhorn	Comedy	A has-been actor best known for playing the ti...	Sean Foley	Essie Davis, Andrea Riseborough, Julian Barrat.
8	9	The Lost City of Z	Action, Adventure, Biography	A true-life drama, centering	James Gray	Charlie Hunnam, Robert Pattinson, Sienna Mille.

Rank	Title	Genre	Description	Director	Actor
			on British explor...		
9	10 Passengers	Adventure,Drama,Romance	A spacecraft traveling to a distant colony pla...	Morten Tyldum	Jennifer Lawrence Chris Pratt, Michael Sheen,

Displaying the Bottom 10 rows from the data sets

In [4]: `data.tail(10)`

Out[4]:

	Rank	Title	Genre	Description	Director	Actors
990	991	Underworld: Rise of the Lycans	Action, Adventure, Fantasy	An origins story centered on the centuries-old...	Patrick Tatopoulos	Rhona Mitra, Michael Sheen, Bill Nighy, Steven...
991	992	Taare Zameen Par	Drama, Family, Music	An eight-year-old boy is thought to be a lazy ...	Aamir Khan	Darsheel Safary, Aamir Khan, Tanay Chheda, Sac...
992	993	Take Me Home Tonight	Comedy, Drama, Romance	Four years after graduation, an awkward high s...	Michael Dowse	Topher Grace, Anna Faris, Dan Fogler, Teresa P...
993	994	Resident Evil: Afterlife	Action, Adventure, Horror	While still out to destroy the evil Umbrella C...	Paul W.S. Anderson	Milla Jovovich, Ali Larter, Wentworth Miller, K...
994	995	Project X	Comedy	3 high school seniors throw a birthday party t...	Nima Nourizadeh	Thomas Mann, Oliver Cooper, Jonathan Daniel Br...
995	996	Secret in Their Eyes	Crime, Drama, Mystery	A tight-knit team of rising investigators, alo...	Billy Ray	Chiwetel Ejiofor, Nicole Kidman, Julia Roberts...
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth	Lauren German, Heather Matarazzo, Bijou Phillips...
997	998	Step Up 2: The Streets	Drama, Music, Romance	Romantic sparks occur between two dance studen...	Jon M. Chu	Robert Hoffman, Briana Evigan, Cassie Ventura,...
998	999	Search Party	Adventure, Comedy	A pair of friends embark on a	Scot Armstrong	Adam Pally, T.J. Miller, Thomas Middleditch, Sh...

Rank	Title	Genre	Description	Director	Actors
999	1000 Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped in...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...

Find the Shape of the data sets (Number of rows and coloumns)

```
In [5]: data.shape
print("Number Of Rows: ",data.shape[0])
print("Number Of Coloumns: ",data.shape[1])
```

Number Of Rows: 1000
Number Of Coloumns: 12

Getting the inforamtion about the dataset like total number of non-null value in each rows and data types of different column

```
In [6]: data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1000 entries, 0 to 999
Data columns (total 12 columns):
 #   Column           Non-Null Count  Dtype  
 ---  -- 
 0   Rank             1000 non-null   int64  
 1   Title            1000 non-null   object  
 2   Genre            1000 non-null   object  
 3   Description      1000 non-null   object  
 4   Director         1000 non-null   object  
 5   Actors           1000 non-null   object  
 6   Year             1000 non-null   int64  
 7   Runtime (Minutes) 1000 non-null   int64  
 8   Rating           1000 non-null   float64 
 9   Votes             1000 non-null   int64  
 10  Revenue (Millions) 872 non-null   float64 
 11  Metascore        936 non-null   float64 
dtypes: float64(3), int64(4), object(5)
memory usage: 93.9+ KB
```

Any missing Value in the Data sets

```
In [7]: print("Any missing Value in the Datasets:", data.isnull().values.any())
```

Any missing Value in the Datasets: True

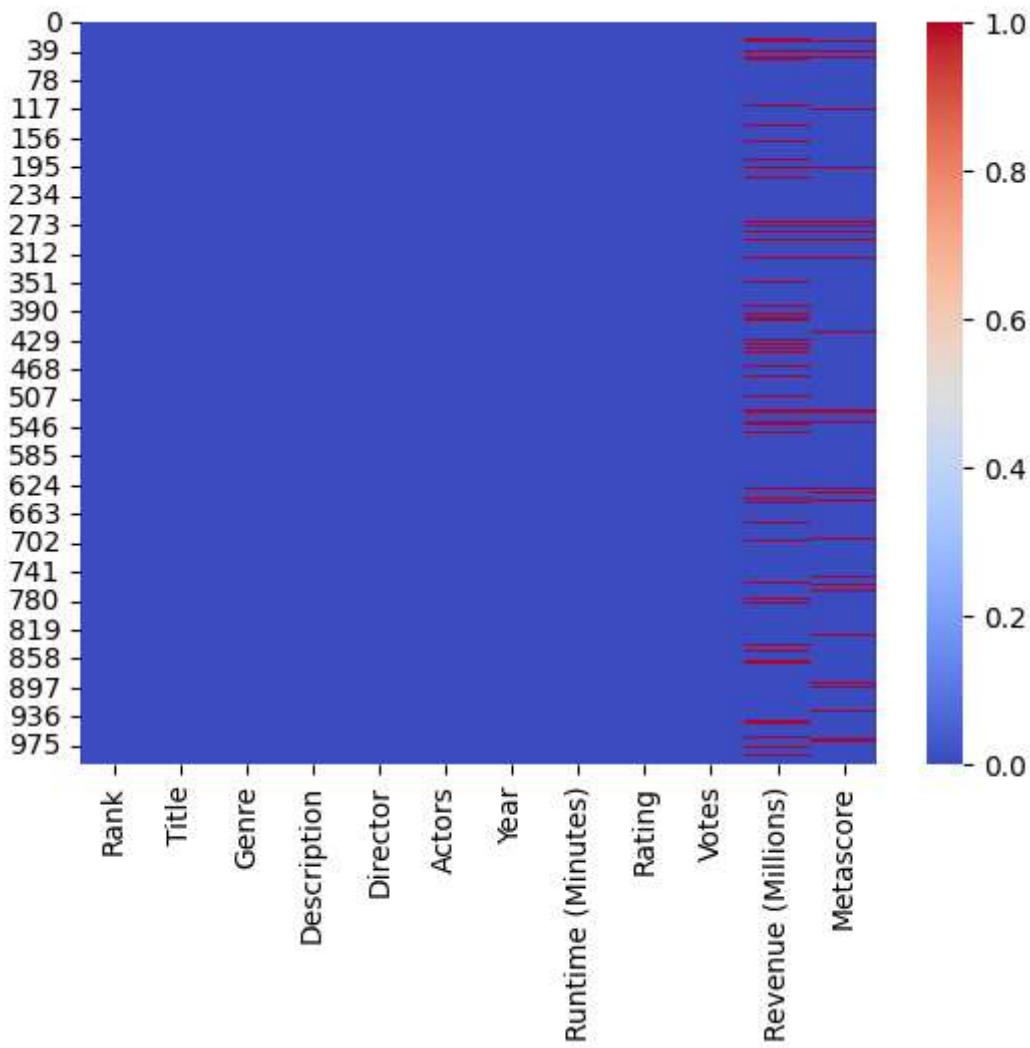
```
In [8]: data.isnull().sum()
```

```
Out[8]: Rank          0  
Title         0  
Genre          0  
Description    0  
Director       0  
Actors         0  
Year           0  
Runtime (Minutes) 0  
Rating          0  
Votes           0  
Revenue (Millions) 128  
Metascore      64  
dtype: int64
```

```
In [9]: percentage = 100*data.isnull().sum()/len(data)  
percentage
```

```
Out[9]: Rank          0.0  
Title         0.0  
Genre          0.0  
Description    0.0  
Director       0.0  
Actors         0.0  
Year           0.0  
Runtime (Minutes) 0.0  
Rating          0.0  
Votes           0.0  
Revenue (Millions) 12.8  
Metascore      6.4  
dtype: float64
```

```
In [10]: sns.heatmap(data.isnull(), cmap='coolwarm')  
plt.show()
```



Droping the Duplicate Value from the data sets

```
In [11]: up_data = data.dropna(axis=0)
up_data.isnull().sum()
```

```
Out[11]: Rank      0
          Title     0
          Genre     0
          Description 0
          Director   0
          Actors    0
          Year      0
          Runtime (Minutes) 0
          Rating    0
          Votes     0
          Revenue (Millions) 0
          Metascore   0
          dtype: int64
```

Check For Duplicate Values

```
In [12]: val = up_data.duplicated().any()
print("Any duplicate Value in the Dataset?",val)
```

Any duplicate Value in the Dataset? False

```
In [13]: up_data.describe()
```

Out[13]:

	Rank	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
count	838.000000	838.000000	838.000000	838.000000	8.380000e+02	838.000000	838.000000
mean	485.247017	2012.50716	114.638425	6.814320	1.932303e+05	84.564558	59.575
std	286.572065	3.17236	18.470922	0.877754	1.930990e+05	104.520227	16.9524
min	1.000000	2006.00000	66.000000	1.900000	1.780000e+02	0.000000	11.000000
25%	238.250000	2010.00000	101.000000	6.300000	6.127650e+04	13.967500	47.000000
50%	475.500000	2013.00000	112.000000	6.900000	1.368795e+05	48.150000	60.000000
75%	729.750000	2015.00000	124.000000	7.500000	2.710830e+05	116.800000	72.000000
max	1000.000000	2016.00000	187.000000	9.000000	1.791916e+06	936.630000	100.000000

◀ ▶

Movie Whose Runtime Greater or equal to 180 Min

```
In [14]: data.columns
```

```
Out[14]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

```
In [15]: data[data['Runtime (Minutes)'] >= 180]['Title']
```

```
Out[15]: 82      The Wolf of Wall Street
88      The Hateful Eight
311      La vie d'Adèle
828      Grindhouse
965      Inland Empire
Name: Title, dtype: object
```

Average Movies Rating by Year

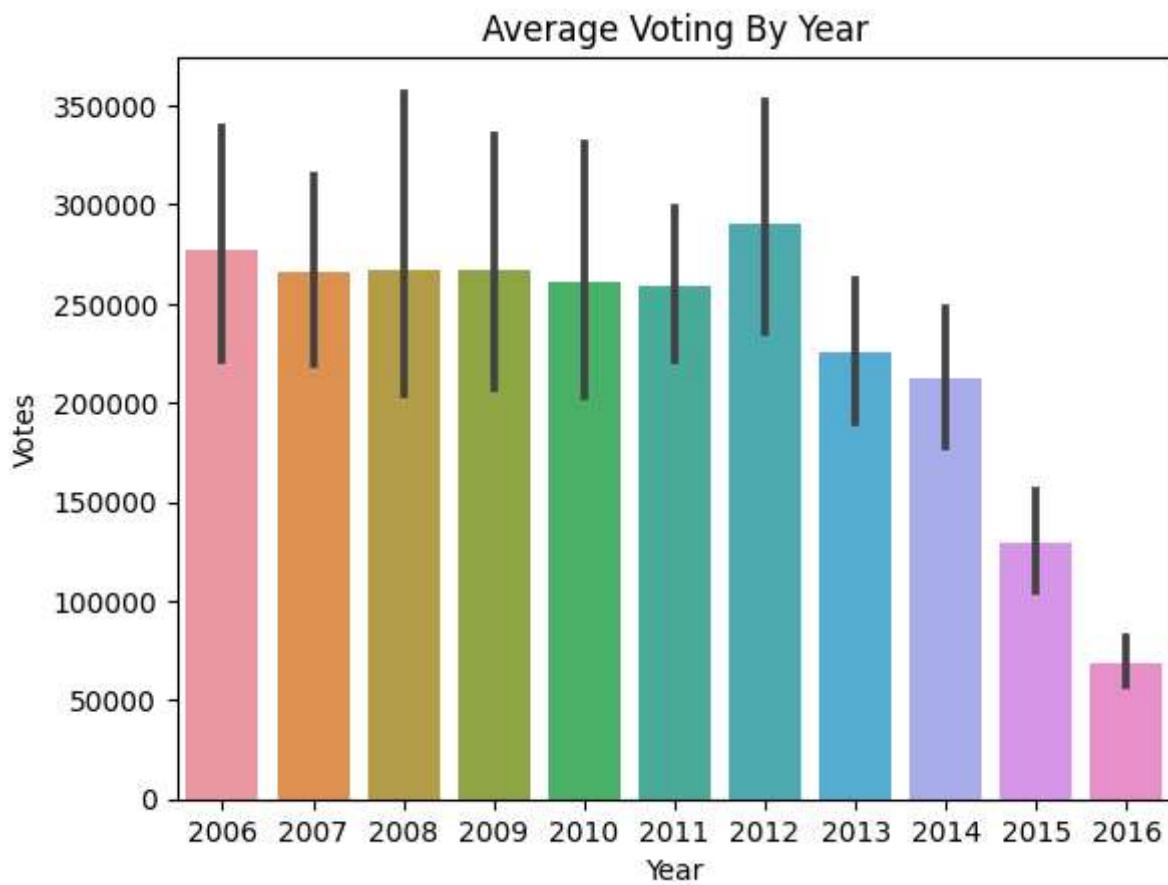
```
In [16]: up_data.columns
```

```
Out[16]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',  
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',  
       'Metascore'],  
      dtype='object')
```

```
In [17]: up_data.groupby('Year')[ 'Votes'].mean().sort_values(ascending = False)
```

```
Out[17]: Year  
2012    290861.483871  
2006    277232.219512  
2009    267180.577778  
2008    266580.145833  
2007    266530.704545  
2010    261082.929825  
2011    259254.736842  
2013    225531.892857  
2014    211926.881720  
2015    129512.651376  
2016     68437.823232  
Name: Votes, dtype: float64
```

```
In [18]: sns.barplot(x = "Year",y = "Votes",data = up_data)  
plt.title("Average Voting By Year")  
plt.show()
```



Highest Average Revenue By year

```
In [19]: up_data.columns
```

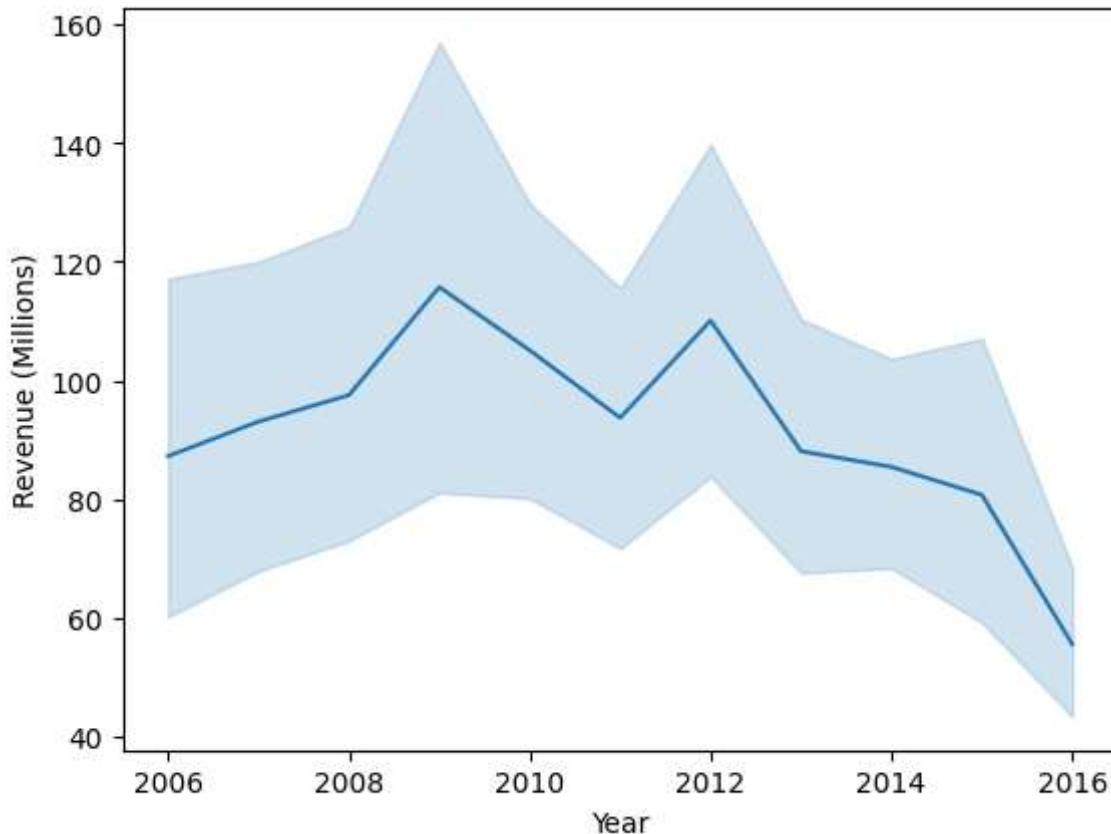
```
Out[19]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

```
In [20]: up_data.groupby('Year')[ 'Revenue (Millions)'].mean().sort_values(ascending = False)
```

```
Out[20]: Year
2009    115.742000
2012    110.103065
2010    105.081579
2008    97.525417
2011    93.703333
2007    93.074091
2013    88.084643
2006    87.255610
2014    85.433656
2015    80.725596
2016    55.566111
Name: Revenue (Millions), dtype: float64
```

```
In [21]: sns.lineplot(x = 'Year', y= 'Revenue (Millions)',data = up_data)
```

```
Out[21]: <Axes: xlabel='Year', ylabel='Revenue (Millions)'>
```



Average Rating By each Directors

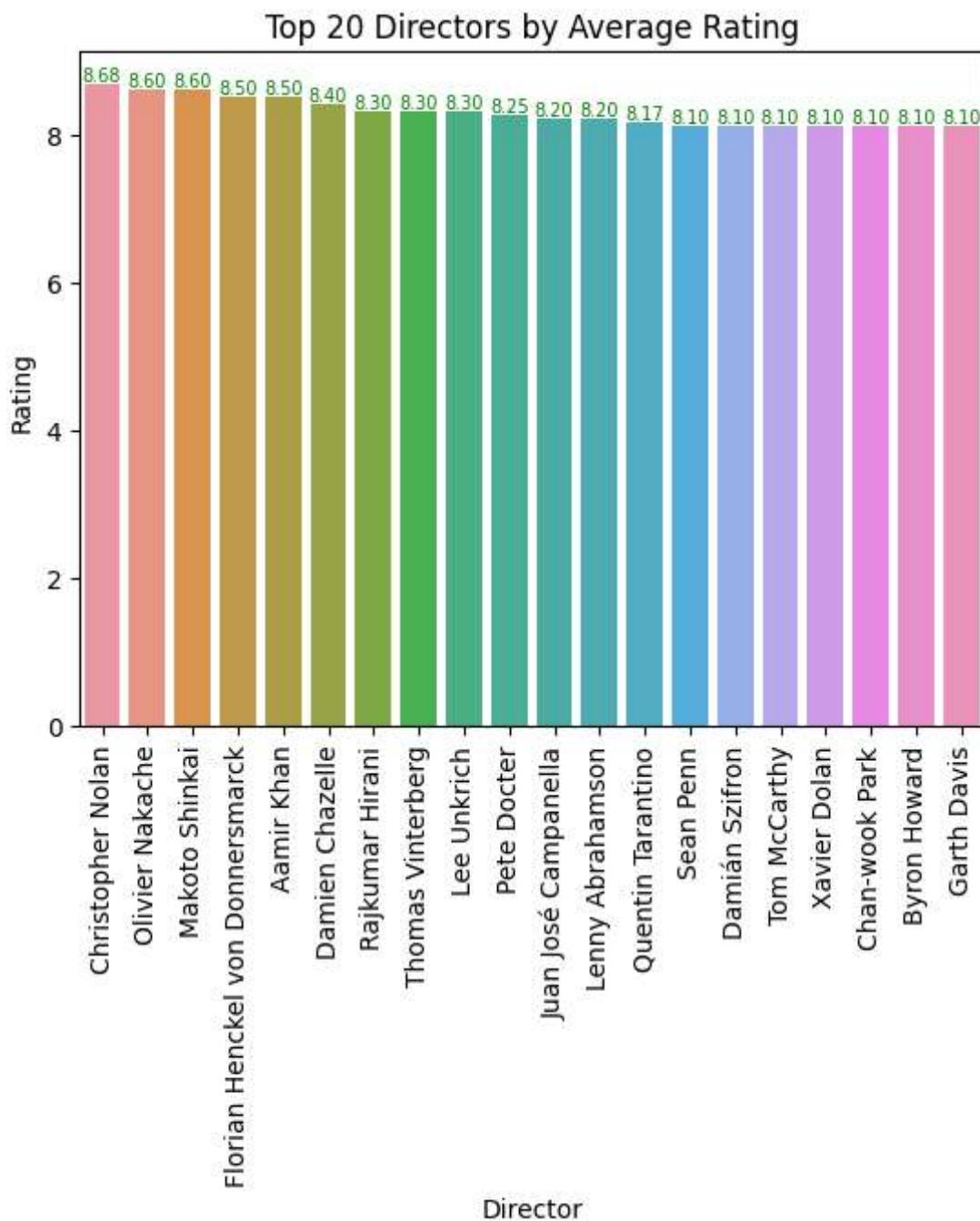
```
In [22]: data.columns
```

```
Out[22]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

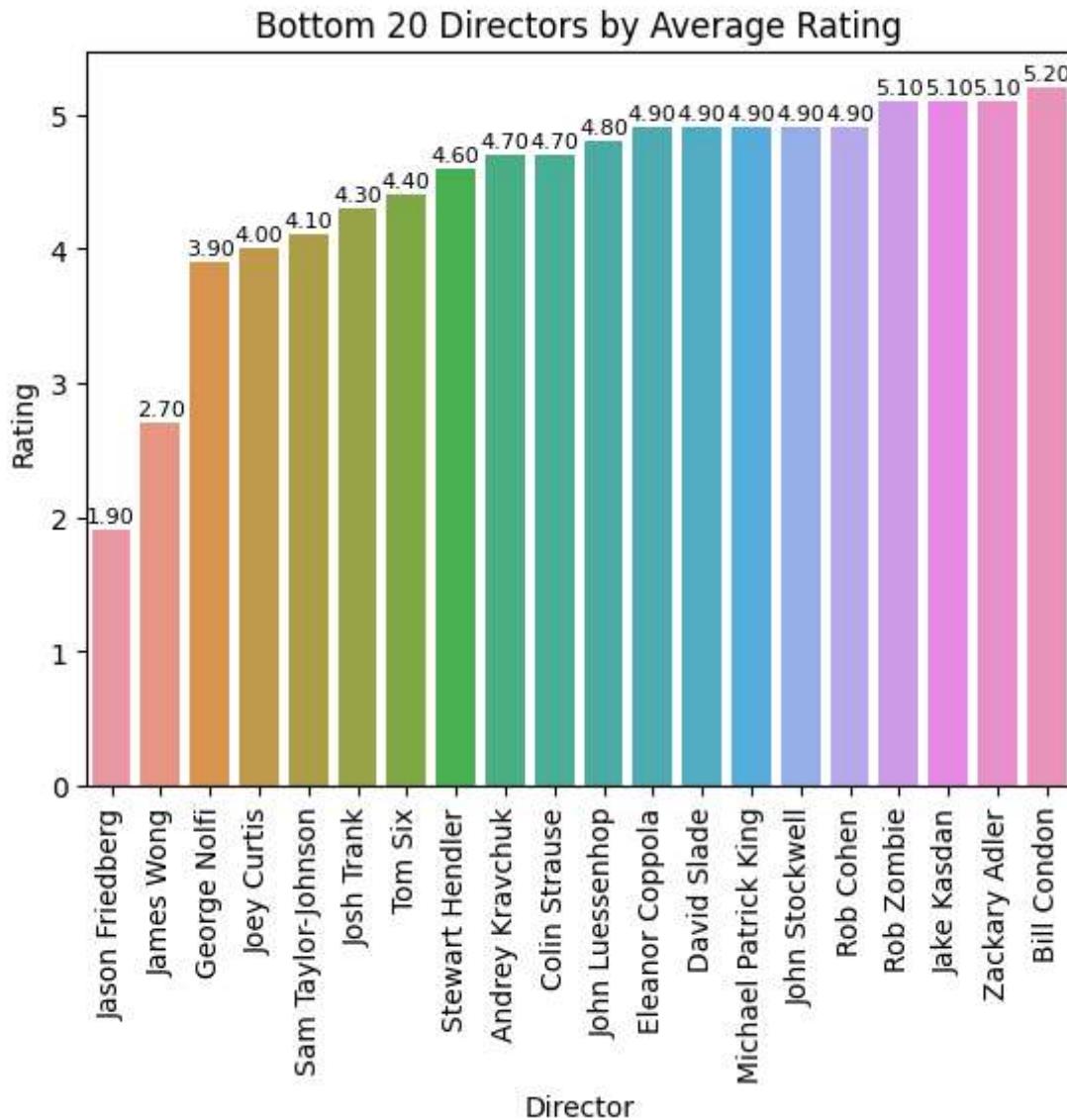
```
In [23]: top_20 = up_data.groupby('Director')['Rating'].mean().sort_values(ascending=False).
bottom_20 = up_data.groupby('Director')['Rating'].mean().sort_values(ascending=True)
```

```
In [24]: axt = sns.barplot(x="Director", y="Rating", data=top_20)
plt.xticks(rotation=90)
plt.title("Top 20 Directors by Average Rating")

# Add bar values to each bar
for bar in axt.containers:
    axt.bar_label(bar, fmt='%.2f', fontsize=7, label_type='edge', color='green', we
    plt.show()
```



```
In [25]: ax = sns.barplot(x="Director", y="Rating", data=bottom_20)
plt.xticks(rotation=90)
plt.title("Bottom 20 Directors by Average Rating")
for p in ax.patches:
    ax.annotate(f'{p.get_height():.2f}', (p.get_x() + p.get_width() / 2., p.get_hei
        fontsize=8, color='black', xytext=(0, 5), textcoords='offset points'
plt.show()
```



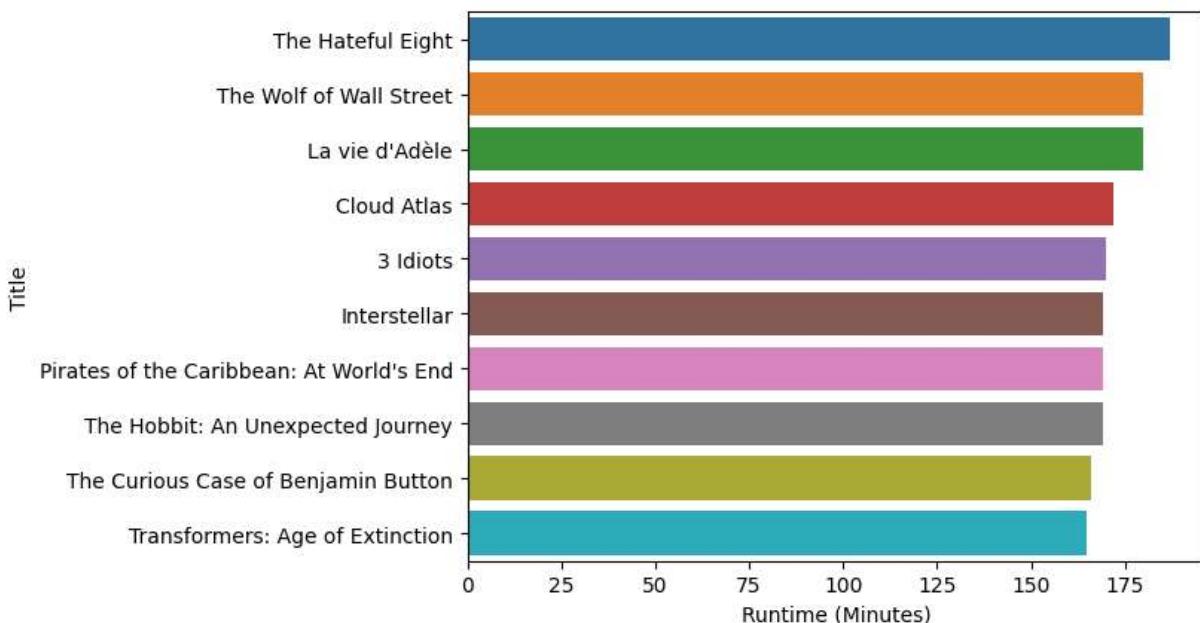
Display Top 10 Movie with their Runtime and their Title

```
In [26]: data.columns
```

```
Out[26]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

```
In [27]: run_time = up_data.nlargest(10, 'Runtime (Minutes)')[['Title', 'Runtime (Minutes)']].
```

```
In [28]: sns.barplot(x="Runtime (Minutes)", y=run_time.index, data=run_time)
plt.show()
```



Display Number of Movies Per Year

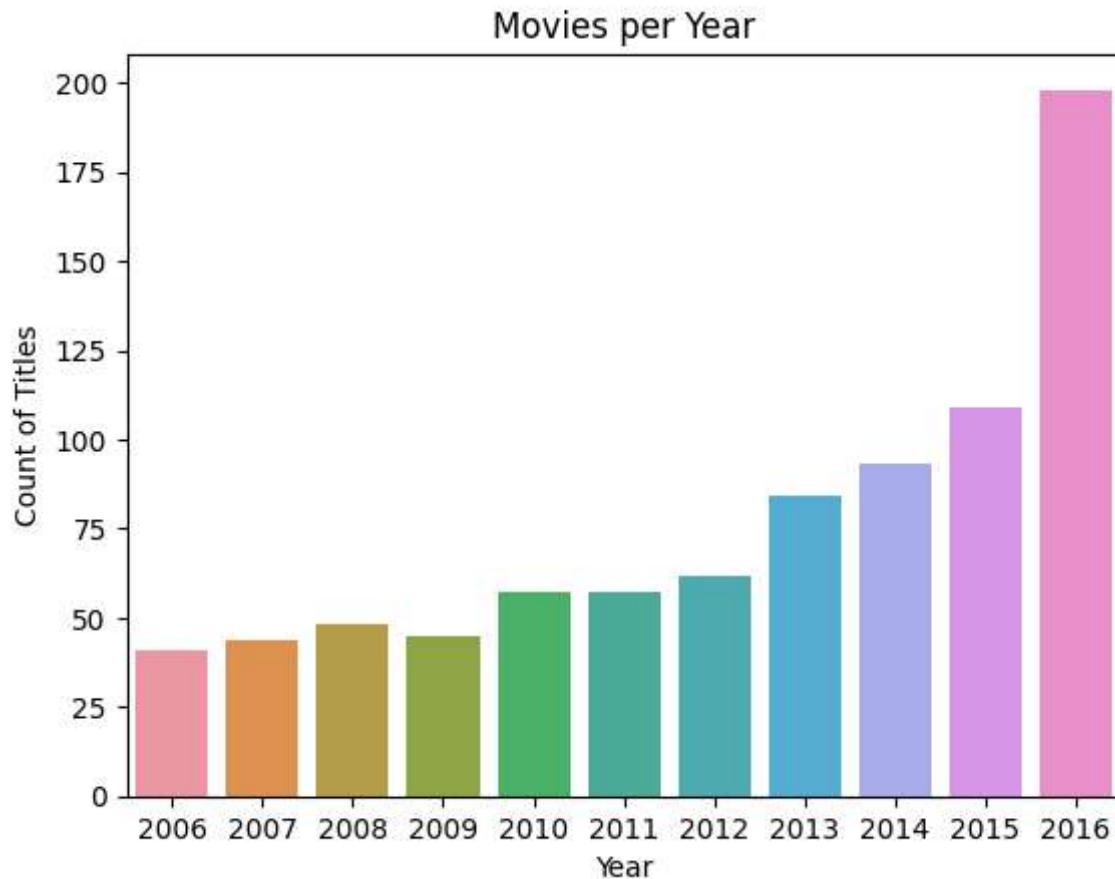
```
In [29]: data.columns
```

```
Out[29]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

```
In [30]: up_data['Year'].value_counts()
# sns.countplot(x = 'Year', y = 'counts', data = up_data)
```

```
Out[30]: Year
2016    198
2015    109
2014     93
2013     84
2012     62
2011     57
2010     57
2008     48
2009     45
2007     44
2006     41
Name: count, dtype: int64
```

```
In [31]: sns.countplot(x = 'Year', data = up_data)
plt.xlabel('Year')
plt.ylabel('Count of Titles')
plt.title('Movies per Year')
plt.show()
```



Find The Max Revenue Generated Movie In The Data

```
In [32]: up_data.nlargest(1, 'Revenue (Millions)')[["Title", "Revenue (Millions)"]].set_index("Title")
```

Out[32]:

Revenue (Millions)

Title

Title	Revenue (Millions)
Star Wars: Episode VII - The Force Awakens	936.63

Display Top 10 Highest Rated Movie with Title

```
In [33]: up_data.columns
```

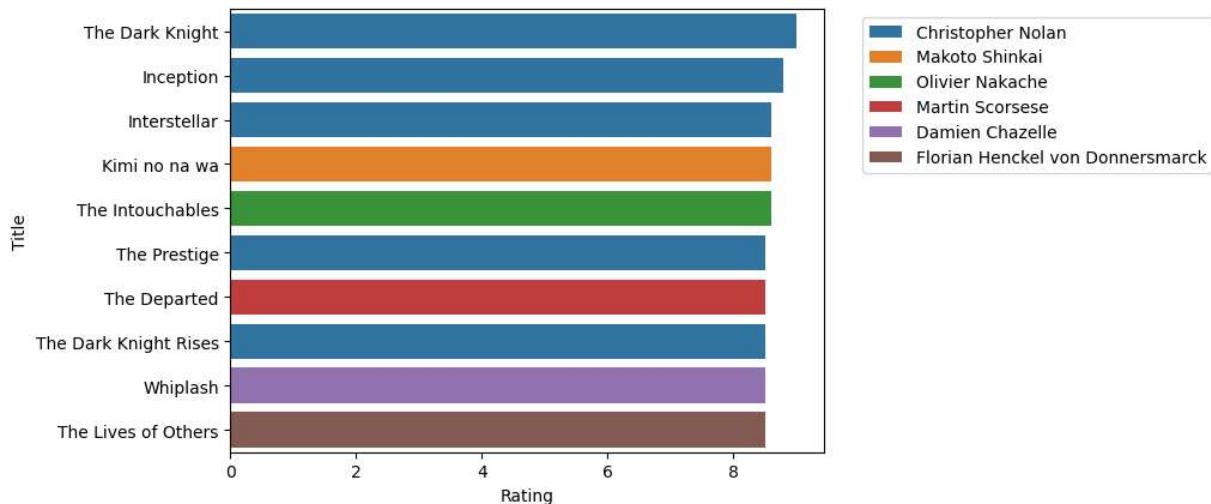
```
Out[33]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

```
In [34]: top_high = up_data.nlargest(10,'Rating')[['Title','Director','Genre', 'Rating']].set_index('Title')
```

Out[34]:

Title	Director	Genre	Rating
The Dark Knight	Christopher Nolan	Action,Crime,Drama	9.0
Inception	Christopher Nolan	Action,Adventure,Sci-Fi	8.8
Interstellar	Christopher Nolan	Adventure,Drama,Sci-Fi	8.6
Kimi no na wa	Makoto Shinkai	Animation,Drama,Fantasy	8.6
The Intouchables	Olivier Nakache	Biography,Comedy,Drama	8.6
The Prestige	Christopher Nolan	Drama,Mystery,Sci-Fi	8.5
The Departed	Martin Scorsese	Crime,Drama,Thriller	8.5
The Dark Knight Rises	Christopher Nolan	Action,Thriller	8.5
Whiplash	Damien Chazelle	Drama,Music	8.5
The Lives of Others	Florian Henckel von Donnersmarck	Drama,Thriller	8.5

```
In [35]: sns.barplot(x = 'Rating', y = top_high.index,data = top_high, hue = "Director",dodge=True)
plt.legend(bbox_to_anchor = (1.05,1),loc = 2)
plt.show()
```



Find the Average Rating of Movies By Year

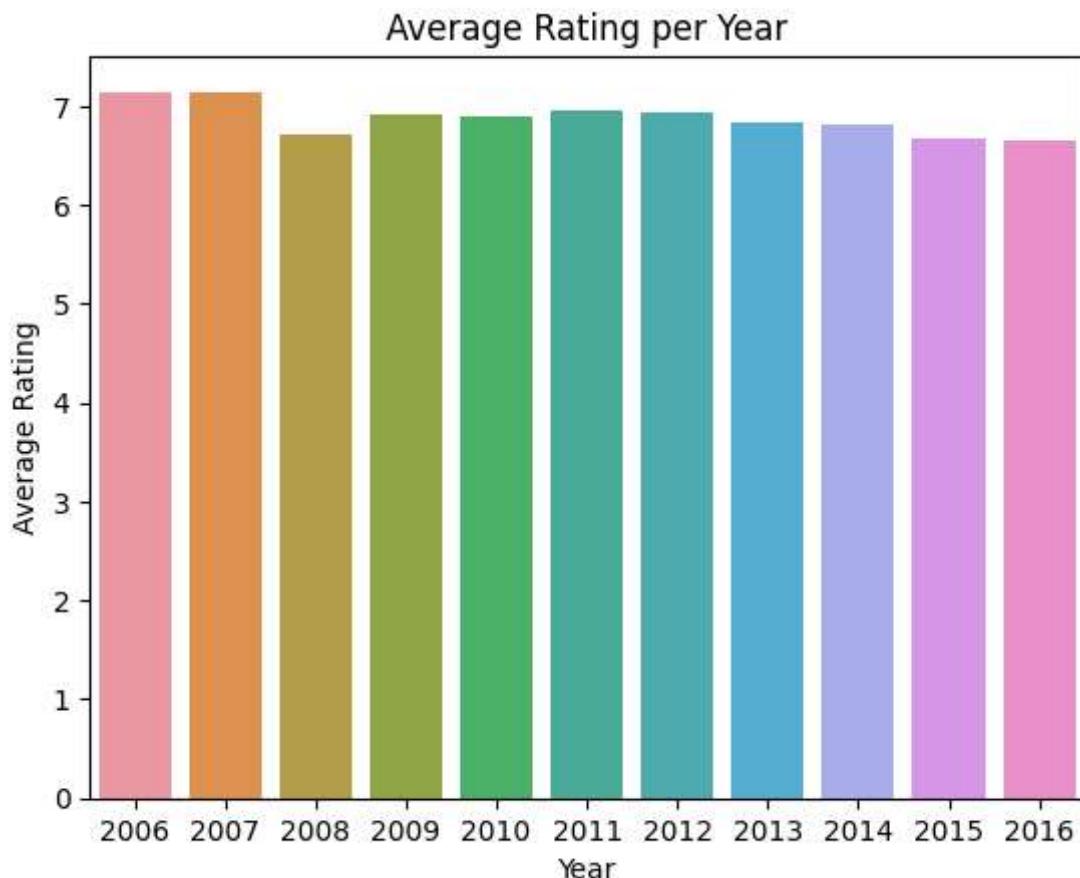
```
In [36]: avg_rating = up_data.groupby('Year')['Rating'].mean().reset_index()
avg_rating
```

Out[36]:

	Year	Rating
0	2006	7.143902
1	2007	7.140909
2	2008	6.708333
3	2009	6.911111
4	2010	6.894737
5	2011	6.945614
6	2012	6.933871
7	2013	6.832143
8	2014	6.822581
9	2015	6.674312
10	2016	6.644444

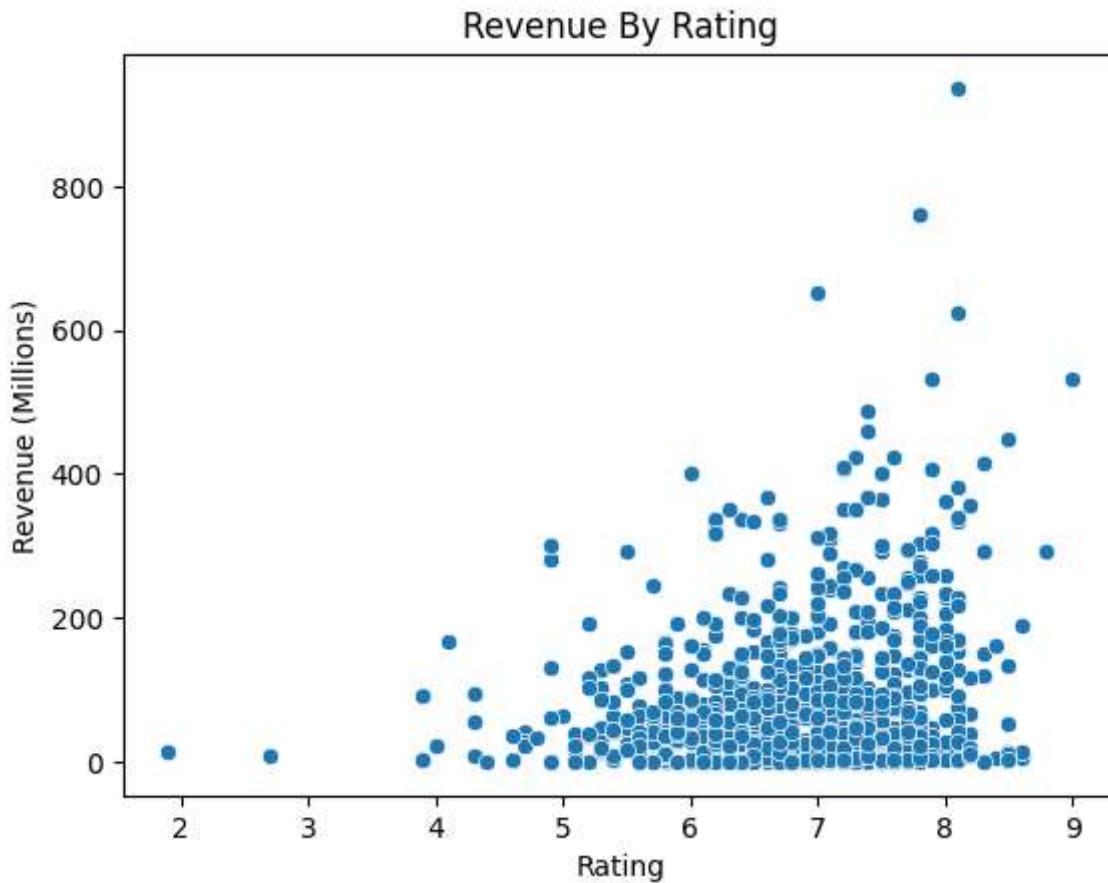
In [37]:

```
sns.barplot(x="Year", y="Rating", data=avg_rating)
plt.xlabel('Year')
plt.ylabel('Average Rating')
plt.title('Average Rating per Year')
plt.show()
```



Did the Rating Affect the Revenue?

```
In [38]: sns.scatterplot(x = 'Rating' , y = 'Revenue (Millions)', data = up_data)
plt.title("Revenue By Rating")
plt.show()
```



Classify Movie On The Based Of Rating

```
In [39]: data.columns
```

```
Out[39]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

```
In [40]: def rating_category(rating):
    if rating >= 8:
        return "Excellent"
    elif rating >= 6.5:
        return "Good"
    elif rating >= 4.5:
        return "Average"
    else:
        return "Poor"
```

```
up_data['Rating_Category'] = up_data['Rating'].apply(rating_category)
```

```
C:\Users\Nikhil\AppData\Local\Temp\ipykernel_19316\2952384972.py:11: SettingWithCopyWarning:
```

```
A value is trying to be set on a copy of a slice from a DataFrame.  
Try using .loc[row_indexer,col_indexer] = value instead
```

```
See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
```

```
    up_data['Rating_Category'] = up_data['Rating'].apply(rating_category)
```

```
In [42]: up_data.head(20)
```

Out[42]:

	Rank	Title	Genre	Description	Director	Act
0	1	Guardians of the Galaxy	Action,Adventure,Sci-Fi	A group of intergalactic criminals are forced ...	James Gunn	Chris Pratt, Diesel, Bra Cooper, Zo
1	2	Prometheus	Adventure,Mystery,Sci-Fi	Following clues to the origin of mankind, a te...	Ridley Scott	Noomi Rap Logan Mars Green, Michael
2	3	Split	Horror,Thriller	Three girls are kidnapped by a man with a diag...	M. Night Shyamalan	James McAnally, Anya Taylor-Joy, Haley Lu Richardson
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey, Reese Witherspoon,
4	5	Suicide Squad	Action,Adventure,Fantasy	A secret government agency recruits some of th...	David Ayer	Will Smith, Jared Leto, Margot Robbie, Viola Davis
5	6	The Great Wall	Action,Adventure,Fantasy	European mercenaries searching for black powde...	Yimou Zhang	Matt Damon, Jing Tian, Willem Dafoe, Andy Lau
6	7	La La Land	Comedy,Drama,Music	A jazz pianist falls for an aspiring actress i...	Damien Chazelle	Ryan Gosling, Emma Stone, Rosen DeWitt
8	9	The Lost City of Z	Action,Adventure,Biography	A true-life drama, centering on British explor...	James Gray	Charlie Hunnam, Robert Pattinson, Sienna Miller
9	10	Passengers	Adventure,Drama,Romance	A spacecraft traveling to a distant colony pla...	Morten Tyldum	Jennifer Lawrence, Chris Pratt, Michael Sheen

Rank	Title	Genre	Description	Director	Act
10	Fantastic Beasts and Where to Find Them	Adventure,Family,Fantasy	The adventures of writer Newt Scamander in New...	David Yates	Eddie Redmayne Katherine Waterston, Albus Dumbeldor
11	Hidden Figures	Biography,Drama,History	The story of a team of female African-American...	Theodore Melfi	Taraji P. Henson Octavia Spencer Janelle Monáe
12	Rogue One	Action,Adventure,Sci-Fi	The Rebel Alliance makes a risky move to steal...	Gareth Edwards	Felicity Jones, Diego Luna, Alan Tudyk, Donnie Yen
13	Moana	Animation,Adventure,Comedy	In Ancient Polynesia, when a terrible curse is...	Ron Clements	Auli'i Cravalho Dwayne Johnson Rachel House
14	Colossal	Action,Comedy,Drama	Gloria is an out-of-work party girl forced to...	Nacho Vigalondo	Anne Hathaway Jason Sudeikis Austin Stowell
15	The Secret Life of Pets	Animation,Adventure,Comedy	The quiet life of a terrier named Max is upended...	Chris Renaud	Louis C.K. Stonestreet, Kristen Bell, Hart, Larisa Iordache
16	Hacksaw Ridge	Biography,Drama,History	WWII American Army Medic Desmond T. Doss, who...	Mel Gibson	Andrew Garfield Sam Worthington Luke Bracey
17	Jason Bourne	Action,Thriller	The CIA's most dangerous former operative is dead...	Paul Greengrass	Matt Damon Tommy Lee Jones Alicia Vikander
18	Lion	Biography,Drama	A five-year-old Indian boy gets	Garth Davis	Dev Patel, Nicole Kidman, Rooney Mara, Sunny Pawar

Rank	Title	Genre	Description	Director	Actors
			lost on the st...		
19	20	Arrival	Drama,Mystery,Sci-Fi	When twelve mysterious spacecraft appear aroun...	Denis Villeneuve Amy Adams, Jeremy Renner, Forest Whitaker, Matt Damon
20	21	Gold	Adventure,Drama,Thriller	Kenny Wells, a prospector desperate for a luck...	Stephen Gaghan Matt Damon, George Clooney, Matt McConaughey, Edgar Ramírez, Bryce Dallas Howard

Cout of Action Movies

```
In [43]: up_data.columns
```

```
Out[43]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore', 'Rating_Category'],
      dtype='object')
```

```
In [51]: Action_Movie_Count = len(up_data[up_data['Genre'].str.contains('Action', case = False)])
```

```
In [52]: print("Total No. of Action Movie Are:- ", Action_Movie_Count)
```

Total No. of Action Movie Are:- 277

Unique Value From The Genere

```
In [53]: up_data.columns
```

```
Out[53]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore', 'Rating_Category'],
      dtype='object')
```

```
In [55]: up_data['Genre']
```

```
Out[55]: 0      Action, Adventure, Sci-Fi
         1      Adventure, Mystery, Sci-Fi
         2          Horror, Thriller
         3      Animation, Comedy, Family
         4      Action, Adventure, Fantasy
           ...
        993      Action, Adventure, Horror
        994          Comedy
        996          Horror
        997      Drama, Music, Romance
        999      Comedy, Family, Fantasy
Name: Genre, Length: 838, dtype: object
```

```
In [57]: list1 = []
for value in up_data['Genre']:
    list1.append(value.split(','))
list1
```

```
Out[57]: [['Action', 'Adventure', 'Sci-Fi'],
           ['Adventure', 'Mystery', 'Sci-Fi'],
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for item in list1:
    for item1 in item:
        one_d.append(item1)

one_d
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'Action',
'Drama',
'Fantasy',
'Action',
'Crime',
'Drama',
'Drama',
'Fantasy',
'Romance',
'...']
```

```
In [65]: unique_sets = set(one_d)
unique_Genre = list(unique_sets)
len(unique_list)
unique_Genre
```

```
Out[65]: ['Sci-Fi',
 'Romance',
 'Fantasy',
 'Thriller',
 'Music',
 'Western',
 'Crime',
 'Horror',
 'Adventure',
 'Action',
 'Animation',
 'Musical',
 'Sport',
 'History',
 'Biography',
 'Family',
 'Drama',
 'Mystery',
 'Comedy',
 'War']
```

```
In [66]: from collections import Counter
```

```
In [69]: Counter(one_d)
```

```
Out[69]: Counter({'Drama': 419,
 'Action': 277,
 'Comedy': 250,
 'Adventure': 244,
 'Thriller': 148,
 'Crime': 126,
 'Romance': 120,
 'Sci-Fi': 107,
 'Fantasy': 92,
 'Horror': 87,
 'Mystery': 86,
 'Biography': 67,
 'Family': 48,
 'Animation': 45,
 'History': 25,
 'Music': 15,
 'Sport': 15,
 'War': 10,
 'Musical': 5,
 'Western': 4})
```

```
In [ ]:
```