

```

In [6]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

data= pd.read_csv("D:\DATA ANALYST AND DATA SCIENCE\PYTHON\pandas project\IMDB-Movie-Data.csv")
data

```

Out[6]:

	Rank	Title	Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
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	121	8.1	757074	333.13	76.0
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	124	7.0	485820	126.46	65.0
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	117	7.3	157606	138.12	62.0
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	2016	108	7.2	60545	270.32	59.0
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	123	6.2	393727	325.02	40.0
...
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	111	6.2	27585	NaN	45.0
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth	Lauren German, Heather Matarazzo, Bijou Phili...	2007	94	5.5	73152	17.54	46.0
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	98	6.2	70699	58.01	50.0
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	93	5.6	4881	NaN	22.0
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	2016	87	5.3	12435	19.64	11.0

1000 rows × 12 columns

DISPLAY TOP 10 ROWS OF THE DATASET

In [8]: `data.head(10)`

Out[8]:

	Rank	Title	Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
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	121	8.1	757074	333.13	76.0
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	124	7.0	485820	126.46	65.0
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	117	7.3	157606	138.12	62.0
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	2016	108	7.2	60545	270.32	59.0
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	123	6.2	393727	325.02	40.0
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	103	6.1	56036	45.13	42.0
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	128	8.3	258682	151.06	93.0
7	8	Mindhorn	Comedy	A has-been actor best known for playing the ti...	Sean Foley	Essie Davis, Andrea Riseborough, Julian Barrat...	2016	89	6.4	2490	NaN	71.0
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	141	7.1	7188	8.01	78.0
9	10	Passengers	Adventure,Drama,Romance	A spacecraft traveling to a distant colony pla...	Morten Tyldum	Jennifer Lawrence, Chris Pratt, Michael Sheen,...	2016	116	7.0	192177	100.01	41.0

CHECK LAST 10 ROWS OF THE DATASET

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

Out[10]:

	Rank	Title	Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
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	92	6.6	129708	45.80	44.0
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	165	8.5	102697	1.20	42.0
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	97	6.3	45419	6.92	NaN
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	97	5.9	140900	60.13	37.0
994	995	Project X	Comedy	3 high school seniors throw a birthday party t...	Nima Nourizadeh	Thomas Mann, Oliver Cooper, Jonathan Daniel Br...	2012	88	6.7	164088	54.72	48.0
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	111	6.2	27585	NaN	45.0
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth	Lauren German, Heather Matarazzo, Bijou Phili...	2007	94	5.5	73152	17.54	46.0
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	98	6.2	70699	58.01	50.0
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	93	5.6	4881	NaN	22.0
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	2016	87	5.3	12435	19.64	11.0



NoteGPT

FIND SHAPE OF OUR DATASET(NUMBER OF ROWS AND NUMBER OF COLUMNS)

```
In [11]: data.shape
```

```
Out[11]: (1000, 12)
```

```
In [12]: print("Number of rows", data.shape[0])  
print("Number of columns", data.shape[1])
```

```
Number of rows 1000  
Number of columns 12
```



NoteGPT

GETTING INFORMATION ABOUT OUR DATASET LIKE TOTAL NUMBER OF COLUMNS, DATATYPES OF EACH COLUMN AND MEMORY REQUIREMENT



In [13]: `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
```

CHECK MISSING VALUES IN THE DATASET

```
In [14]: print("Any missing value?", data.isnull().values.any())
```

```
Any missing value? True
```

```
In [16]: data.isnull().sum()
```

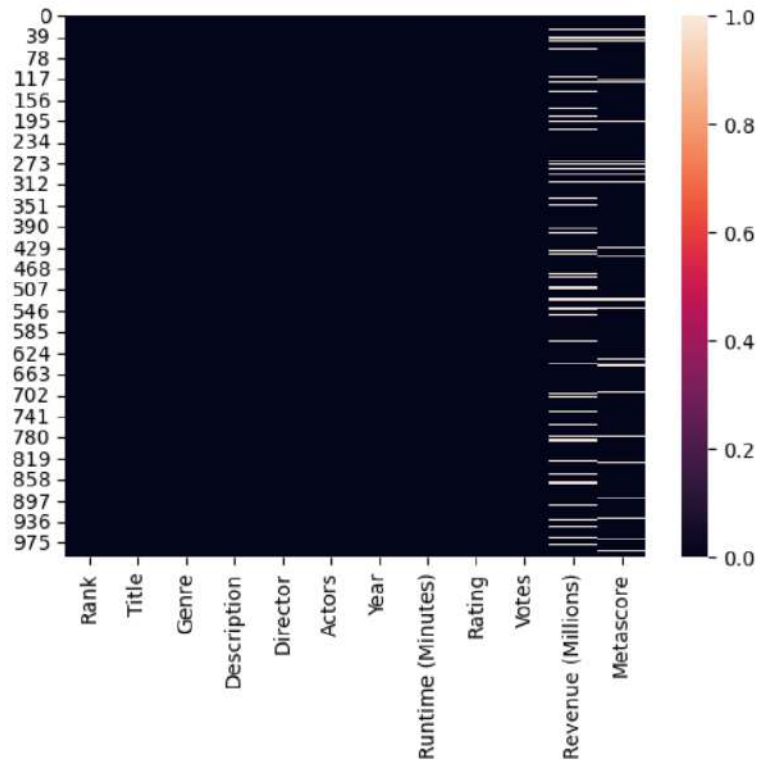
```
Out[16]: Rank                0  
Title                0  
Genre                0  
Description          0  
Director            0  
Actors              0  
Year                0  
Runtime (Minutes)    0  
Rating              0  
Votes               0  
Revenue (Millions)   128  
Metascore            64  
dtype: int64
```



NoteGPT

```
In [17]: sns.heatmap(data.isnull())
```

```
Out[17]: <Axes: >
```



In [18]: per_missing= data.isnull().sum()*100/len(data)
per_missing

Out[18]: 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



NoteGPT



NoteGPT

DROP ALL THE MISSING VALUES

In [19]: `data.dropna(axis=0)`

Out[19]:

	Rank	Title	Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
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	121	8.1	757074	333.13	76.0
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	124	7.0	485820	126.46	65.0
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	117	7.3	157606	138.12	62.0
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	2016	108	7.2	60545	270.32	59.0
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	123	6.2	393727	325.02	40.0
...
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	97	5.9	140900	60.13	37.0
994	995	Project X	Comedy	3 high school seniors throw a birthday party t...	Nima Nourizadeh	Thomas Mann, Oliver Cooper, Jonathan Daniel Br...	2012	88	6.7	164088	54.72	48.0
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth	Lauren German, Heather Matarazzo, Bijou Philli...	2007	94	5.5	73152	17.54	46.0
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	98	6.2	70699	58.01	50.0
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	2016	87	5.3	12435	19.64	11.0

CHECK FOR DUPLICATE DATA



NoteGPT

```
In [20]: data = data.drop_duplicates()  
data
```

Rank		Title	Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
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	121	8.1	757074	333.13	76.0
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	124	7.0	485820	126.46	65.0
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	117	7.3	157606	138.12	62.0
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	2016	108	7.2	60545	270.32	59.0
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	123	6.2	393727	325.02	40.0
...
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	111	6.2	27585	NaN	45.0
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth	Lauren German, Heather Matarazzo, Bijou Philli...	2007	94	5.5	73152	17.54	46.0
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	98	6.2	70699	58.01	50.0
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	93	5.6	4881	NaN	22.0
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	2016	87	5.3	12435	19.64	11.0

GET OVERALL STATISTICS ABOUT THE DATAFRAME

```
In [21]: data.describe(include="all")
```

Out[21]:

	Rank	Title	Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
count	1000.000000	1000	1000	1000	1000	1000	1000.000000	1000.000000	1000.000000	1.000000e+03	872.000000	936.000000
unique	NaN	999	207	1000	644	996	NaN	NaN	NaN	NaN	NaN	NaN
top	NaN	The Host	Action,Adventure,Sci-Fi	A group of intergalactic criminals are forced ...	Ridley Scott	Jennifer Lawrence, Josh Hutcherson, Liam Hemsw...	NaN	NaN	NaN	NaN	NaN	NaN
freq	NaN	2	50	1	8	2	NaN	NaN	NaN	NaN	NaN	NaN
mean	500.500000	NaN	NaN	NaN	NaN	NaN	2012.783000	113.172000	6.723200	1.698083e+05	82.956376	58.985043
std	288.819436	NaN	NaN	NaN	NaN	NaN	3.205962	18.810908	0.945429	1.887626e+05	103.253540	17.194757
min	1.000000	NaN	NaN	NaN	NaN	NaN	2006.000000	66.000000	1.900000	6.100000e+01	0.000000	11.000000
25%	250.750000	NaN	NaN	NaN	NaN	NaN	2010.000000	100.000000	6.200000	3.630900e+04	13.270000	47.000000
50%	500.500000	NaN	NaN	NaN	NaN	NaN	2014.000000	111.000000	6.800000	1.107990e+05	47.985000	59.500000
75%	750.250000	NaN	NaN	NaN	NaN	NaN	2016.000000	123.000000	7.400000	2.399098e+05	113.715000	72.000000
max	1000.000000	NaN	NaN	NaN	NaN	NaN	2016.000000	191.000000	9.000000	1.791916e+06	936.630000	100.000000



DISPLAY TITLE OF THE MOVIE HAVING RUNTIME GREATER THAN OR EQUAL TO 180 MINS

In [22]: `data.columns`

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

In [24]: `data[data["Runtime (Minutes)"]>=180]["Title"]`

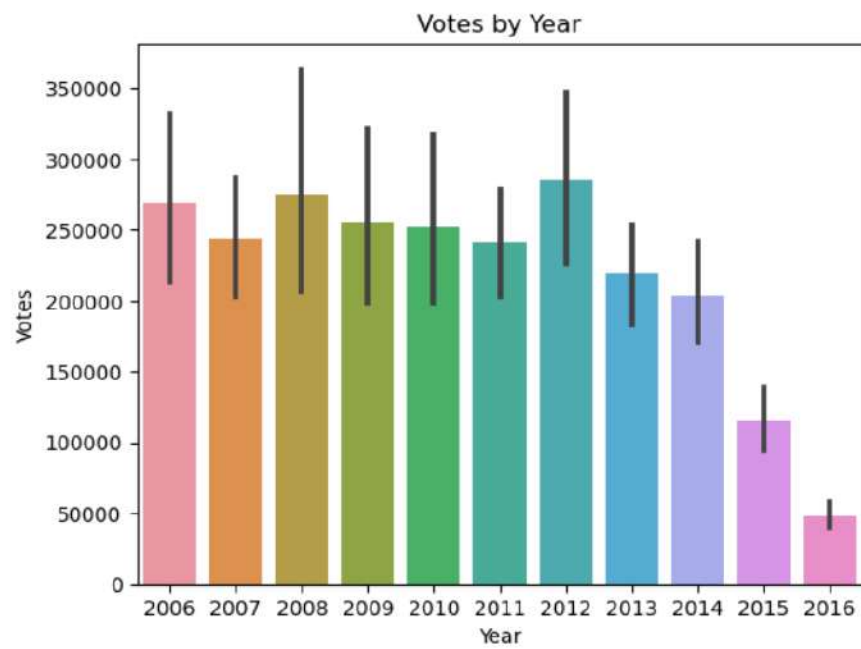
Out[24]: `82 The Wolf of Wall Street
88 The Hateful Eight
311 La vie d'Adèle
828 Grindhouse
965 Inland Empire
Name: Title, dtype: object`



NoteGPT

```
In [27]: sns.barplot(x="Year", y="Votes", data=data)
plt.title("Votes by Year")
```

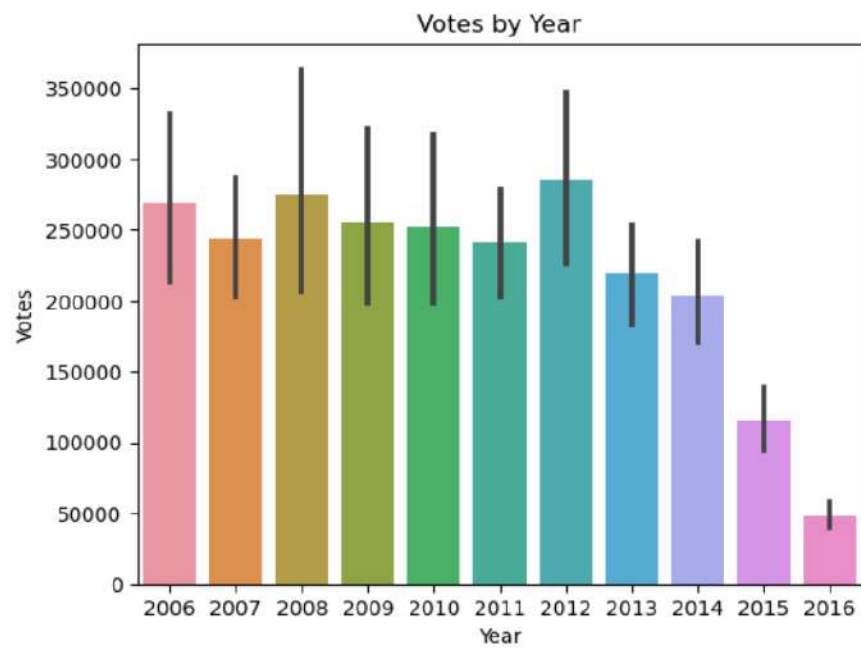
```
Out[27]: Text(0.5, 1.0, 'Votes by Year')
```



NoteGPT

```
In [27]: sns.barplot(x="Year", y="Votes", data=data)
plt.title("Votes by Year")
```

```
Out[27]: Text(0.5, 1.0, 'Votes by Year')
```



IN WHICH YEAR THERE WAS THE HIGHEST AVERAGE REVENUE?

In [28]: `data.columns`

Out[28]: `Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
 'Metascore'],
 dtype='object')`

In [29]: `data.groupby("Year")["Revenue (Millions)"].mean().sort_values(ascending=False)`

Out[29]:

Year	
2009	112.601277
2012	107.973281
2010	105.081579
2008	99.082745
2007	87.882245
2011	87.612258
2013	87.121818
2006	86.296667
2014	85.078723
2015	78.355044
2016	54.690976

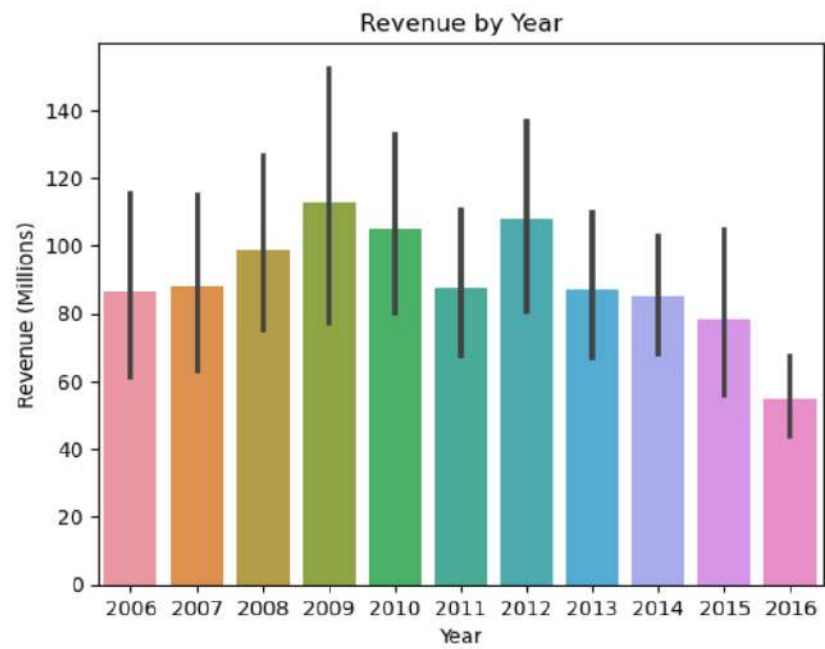
Name: Revenue (Millions), dtype: float64



NoteGPT

```
In [30]: sns.barplot(x="Year", y="Revenue (Millions)", data=data)
plt.title("Revenue by Year")
```

```
Out[30]: Text(0.5, 1.0, 'Revenue by Year')
```



NoteGPT

FIND THE AVERAGE RATING FOR EACH DIRECTOR

In [31]: `data.columns`

Out[31]: `Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
 'Metascore'],
 dtype='object')`

In [32]: `data.groupby("Director")["Rating"].mean().sort_values(ascending=False)`

Out[32]:

Director	
Nitesh Tiwari	8.80
Christopher Nolan	8.68
Olivier Nakache	8.60
Makoto Shinkai	8.60
Aamir Khan	8.50
...	
Micheal Bafaro	3.50
Jonathan Holbrook	3.20
Shawn Burkett	2.70
James Wong	2.70
Jason Friedberg	1.90

Name: Rating, Length: 644, dtype: float64

DISPLAY NUMBER OF MOVIES PER YEAR

In [33]: `data.columns`

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

In [41]: `top10_len=data.nlargest(10,"Runtime (Minutes)")["Title","Runtime (Minutes)"].set_index("Title")`

In [43]: `top10_len`

Out[43]:

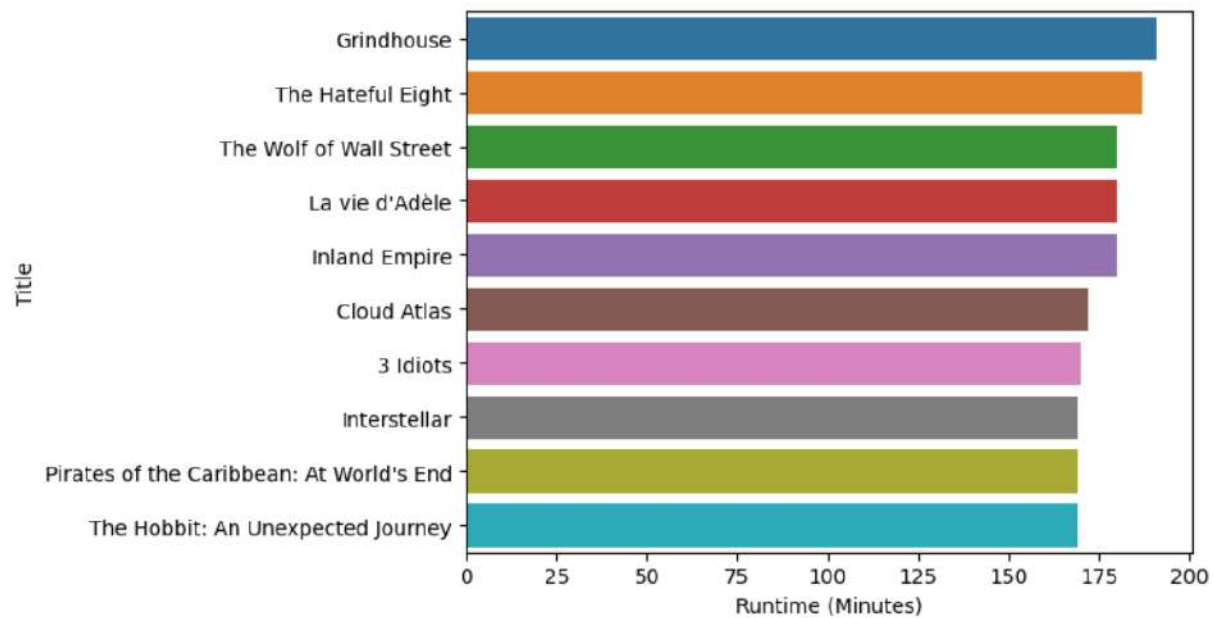
	Runtime (Minutes)
Title	
Grindhouse	191
The Hateful Eight	187
The Wolf of Wall Street	180
La vie d'Adèle	180
Inland Empire	180
Cloud Atlas	172
3 Idiots	170
Interstellar	169
Pirates of the Caribbean: At World's End	169
The Hobbit: An Unexpected Journey	169



NoteGPT

```
In [44]: sns.barplot(x="Runtime (Minutes)",y=top10_len.index,data=top10_len)
```

```
Out[44]: <Axes: xlabel='Runtime (Minutes)', ylabel='Title'>
```



NoteGPT

DISPLAY NUMBER OF MOVIES TITLE(HIGHEST REVENUE)



NoteGPT

In [45]: `data.columns`

Out[45]: `Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
 'Metascore'],
 dtype='object')`

In [46]: `data["Year"].value_counts()`

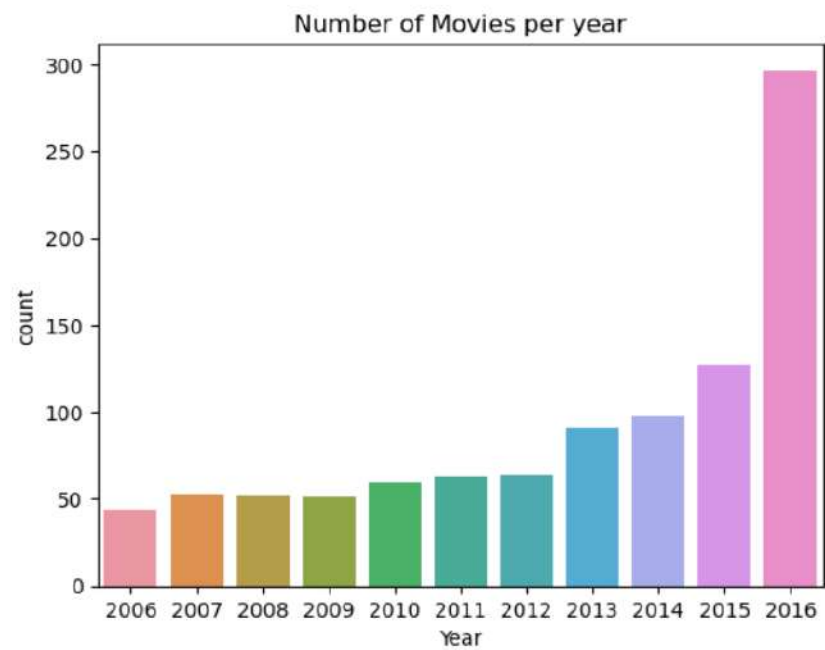
Out[46]:

2016	297
2015	127
2014	98
2013	91
2012	64
2011	63
2010	60
2007	53
2008	52
2009	51
2006	44

Name: Year, dtype: int64

```
In [48]: sns.countplot(x="Year",data=data)  
plt.title("Number of Movies per year")
```

```
Out[48]: Text(0.5, 1.0, 'Number of Movies per year')
```



NoteGPT

DISPLAY TOP 10 HIGHEST REVENUE MOVIE TITLES

In [49]: `data.columns`

Out[49]: `Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
 'Metascore'],
 dtype='object')`

In [51]: `data[data["Revenue (Millions)"].max()==data["Revenue (Millions)"]]["Title"]`

Out[51]: `50 Star Wars: Episode VII - The Force Awakens
 Name: Title, dtype: object`

In [59]: `top_10=data.nlargest(10,"Revenue (Millions)")[["Title","Revenue (Millions)"]].set_index("Title")`

In [60]: `top_10`

Out[60]:

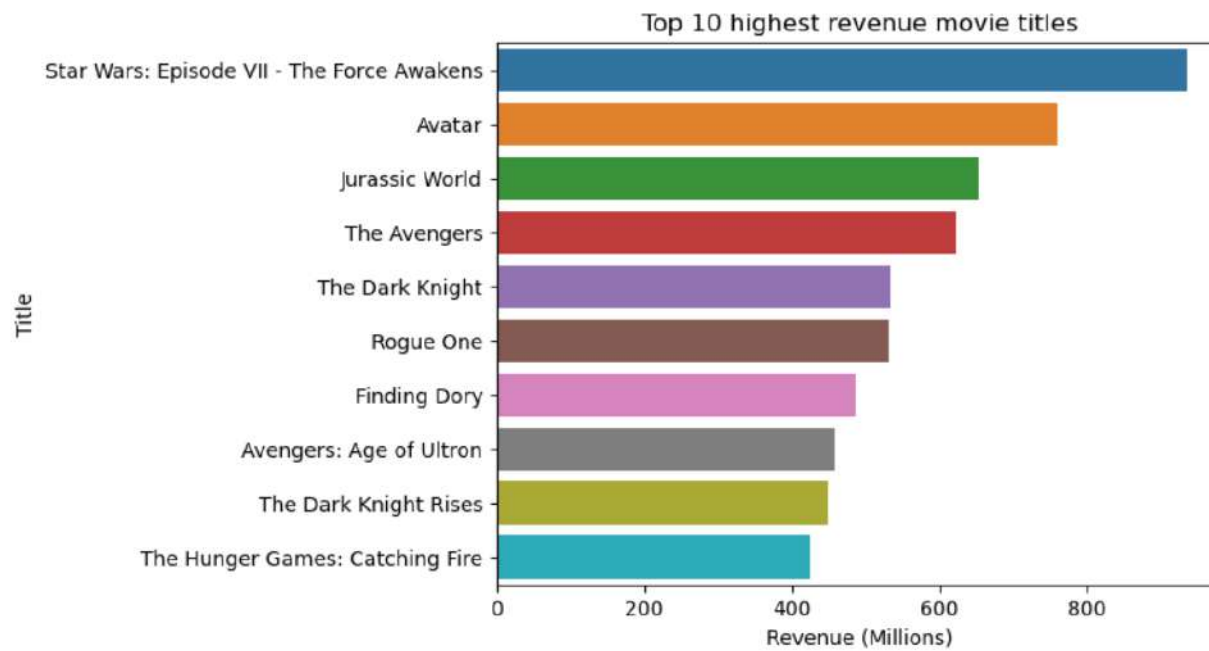
	Revenue (Millions)
Title	
Star Wars: Episode VII - The Force Awakens	936.63
Avatar	760.51
Jurassic World	652.18
The Avengers	623.28
The Dark Knight	533.32
Rogue One	532.17
Finding Dory	486.29
Avengers: Age of Ultron	458.99
The Dark Knight Rises	448.13
The Hunger Games: Catching Fire	424.65



NoteGPT

```
In [62]: sns.barplot(x="Revenue (Millions)", y=top_10.index, data=top_10)
plt.title("Top 10 highest revenue movie titles")
```

```
Out[62]: Text(0.5, 1.0, 'Top 10 highest revenue movie titles')
```



DISPLAY TOP 10 HIGHEST RATED MOVIE TITLES AND ITS DIRECTORS

In [52]: `data.columns`

Out[52]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',
'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
'Metascore'],
dtype='object')

In [53]: `top10_len=data.nlargest(10,"Rating")["Title","Rating","Director"].set_index("Title")`

In [54]: `top10_len`

Out[54]:

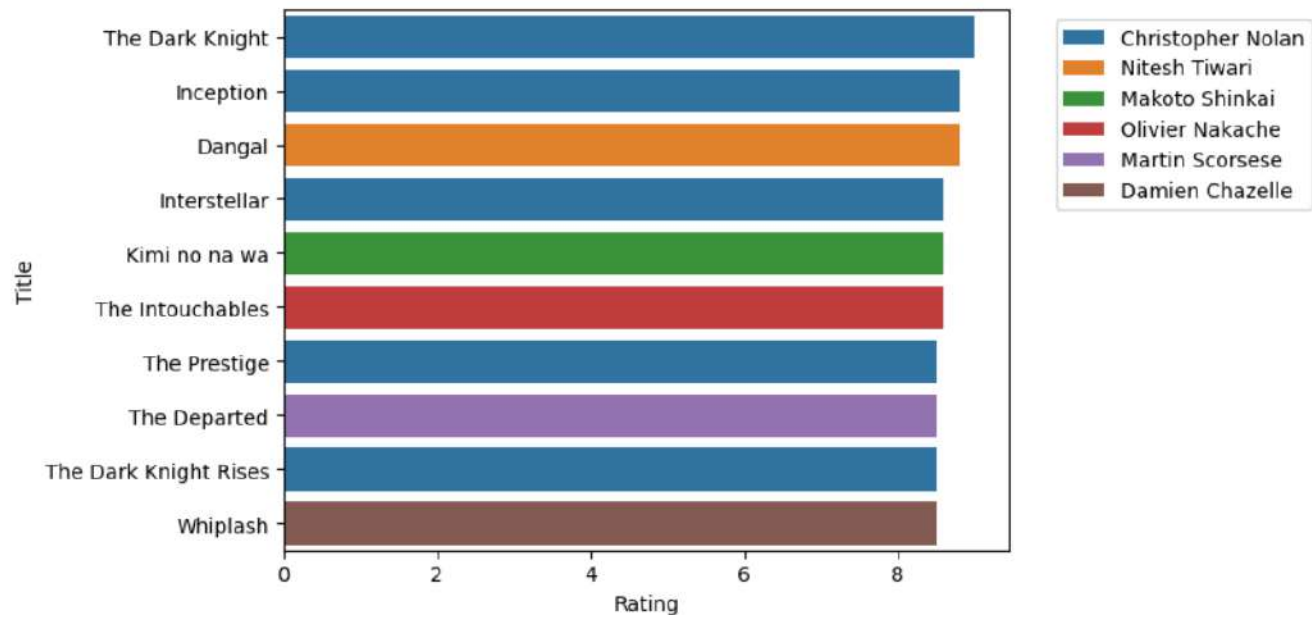
	Rating	Director
Title		
The Dark Knight	9.0	Christopher Nolan
Inception	8.8	Christopher Nolan
Dangal	8.8	Nitesh Tiwari
Interstellar	8.6	Christopher Nolan
Kimi no na wa	8.6	Makoto Shinkai
The Intouchables	8.6	Olivier Nakache
The Prestige	8.5	Christopher Nolan
The Departed	8.5	Martin Scorsese
The Dark Knight Rises	8.5	Christopher Nolan
Whiplash	8.5	Damien Chazelle



NoteGPT


```
In [56]: 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)
```

Out[56]: <matplotlib.legend.Legend at 0x2ae25f4d4d0>



NoteGPT