TASK 4 - Movie Ratings Analysis (Data Analytics) - DEBANSHU SAHA

In [2]:
```python
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

In [3]:
```python
data=pd.read_csv('IMDB-Movie-Data.csv')
```

Displaying Top 10 Rows of The Dataset

In [5]:
```python
data.head(10)
```

	Rank	Title	Genre	Description	Director	Actors	Year
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...	2014
1	2	Prometheus	Adventure,Mystery,Sci-Fi	Following clues to the origin of mankind, a te...	Ridley Scott	Noomi Rapace, Logan Marshall-Green, Michael Fa...	2012
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...	2016
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	2016
4	5	Suicide Squad	Action,Adventure,Fantasy	A secret government agency recruits some of th...	David Ayer	Will Smith, Jared Leto, Margot Robbie, Viola D...	2016
5	6	The Great Wall	Action,Adventure,Fantasy	European mercenaries searching for black powde...	Yimou Zhang	Matt Damon, Tian Jing, Willem Dafoe, Andy Lau	2016
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....	2016
7	8	Mindhorn	Comedy	A has-been actor best known for playing the ti...	Sean Foley	Essie Davis, Andrea Riseborough, Julian Barrat...	2016
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 Mille...	2016
9	10	Passengers	Adventure,Drama,Romance	A spacecraft traveling to a distant colony pla...	Morten Tyldum	Jennifer Lawrence, Chris Pratt, Michael Sheen,...	2016

Checking Last 10 Rows Of The Dataset

In [6]: `data.tail(10)`

	Rank	Title	Genre	Description	Director	Actors	Year
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...	2009
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...	2007
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...	2011
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...	2010
994	995	Project X	Comedy	3 high school seniors throw a birthday party t...	Nima Nourizadeh	Thomas Mann, Oliver Cooper, Jonathan Daniel Br...	2012
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...	2015
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth	Lauren German, Heather Matarazzo, Bijou Philli...	2007
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,...	2008
998	999	Search Party	Adventure,Comedy	A pair of friends embark on a mission to reuni...	Scot Armstrong	Adam Pally, T.J. Miller, Thomas Middleditch,Sh...	2014
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	2016

Finding the Shape of Our Dataset (Number of Rows And Number of Columns)

```
In [7]:  data.shape
```

```
Out[7]:  (1000, 12)
```

Printing The Number of Rows And Number of Columns

```
In [8]:  print('Number of Rows',data.shape[0])
         print('Number of Columns',data.shape[1])
```

```
Number of Rows 1000
Number of Columns 12
```

Getting Information About Our Dataset Like Total Number Rows, Total Number of Columns, Datatypes of Each Column And Memory Requirement .

```
In [9]:  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
```

Checking Null Values In The Dataset.

```
In [10]:  print("Any missing value?",data.isnull().values.any())
```
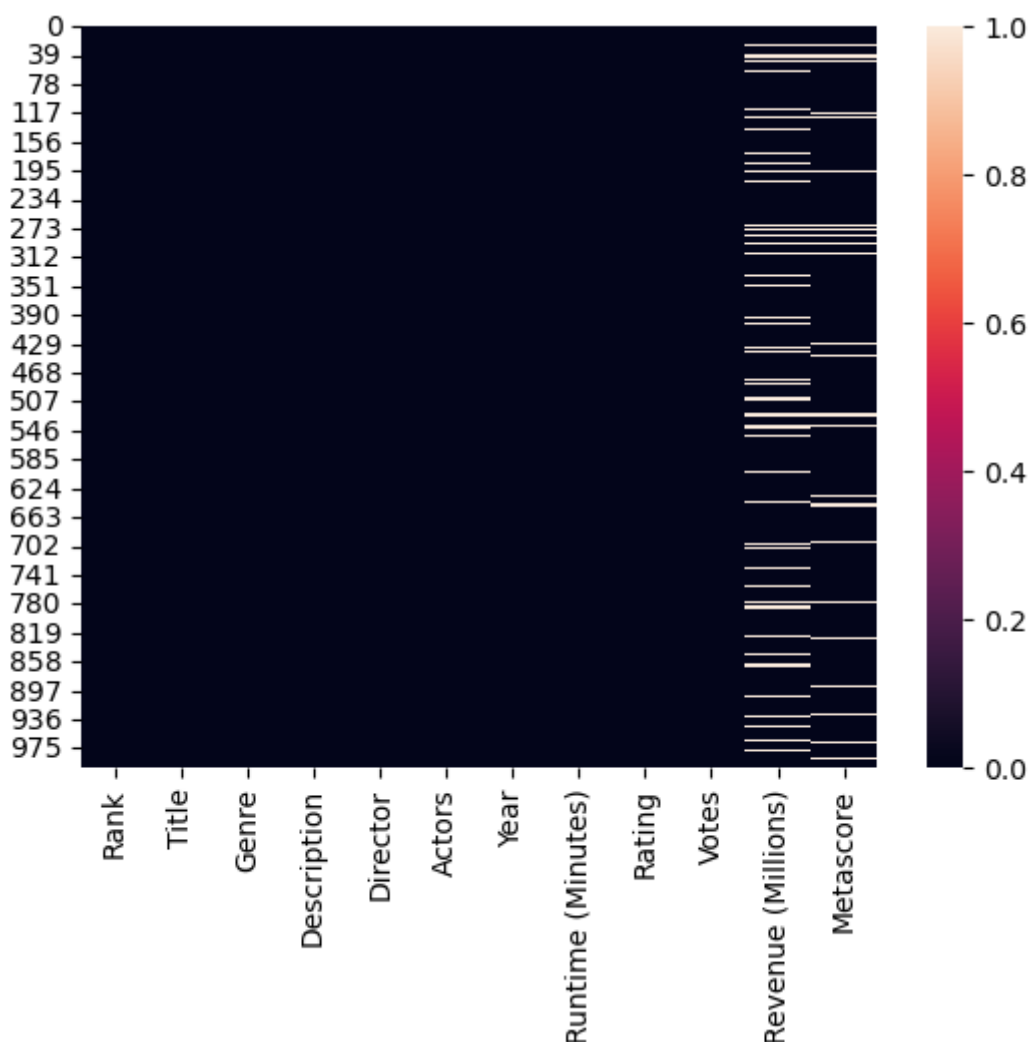
```
Any missing value? True
```

```
In [12]:  data.isnull().sum()      # there are missing values in two colums whuch are 'Revenue
```

```
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
```

Visualising the missing values using Heatmaps

```python
sns.heatmap(data.isnull())
plt.show()
```


Finding Missing Values in Percentage form

```python
per_missing = data.isnull().sum() * 100 / len(data)
print(per_missing)
```

```
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
```

Drop All The Missing Values

In [27]:
```python
data.dropna(axis=0) #axis=0 means drop rows which contains missing values
                    #axis=1 means drop columns which contains missing values
```

	Rank	Title	Genre	Description	Director	Actors	Ye
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...	201
1	2	Prometheus	Adventure,Mystery,Sci-Fi	Following clues to the origin of mankind, a te...	Ridley Scott	Noomi Rapace, Logan Marshall-Green, Michael Fa...	201
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...	201
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	201
4	5	Suicide Squad	Action,Adventure,Fantasy	A secret government agency recruits some of th...	David Ayer	Will Smith, Jared Leto, Margot Robbie, Viola D...	201
...	...	...	...	...	...	...	
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...	201
994	995	Project X	Comedy	3 high school seniors throw a birthday party t...	Nima Nourizadeh	Thomas Mann, Oliver Cooper, Jonathan Daniel Br...	201
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth	Lauren German, Heather Matarazzo, Bijou Philli...	200
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,...	200
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	201

838 rows × 12 columns

Checking For Duplicate Data

```
In [28]: dup_data=data.duplicated().any()
         print("Are there any duplicated values in data?",dup_data)
```

Are there any duplicated values in data? False

To Get Overall Statistics About the DataFrame

```
In [32]: data.describe()
```

Out[32]:

	Rank	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
count	838.000000	838.00000	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	59.575179
std	286.572065	3.17236	18.470922	0.877754	1.930990e+05	104.520227	16.952416
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

To Find Out In Which Year There Was The Highest Voting?
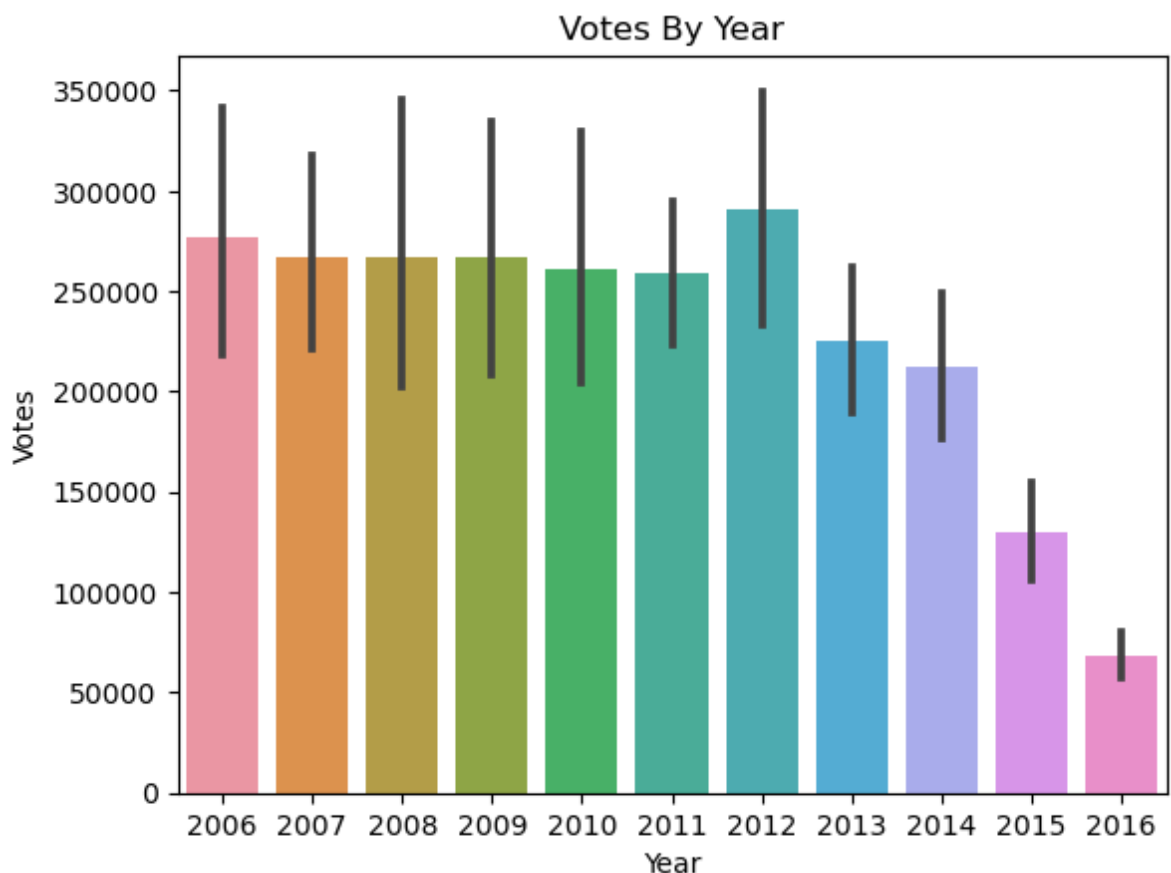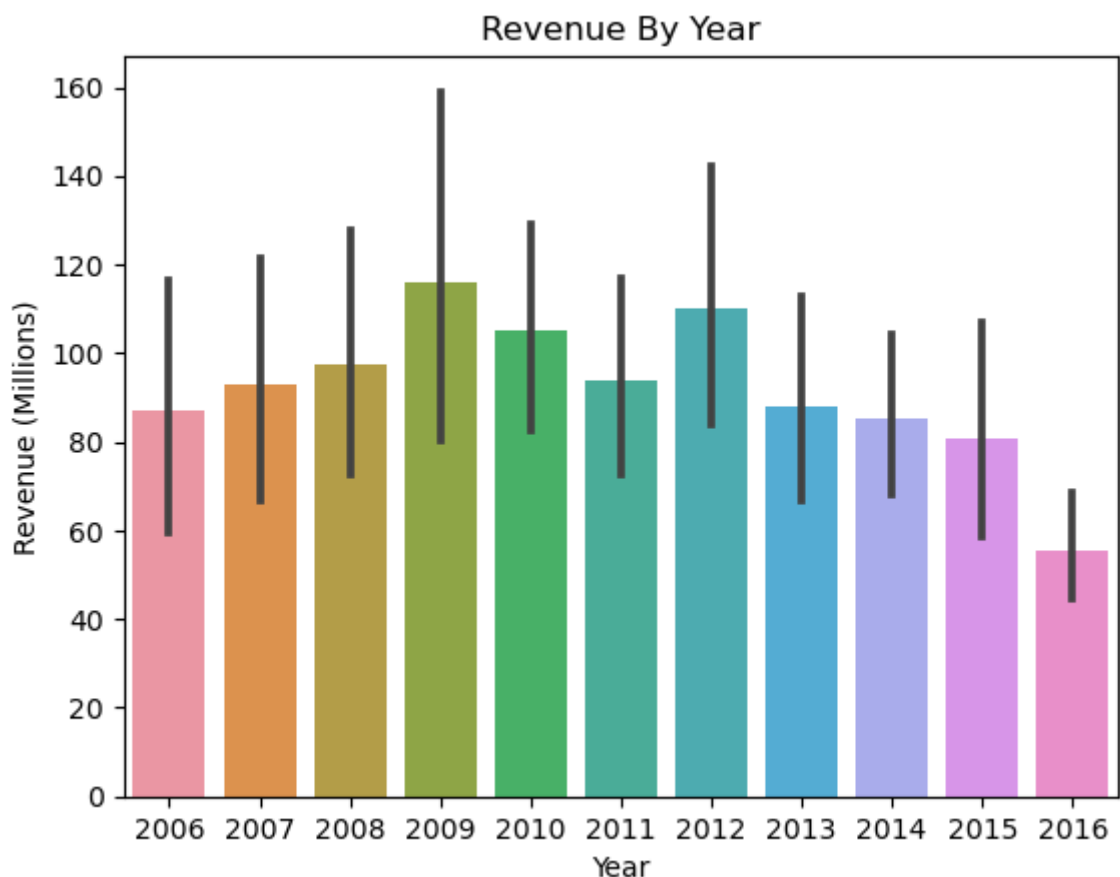
```
In [33]: data.columns
```

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

```
In [34]: data.groupby('Year')['Votes'].mean().sort_values(ascending=False)
```

```
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
```

Visualising The Highest Voting Year Using BarPlot

```python
sns.barplot(x='Year',y='Votes',data=data)
plt.title("Votes By Year")
plt.show()        #2012 was the year of highest voting
```


Finding Out In Which Year There Was The Highest Revenue

```python
data.columns
```

```
Out[36]:  Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
                 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
                 'Metascore'],
                dtype='object')
```

```
In [37]: data.groupby('Year')['Revenue (Millions)'].mean().sort_values(ascending=False)
```

```
Out[37]:  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
```

Visualising The Highest Revenue Year Using BarPlot

```
In [38]: sns.barplot(x='Year',y='Revenue (Millions)',data=data)
         plt.title("Revenue By Year")
         plt.show()      # 2009 was the highest revenue year
```


Revenue By Year

To Find The Average Rating For Each Director

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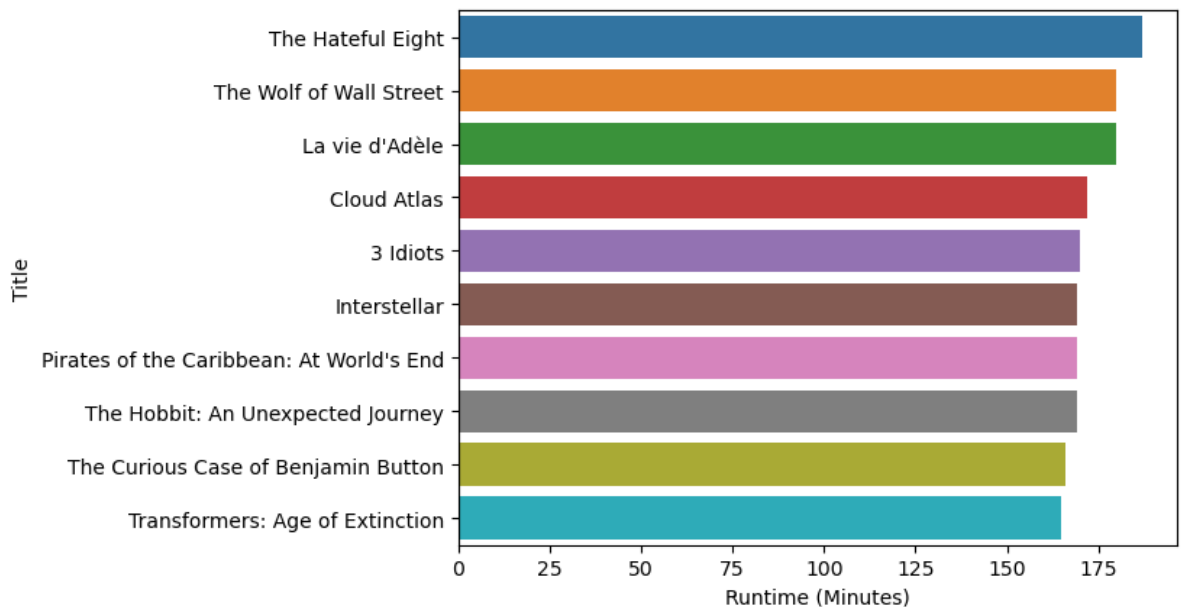
```
Out[39]:  Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
                 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
                 'Metascore'],
                dtype='object')
```

```
In [42]:  data.groupby('Director')['Rating'].mean().sort_values(ascending=False)
```

```
Out[42]:  Director
          Christopher Nolan                      8.68
          Olivier Nakache                        8.60
          Makoto Shinkai                         8.60
          Florian Henckel von Donnersmarck       8.50
          Aamir Khan                             8.50
                                                 ...
          Sam Taylor-Johnson                     4.10
          Joey Curtis                            4.00
          George Nolfi                           3.90
          James Wong                             2.70
          Jason Friedberg                        1.90
          Name: Rating, Length: 524, dtype: float64
```

Displaying Top 10 Lengthy Movies Title and Runtime

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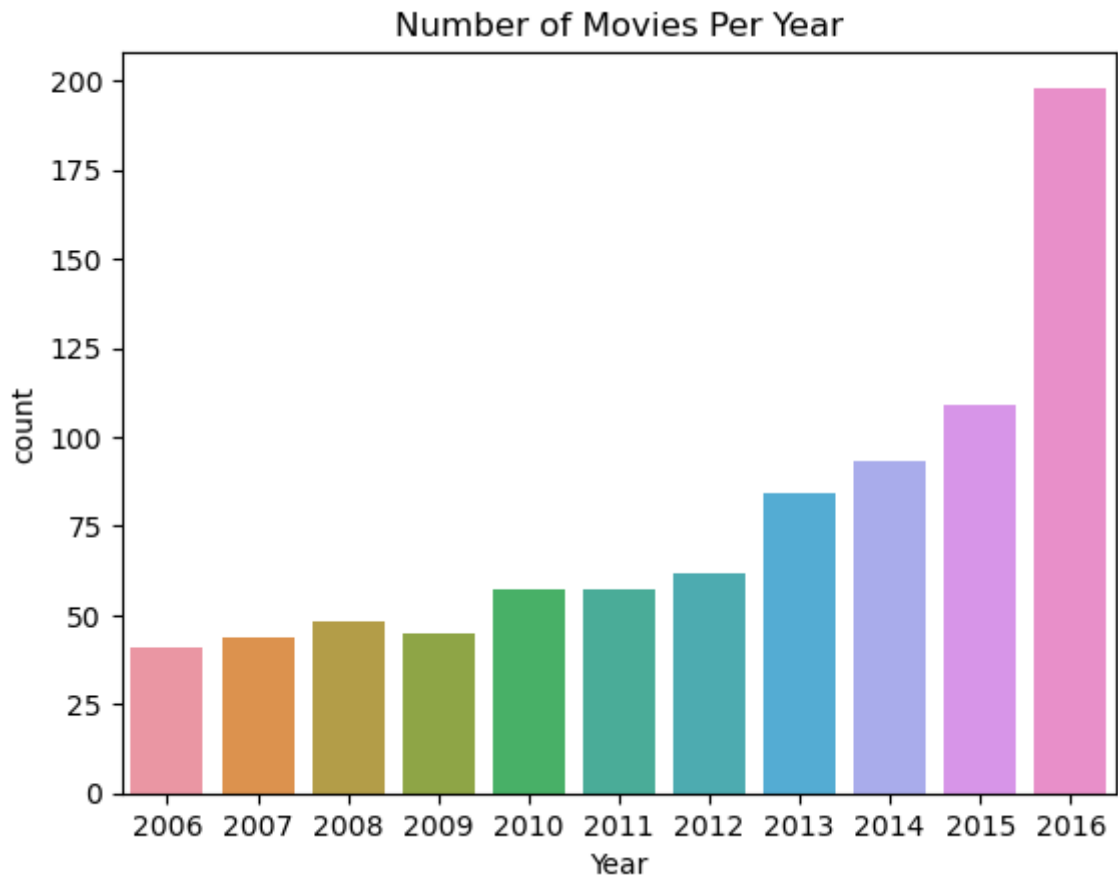
```
Out[43]:  Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
                 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
                 'Metascore'],
                dtype='object')
```

```
In [44]:  top10_len=data.nlargest(10,'Runtime (Minutes)')[['Title','Runtime (Minutes)']]. \
          set_index('Title')
          print(top10_len)
```

```
                                            Runtime (Minutes)
          Title
          The Hateful Eight                               187
          The Wolf of Wall Street                         180
          La vie d'Adèle                                  180
          Cloud Atlas                                     172
          3 Idiots                                        170
          Interstellar                                    169
          Pirates of the Caribbean: At World's End        169
          The Hobbit: An Unexpected Journey               169
          The Curious Case of Benjamin Button             166
          Transformers: Age of Extinction                 165
```

Visualising Top 10 Lengthy Movies Title and Runtime

```
In [45]:  sns.barplot(x='Runtime (Minutes)',y=top10_len.index,data=top10_len)
          plt.show()
```

To Display Number of Movies Per Year

```
In [46]:   data.columns
```
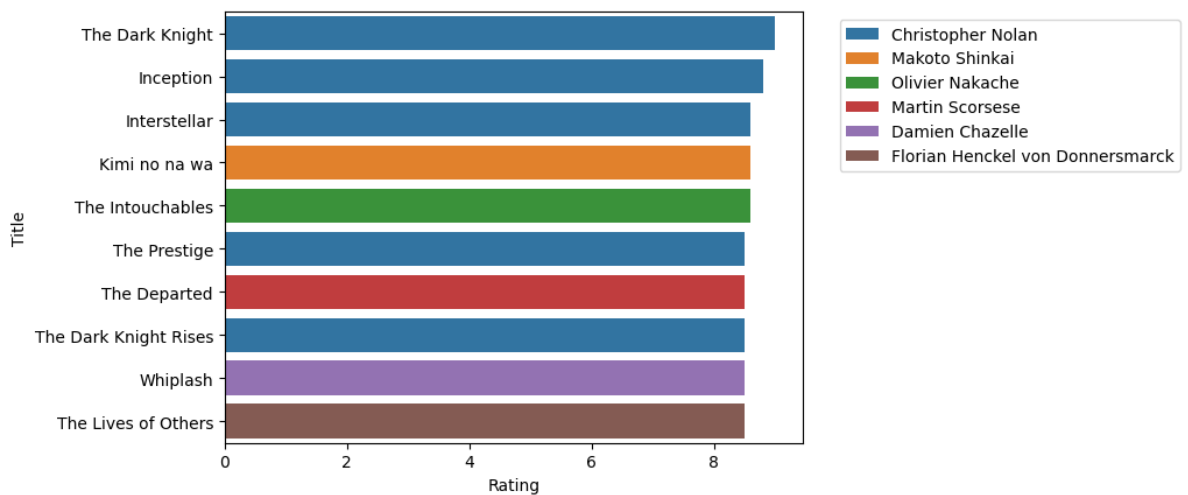
```
Out[46]:   Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
                  'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
                  'Metascore'],
                 dtype='object')
```

```
In [47]:   data['Year'].value_counts()
```

```
Out[47]:   2016    198
           2015    109
           2014     93
           2013     84
           2012     62
           2011     57
           2010     57
           2008     48
           2009     45
           2007     44
           2006     41
           Name: Year, dtype: int64
```

Visualising Number of Movies Per Year

```
In [50]:   sns.countplot(x='Year',data=data)
           plt.title("Number of Movies Per Year")
           plt.show()
           # In 2016, 198 movies was released
```

Number of Movies Per Year

Finding Most Popular Movie Title (Higest Revenue)

```
In [51]:  data.columns
```

```
Out[51]:  Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
                 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
                 'Metascore'],
                dtype='object')
```

```
In [52]:  data[data['Revenue (Millions)'].max() == data['Revenue (Millions)']]['Title']
```

```
Out[52]:  50    Star Wars: Episode VII - The Force Awakens
          Name: Title, dtype: object
```

Displaying Top 10 Highest Rated Movie Titles And its Directors

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

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

```
In [55]:  top10_len=data.nlargest(10,'Rating')[['Title','Rating','Director']].set_index('Tit
          print(top10_len)
```

```
                          Rating                     Director
Title
The Dark Knight            9.0             Christopher Nolan
Inception                  8.8             Christopher Nolan
Interstellar               8.6             Christopher Nolan
Kimi no na wa              8.6                 Makoto Shinkai
The Intouchables           8.6               Olivier Nakache
The Prestige               8.5             Christopher Nolan
The Departed               8.5               Martin Scorsese
The Dark Knight Rises      8.5             Christopher Nolan
Whiplash                   8.5               Damien Chazelle
The Lives of Others        8.5  Florian Henckel von Donnersmarck
```

Visualising Top 10 Highest Rated Movie Titles And its Directors

In [59]:
```python
sns.barplot(x='Rating',y=top10_len.index,data=top10_len,hue='Director',dodge=False
plt.legend(bbox_to_anchor=(1.05,1),loc=2)
plt.show()
```


Displaying Top 10 Highest Revenue Movie Titles

In [60]:
```python
data.columns
```

Out[60]:
```
Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

In [63]:
```python
data.sort_values(by='Revenue (Millions)',ascending=False).head(10)
```

	Rank	Title	Genre	Description	Director	Actors	Year
50	51	Star Wars: Episode VII - The Force Awakens	Action,Adventure,Fantasy	Three decades after the defeat of the Galactic...	J.J. Abrams	Daisy Ridley, John Boyega, Oscar Isaac, Domhna...	2015
87	88	Avatar	Action,Adventure,Fantasy	A paraplegic marine dispatched to the moon Pan...	James Cameron	Sam Worthington, Zoe Saldana, Sigourney Weaver...	2009
85	86	Jurassic World	Action,Adventure,Sci-Fi	A new theme park, built on the original site o...	Colin Trevorrow	Chris Pratt, Bryce Dallas Howard, Ty Simpkins,...	2015
76	77	The Avengers	Action,Sci-Fi	Earth's mightiest heroes must come together an...	Joss Whedon	Robert Downey Jr., Chris Evans, Scarlett Johan...	2012
54	55	The Dark Knight	Action,Crime,Drama	When the menace known as the Joker wreaks havo...	Christopher Nolan	Christian Bale, Heath Ledger, Aaron Eckhart,Mi...	2008
12	13	Rogue One	Action,Adventure,Sci-Fi	The Rebel Alliance makes a risky move to steal...	Gareth Edwards	Felicity Jones, Diego Luna, Alan Tudyk, Donnie...	2016
119	120	Finding Dory	Animation,Adventure,Comedy	The friendly but forgetful blue tang fish, Dor...	Andrew Stanton	Ellen DeGeneres, Albert Brooks,Ed O'Neill, Kai...	2016
94	95	Avengers: Age of Ultron	Action,Adventure,Sci-Fi	When Tony Stark and Bruce Banner try to jump-s...	Joss Whedon	Robert Downey Jr., Chris Evans, Mark Ruffalo, ...	2015
124	125	The Dark Knight Rises	Action,Thriller	Eight years after the Joker's reign of anarchy...	Christopher Nolan	Christian Bale, Tom Hardy, Anne Hathaway,Gary ...	2012
578	579	The Hunger Games: Catching Fire	Action,Adventure,Mystery	Katniss Everdeen and Peeta Mellark become targ...	Francis Lawrence	Jennifer Lawrence, Josh Hutcherson, Liam Hemsw...	2013

Visualising Top 10 Highest Revenue Movie Titles

In [65]:
```python
sns.barplot(x='Revenue (Millions)',y=top_10.index,data=top_10)
plt.title("Top 10 Highest Revenue Movie Titles")
plt.show()
```
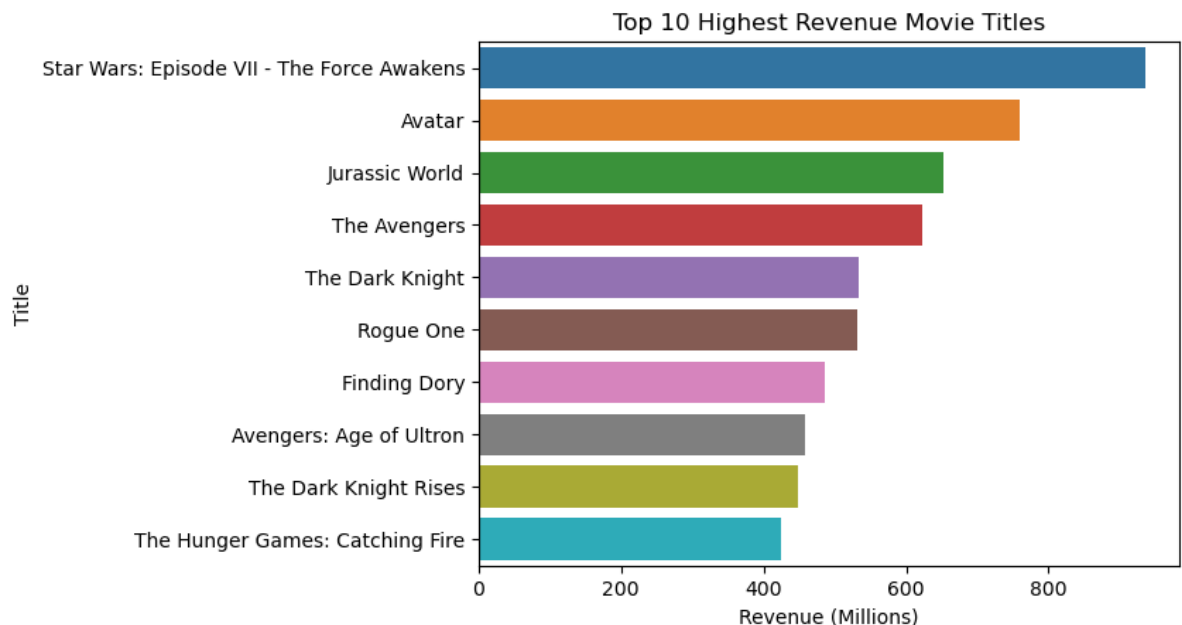

Find Average Rating of Movies Year-wise

In [67]:
```python
data.columns
```

Out[67]:
```
Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

In [72]:
```python
data.groupby('Year')['Rating'].mean().sort_values(ascending=False)
```

Out[72]:
```
Year
2006    7.143902
2007    7.140909
2011    6.945614
2012    6.933871
2009    6.911111
2010    6.894737
2013    6.832143
2014    6.822581
2008    6.708333
2015    6.674312
2016    6.644444
Name: Rating, dtype: float64
```

Does Rating Affect The Revenue? Visualising using Scatter Plot

```
In [74]: data.columns
```

Out[74]:
```
Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

```
In [76]: sns.scatterplot(x='Rating',y='Revenue (Millions)',data=data)
         plt.show()        # YES
```
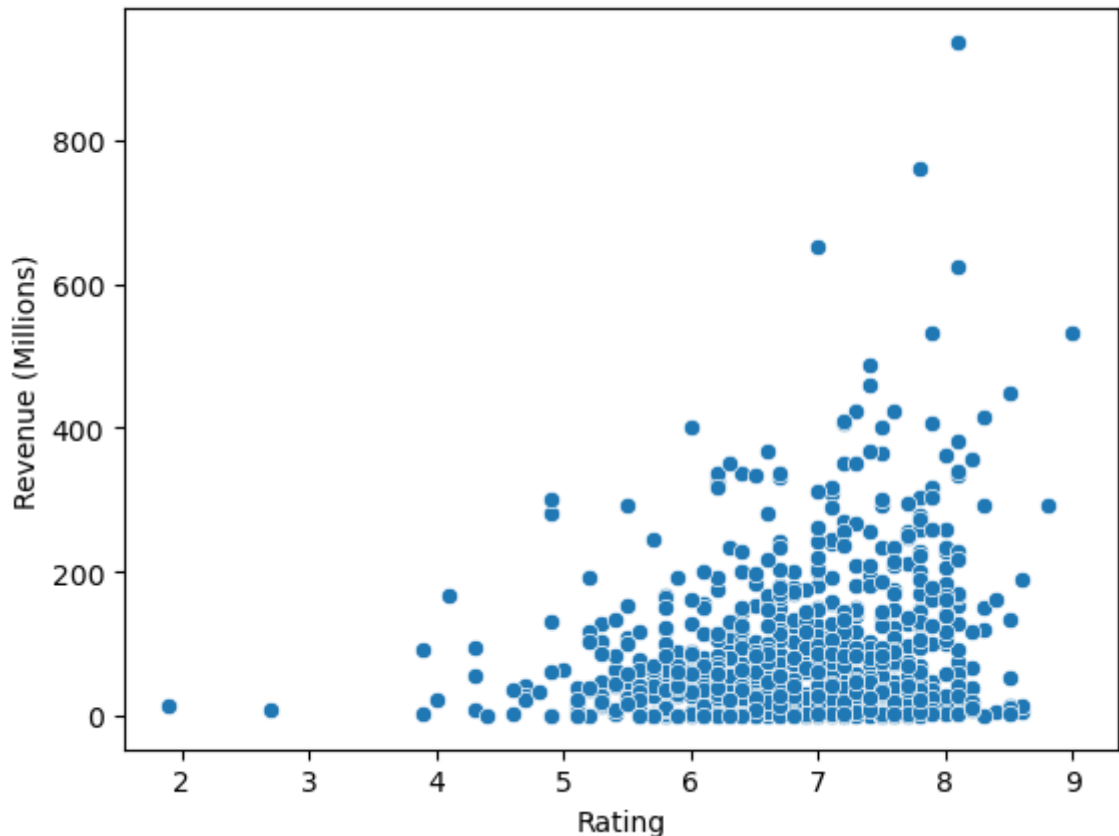

Classify Movies Based on Ratings [Good,Better and Best]

```
In [77]: data.columns
```

Out[77]:
```
Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore'],
      dtype='object')
```

```
In [78]: def rating(rating):
             if rating>=7.0:
                 return 'Excellent'
             elif rating>=6.0:
                 return 'Good'
             else:
                 return 'Average'
```

```
In [79]: data['rating_star']=data['Rating'].apply(rating)
         data.head()
```

	Rank	Title	Genre	Description	Director	Actors	Year
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...	2014
1	2	Prometheus	Adventure,Mystery,Sci-Fi	Following clues to the origin of mankind, a te...	Ridley Scott	Noomi Rapace, Logan Marshall-Green, Michael Fa...	2012
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...	2016
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	2016
4	5	Suicide Squad	Action,Adventure,Fantasy	A secret government agency recruits some of th...	David Ayer	Will Smith, Jared Leto, Margot Robbie, Viola D...	2016

To Count Number of Action Movies

In [80]: `data.columns`

Out[80]:
```
Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
       'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
       'Metascore', 'rating_star'],
      dtype='object')
```

In [81]: `data['Genre'].dtype`

Out[81]: `dtype('O')`

In [83]: `len(data[data['Genre'].str.contains('Action',case=False)])`

Out[83]: 277

Finding Unique Values From Genre

In [84]: `data.columns`

```
Out[84]:   Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
                  'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
                  'Metascore', 'rating_star'],
                 dtype='object')
```

In [85]:
```python
data['Genre']
```

Out[85]:
```
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 [92]:
```python
list1=[]
for value in data['Genre']:
    list1.append(value.split(','))
list1    #this is 2d list
```

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Converting 2d list in 1d

In [93]:
```python
one_d=[]
for item in list1:
    for item1 in item:
        one_d.append(item1)
one_d
```

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              ...]
```

In [96]:
```python
uni_list=[]
for item in one_d:
    if item not in uni_list:
        uni_list.append(item)
uni_list
```

```
Out[96]:    ['Action',
             'Adventure',
             'Sci-Fi',
             'Mystery',
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             'History',
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             'Crime',
             'War',
             'Musical',
             'Sport']
```

Finding Out How Many Films of Each Genre Were Made?

```
In [97]:  one_d=[]
          for item in list1:
              for item1 in item:
                  one_d.append(item1)
          one_d
```

```
Out[97]:  ['Action',
          'Adventure',
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```

In [98]:
```python
from collections import Counter
Counter(one_d)
```

Out[98]:   Counter({'Action': 277,
                   'Adventure': 244,
                   'Sci-Fi': 107,
                   'Mystery': 86,
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                   'Drama': 419,
                   'Music': 15,
                   'Biography': 67,
                   'Romance': 120,
                   'History': 25,
                   'Western': 4,
                   'Crime': 126,
                   'War': 10,
                   'Musical': 5,
                   'Sport': 15})

With This I conclude my Task 4 Project.