

In [3]:

```
import pandas as pd
```

1.Load the IMDb Dataset and read

In [5]:

```
dp = pd.read_csv("/content/IMDB-Movie-Data.csv")
```

2.View the dataset

In [7]:

```
dp.head()
```

Out[7]:

	Rank	Title	Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	Votes
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	7570
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	4858
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	1576
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	605
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	3937

In []:

In [8]:

```
dp.tail()
```

Out[8]:

	Rank	Title	Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	Votes	Reve (Milli...
		Secret		A tight-knit	Chinatown Eliot						

995	996	in Title Eyes	Crime,Drama,Mystery	Genre	team of rising investigators, alo...	Description	Billy Ray Director	Chiwetel Ejioror, Nicole Kidman, Julia Roberts...	Actors	2015	Year	Runtime (Minutes)	6.2	Rating	27585	Votes	Reve (Milli...
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		1
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		5
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		1
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		1

3.Understand some basic information about the dataset and Inspect the dataframe Inspect the dataframe's columns, shapes, variable types etc

```

In [9]:
dp.ndim

Out[9]:
2

In [13]:
dp.shape

Out[13]:
(1000, 12)

In [12]:
dp.dtypes

Out[12]:
Rank                int64
Title               object
Genre               object
Description          object
Director            object
Actors              object
Year                int64
Runtime (Minutes)   int64
Rating              float64
Votes               int64
Revenue (Millions)  float64
Metascore           float64
dtype: object

In [14]:
dp.columns

Out[14]:
Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year',

```

```
'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)',
'Metascore'],
dtype='object')
```

In [15]:

```
dp.info
```

Out[15]:

```
<bound method DataFrame.info of      Rank      Title ... Revenue (Million
s) Metascore
0      1  Guardians of the Galaxy ...      333.13      76.0
1      2      Prometheus ...      126.46      65.0
2      3      Split ...      138.12      62.0
3      4      Sing ...      270.32      59.0
4      5      Suicide Squad ...      325.02      40.0
..    ...      ...      ...      ...
995  996      Secret in Their Eyes ...      NaN      45.0
996  997      Hostel: Part II ...      17.54      46.0
997  998      Step Up 2: The Streets ...      58.01      50.0
998  999      Search Party ...      NaN      22.0
999  1000      Nine Lives ...      19.64      11.0

[1000 rows x 12 columns]>
```

In [16]:

```
dp.nunique
```

Out[16]:

```
<bound method DataFrame.nunique of      Rank      Title ... Revenue (Mill
ions) Metascore
0      1  Guardians of the Galaxy ...      333.13      76.0
1      2      Prometheus ...      126.46      65.0
2      3      Split ...      138.12      62.0
3      4      Sing ...      270.32      59.0
4      5      Suicide Squad ...      325.02      40.0
..    ...      ...      ...      ...
995  996      Secret in Their Eyes ...      NaN      45.0
996  997      Hostel: Part II ...      17.54      46.0
997  998      Step Up 2: The Streets ...      58.01      50.0
998  999      Search Party ...      NaN      22.0
999  1000      Nine Lives ...      19.64      11.0

[1000 rows x 12 columns]>
```

In [17]:

```
dp.Genre.value_counts()
```

Out[17]:

```
Action,Adventure,Sci-Fi      50
Drama                        48
Comedy,Drama,Romance         35
Comedy                       32
Drama,Romance                 31
..
Action,Fantasy                1
Comedy,Western                1
Adventure,Drama,War           1
Mystery,Romance,Sci-Fi       1
Adventure,Drama,Horror        1
Name: Genre, Length: 207, dtype: int64
```

In [18]:

```
dp.Year.value_counts()
```

Out[18]:

```
2016      207
```

```
2016      29
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 [19]:

```
dp.describe()
```

Out[19]:

	Rank	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
count	1000.000000	1000.000000	1000.000000	1000.000000	1.000000e+03	872.000000	936.000000
mean	500.500000	2012.783000	113.172000	6.723200	1.698083e+05	82.956376	58.985043
std	288.819436	3.205962	18.810908	0.945429	1.887626e+05	103.253540	17.194757
min	1.000000	2006.000000	66.000000	1.900000	6.100000e+01	0.000000	11.000000
25%	250.750000	2010.000000	100.000000	6.200000	3.630900e+04	13.270000	47.000000
50%	500.500000	2014.000000	111.000000	6.800000	1.107990e+05	47.985000	59.500000
75%	750.250000	2016.000000	123.000000	7.400000	2.399098e+05	113.715000	72.000000
max	1000.000000	2016.000000	191.000000	9.000000	1.791916e+06	936.630000	100.000000

In [20]:

```
dp['Rating']
```

Out[20]:

```
0      8.1
1      7.0
2      7.3
3      7.2
4      6.2
...
995    6.2
996    5.5
997    6.2
998    5.6
999    5.3
Name: Rating, Length: 1000, dtype: float64
```

In [21]:

```
dp.loc[:, 'Rating']
```

Out[21]:

```
0      8.1
1      7.0
2      7.3
3      7.2
4      6.2
...
995    6.2
996    5.5
997    6.2
998    5.6
999    5.3
Name: Rating, Length: 1000, dtype: float64
```

In [24]:

```
dp.iloc[:,8]
```

Out[24]:

```
0      8.1
1      7.0
2      7.3
3      7.2
4      6.2
...
995    6.2
996    5.5
997    6.2
998    5.6
999    5.3
Name: Rating, Length: 1000, dtype: float64
```

In [28]:

```
#SILICING
dp.loc[:, "Rank" : "Director"]
```

Out[28]:

Rank		Title	Genre	Description	Director
0	1	Guardians of the Galaxy	Action,Adventure,Sci-Fi	A group of intergalactic criminals are forced ...	James Gunn
1	2	Prometheus	Adventure,Mystery,Sci-Fi	Following clues to the origin of mankind, a te...	Ridley Scott
2	3	Split	Horror,Thriller	Three girls are kidnapped by a man with a diag...	M. Night Shyamalan
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet
4	5	Suicide Squad	Action,Adventure,Fantasy	A secret government agency recruits some of th...	David Ayer
...
995	996	Secret in Their Eyes	Crime,Drama,Mystery	A tight-knit team of rising investigators, alo...	Billy Ray
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth
997	998	Step Up 2: The Streets	Drama,Music,Romance	Romantic sparks occur between two dance studen...	Jon M. Chu
998	999	Search Party	Adventure,Comedy	A pair of friends embark on a mission to reuni...	Scot Armstrong
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld

1000 rows x 5 columns

In [30]:

```
dp.iloc[:, 0:5]
```

Out[30]:

Rank		Title	Genre	Description	Director
0	1	Guardians of the Galaxy	Action,Adventure,Sci-Fi	A group of intergalactic criminals are forced ...	James Gunn
1	2	Prometheus	Adventure,Mystery,Sci-Fi	Following clues to the origin of mankind, a te...	Ridley Scott
2	3	Split	Horror,Thriller	Three girls are kidnapped by a man with a diag...	M. Night Shyamalan
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet

Rank		Title	Genre		Description	Director
4	5	Suicide Squad	Action,Adventure,Fantasy	A secret government agency recruits some of th...		David Ayer
...
995	996	Secret in Their Eyes	Crime,Drama,Mystery	A tight-knit team of rising investigators, alo...		Billy Ray
996	997	Hostel: Part II	Horror	Three American college students studying abroa...		Eli Roth
997	998	Step Up 2: The Streets	Drama,Music,Romance	Romantic sparks occur between two dance studen...		Jon M. Chu
998	999	Search Party	Adventure,Comedy	A pair of friends embark on a mission to reuni...		Scot Armstrong
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...		Barry Sonnenfeld

1000 rows × 5 columns

In [32]:

```
#Data Selection - Based on Conditional filtering
dp.loc[(dp["Rating"] > 7 ),
['Title','Director', 'Actors', 'Year','Runtime (Minutes)', 'Rating']]
```

Out[32]:

	Title	Director	Actors	Year	Runtime (Minutes)	Rating
0	Guardians of the Galaxy	James Gunn	Chris Pratt, Vin Diesel, Bradley Cooper, Zoe S...	2014	121	8.1
2	Split	M. Night Shyamalan	James McAvoy, Anya Taylor-Joy, Haley Lu Richar...	2016	117	7.3
3	Sing	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	2016	108	7.2
6	La La Land	Damien Chazelle	Ryan Gosling, Emma Stone, Rosemarie DeWitt, J....	2016	128	8.3
8	The Lost City of Z	James Gray	Charlie Hunnam, Robert Pattinson, Sienna Mille...	2016	141	7.1
...
979	The Skin I Live In	Pedro Almodóvar	Antonio Banderas, Elena Anaya, Jan Cornet,Mari...	2011	120	7.6
982	Across the Universe	Julie Taymor	Evan Rachel Wood, Jim Sturgess, Joe Anderson, ...	2007	133	7.4
988	Martyrs	Pascal Laugier	Morjana Alaoui, Mylène Jampanoï, Catherine Bég...	2008	99	7.1
989	Selma	Ava DuVernay	David Oyelowo, Carmen Ejogo, Tim Roth, Lorrain...	2014	128	7.5
991	Taare Zameen Par	Aamir Khan	Darsheel Safary, Aamir Khan, Tanay Chheda, Sac...	2007	165	8.5

399 rows × 6 columns

In [34]:

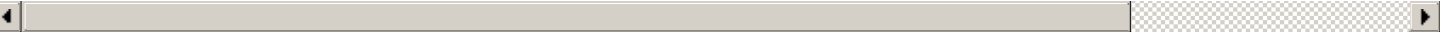
```
dp[dp.Rating>7]
```

Out[34]:

Rank	Title	Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	✓
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	75

Rank		Title		Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	V
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	15
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	6
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	25
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	
...
979	980	The Skin I Live In		Drama,Thriller	A brilliant plastic surgeon, haunted by past t...	Pedro Almodóvar	Antonio Banderas, Elena Anaya, Jan Cornet,Mari...	2011	120	7.6	10
982	983	Across the Universe	Drama,Fantasy,Musical		The music of the Beatles and the Vietnam War f...	Julie Taymor	Evan Rachel Wood, Jim Sturgess, Joe Anderson, ...	2007	133	7.4	9
988	989	Martyrs		Horror	A young woman's quest for revenge against the ...	Pascal Laugier	Morjana Alaoui, Mylène Jampanoi, Catherine Bég...	2008	99	7.1	6
989	990	Selma	Biography,Drama,History		A chronicle of Martin Luther King's campaign t...	Ava DuVernay	David Oyelowo, Carmen Ejogo, Tim Roth, Lorrain...	2014	128	7.5	6
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	10

399 rows x 12 columns



In [35]:

```
dp.groupby('Genre').sum()
```

Out[35]:

	Rank	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
Genre							
Action	705	4032	176	12.3	17237	131.56	37.0
Action,Adventure	999	6033	373	19.2	1003377	671.22	172.0
Action,Adventure,Biography	568	4031	263	14.0	97560	33.00	125.0

Action,Adventure,Comedy	Rank	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
Action,Adventure,Comedy	2379	12074	699	38.6	1201937	543.72	290.0
...
Romance,Sci-Fi,Thriller	707	2011	106	7.1	208632	62.45	0.0
Sci-Fi	801	4032	213	9.9	1453	20.76	53.0
Sci-Fi,Thriller	513	2008	91	5.0	170897	64.51	34.0
Thriller	6133	18133	857	53.6	305642	0.32	418.0
Thriller,War	161	2016	106	6.0	5926	0.00	40.0

207 rows × 7 columns

In [36]:

```
dp.groupby('Year').sum()
```

Out[36]:

	Rank	Runtime (Minutes)	Rating	Votes	Revenue (Millions)	Metascore
Year						
2006	25894	5317	313.5	11848758	3624.46	2641.0
2007	30559	6446	378.1	12949545	4306.23	2967.0
2008	32533	5763	352.8	14326280	5053.22	2813.0
2009	29928	5922	355.0	13044813	5292.26	2799.0
2010	35239	6668	409.6	15166939	5989.65	3504.0
2011	37143	7220	430.8	15169789	5431.96	3580.0
2012	34104	7623	443.2	18254470	6910.29	3791.0
2013	50617	10562	619.9	19933518	7666.72	5034.0
2014	50272	11220	670.1	19985162	7997.40	5445.0
2015	62407	14541	838.5	14697230	8854.12	7016.0
2016	111804	31890	1911.7	14431751	11211.65	15620.0

In [37]:

```
dp.groupby(['Genre','Year'])['Rating'].count()
```

Out[37]:

Genre	Year	
Action	2016	2
Action,Adventure	2007	1
	2012	1
	2014	1
Action,Adventure,Biography	2015	1
	..	
Sci-Fi,Thriller	2008	1
Thriller	2007	1
	2014	1
	2016	7
Thriller,War	2016	1
Name: Rating, Length: 583, dtype: int64		

In [38]:

```
dp.groupby(['Genre','Year'])['Rating'].sum()
```

Out[38]:

Genre	Year	
Action	2016	12.3
Action,Adventure	2007	6.2


```
2012    7.0
2014    6.0
Action,Adventure,Biography 2015    6.9
...
Sci-Fi,Thriller    2008    5.0
Thriller    2007    7.1
2014    6.7
2016    39.8
Thriller,War    2016    6.0
Name: Rating, Length: 583, dtype: float64
```

In [39]:

```
dp.groupby(['Genre', 'Year'])['Rating'].mean()
```

Out[39]:

```
Genre    Year
Action    2016    6.150000
Action,Adventure    2007    6.200000
2012    7.000000
2014    6.000000
Action,Adventure,Biography 2015    6.900000
...
Sci-Fi,Thriller    2008    5.000000
Thriller    2007    7.100000
2014    6.700000
2016    5.685714
Thriller,War    2016    6.000000
Name: Rating, Length: 583, dtype: float64
```

In [40]:

```
dp.sort_values('Year')
```

Out[40]:

Rank		Title		Genre	Description	Director	Actors	Year	Runtime (Minutes)	Rating	V
773	774	Lady in the Water	Drama,Fantasy,Mystery		Apartment building superintendent Cleveland He...	M. Night Shyamalan	Paul Giamatti, Bryce Dallas Howard, Jeffrey Wr...	2006	110	5.6	8
445	446	Silent Hill	Adventure,Horror,Mystery		A woman, Rose, goes in search for her adopted ...	Christophe Gans	Radha Mitchell, Laurie Holden, Sean Bean,Debor...	2006	125	6.6	18
99	100	The Departed	Crime,Drama,Thriller		An undercover cop and a mole in the police att...	Martin Scorsese	Leonardo DiCaprio, Matt Damon, Jack Nicholson,...	2006	151	8.5	93
550	551	The Break-Up	Comedy,Drama,Romance		In a bid to keep their luxurious condo from th...	Peyton Reed	Jennifer Aniston, Vince Vaughn, Jon Favreau, J...	2006	106	5.8	10
885	886	Babel	Drama		Tragedy strikes a married couple on vacation i...	Alejandro González Iñárritu	Brad Pitt, Cate Blanchett, Gael García Bernal,...	2006	143	7.5	25
...
247	248	20th Century Women	Comedy,Drama		The story of a teenage boy, his mother, and tw...	Mike Mills	Annette Bening, Elle Fanning, Greta	2016	119	7.4	1

Rank		Title		Genre	Description	Director	Gerwig, Bi... Actors Diane Lane,	Year	Runtime (Minutes)	Rating	V
250	251	Bonjour Anne	Comedy,Drama,Romance		and tw... crossroads in her life. Long marr...	Eleanor Coppola	Alec Baldwin, Arnaud Viard, Linda ...	2016	92	4.9	
258	259	Lights Out		Horror	Rebecca must unlock the terror behind her litt...	David F. Sandberg	Teresa Palmer, Gabriel Bateman, Maria Bello,Bi...	2016	81	6.4	6
237	238	The Disappointments Room	Drama,Horror,Thriller		A mother and her young son release unimaginabl...	D.J. Caruso	Kate Beckinsale, Mel Raido, Duncan Joiner, Luc...	2016	85	3.9	
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	1

1000 rows × 12 columns



In [41]:

```
dp.sort_index(axis= 1)
```

Out[41]:

	Actors	Description	Director	Genre	Metascore	Rank	Rating	Revenue (Millions)	Runtime (Minutes)
0	Chris Pratt, Vin Diesel, Bradley Cooper, Zoe S...	A group of intergalactic criminals are forced ...	James Gunn	Action,Adventure,Sci-Fi	76.0	1	8.1	333.13	121
1	Noomi Rapace, Logan Marshall- Green, Michael Fa...	Following clues to the origin of mankind, a te...	Ridley Scott	Adventure,Mystery,Sci-Fi	65.0	2	7.0	126.46	124
2	James McAvoy, Anya Taylor-Joy, Haley Lu Richar...	Three girls are kidnapped by a man with a diag...	M. Night Shyamalan	Horror,Thriller	62.0	3	7.3	138.12	117
3	Matthew McConaughey,Reese Witherspoon, Seth Ma...	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Animation,Comedy,Family	59.0	4	7.2	270.32	108
4	Will Smith, Jared Leto, Margot Robbie, Viola D...	A secret government agency recruits some of th...	David Ayer	Action,Adventure,Fantasy	40.0	5	6.2	325.02	123
...
995	Chiwetel Ejiofor, Nicole Kidman, Julia Roberts...	A tight-knit team of rising investigators, alo...	Billy Ray	Crime,Drama,Mystery	45.0	996	6.2	NaN	111
996	Lauren German, Heather Matarazzo, ...	Three American college students	Eli Roth	Horror	46.0	997	5.5	17.54	94

	Bijou Pniii... Actors	studying Description abroa...	Director	Genre	Metascore	Rank	Rating	Revenue (Millions)	Runtime (Minutes)
997	Robert Hoffman, Briana Evigan, Cassie Ventura,...	Romantic sparks occur between two dance studen...	Jon M. Chu	Drama,Music,Romance	50.0	998	6.2	58.01	98
998	Adam Pally, T.J. Miller, Thomas Middleditch,Sh...	A pair of friends embark on a mission to reuni...	Scot Armstrong	Adventure,Comedy	22.0	999	5.6	NaN	93
999	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Comedy,Family,Fantasy	11.0	1000	5.3	19.64	87

1000 rows × 12 columns

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▶

In []: