

PANDAS

GO_STP_7364

ASSIGNMENT/TASK

Question 1,2 : Load the IMDb Dataset ,read and View the dataset.

```
In [1]: import pandas as pd
df=pd.read_csv("C:/Users/Yug/Desktop/IMDB-Movie-Data.csv")
df.head()
```

Out[1]:

	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

```
In [2]: # Creating series and dataframe

a=pd.Series(["hey","how","are","you","doing"])
b=pd.DataFrame({"TYPE 1":[1,2,3,4,5],"TYPE 2":[1.1,2.2,3.3,4.4,5.5],"TYPE 3":a })
print(a,b,sep="\n")

0      hey
1      how
2      are
3      you
4     doing
dtype: object
   TYPE 1  TYPE 2 TYPE 3
0       1    1.1    hey
1       2    2.2    how
2       3    3.3    are
3       4    4.4    you
4       5    5.5   doing
```

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

```
In [3]: df.columns
```

Out[3]: Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year', 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)', 'Metascore'], dtype='object')

```
In [4]: df.shape
```

Out[4]: (1000, 12)

```
In [5]: df.dtypes
```

Out[5]: 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 [6]: df.ndim
```

Out[6]: 2

```
In [7]: df.size
```

Out[7]: 12000

```
In [8]: df.axes
```

Out[8]: [RangeIndex(start=0, stop=1000, step=1),
Index(['Rank', 'Title', 'Genre', 'Description', 'Director', 'Actors', 'Year', 'Runtime (Minutes)', 'Rating', 'Votes', 'Revenue (Millions)', 'Metascore'], dtype='object')]

```
In [9]: df.values
```

Out[9]: array([[1, 'Guardians of the Galaxy', 'Action,Adventure,Sci-Fi', ..., 757074, 333.13, 76.0],
[2, 'Prometheus', 'Adventure,Mystery,Sci-Fi', ..., 485820, 126.46, 65.0],
[3, 'Split', 'Horror,Thriller', ..., 157606, 138.12, 62.0],
...,
[998, 'Step Up 2: The Streets', 'Drama,Music,Romance', ..., 70699, 58.01, 50.0],
[999, 'Search Party', 'Adventure,Comedy', ..., 4881, nan, 22.0],
[1000, 'Nine Lives', 'Comedy,Family,Fantasy', ..., 12435, 19.64, 11.0]], dtype=object)

```
In [10]: df.describe
```

Out[10]:

<bound method NDFrame.describe of				Rank	Title
Genre \					
0	1	Guardians of the Galaxy	Action,Adventure,Sci-Fi		
1	2	Prometheus	Adventure,Mystery,Sci-Fi		
2	3	Split	Horror,Thriller		
3	4	Sing	Animation,Comedy,Family		
4	5	Suicide Squad	Action,Adventure,Fantasy		
..	...				
995	996	Secret in Their Eyes	Crime,Drama,Mystery		
996	997	Hostel: Part II	Horror		
997	998	Step Up 2: The Streets	Drama,Music,Romance		
998	999	Search Party	Adventure,Comedy		
999	1000	Nine Lives	Comedy,Family,Fantasy		
Description				Director \	
0	A group of intergalactic criminals are forced ...			James Gunn	
1	Following clues to the origin of mankind, a te...			Ridley Scott	
2	Three girls are kidnapped by a man with a diag...			M. Night Shyamalan	
3	In a city of humanoid animals, a hustling thea...			Christophe Lourdlet	
4	A secret government agency recruits some of th...			David Ayer	
..	
995	A tight-knit team of rising investigators, alo...			Billy Ray	
996	Three American college students studying abroa...			Eli Roth	
997	Romantic sparks occur between two dance studen...			Jon M. Chu	
998	A pair of friends embark on a mission to reuni...			Scot Armstrong	
999	A stuffy businessman finds himself trapped ins...			Barry Sonnenfeld	
Actors				Year \	
0	Chris Pratt, Vin Diesel, Bradley Cooper, Zoe S...			2014	
1	Noomi Rapace, Logan Marshall-Green, Michael Fa...			2012	
2	James McAvoy, Anya Taylor-Joy, Haley Lu Richar...			2016	
3	Matthew McConaughey,Reese Witherspoon, Seth Ma...			2016	
4	Will Smith, Jared Leto, Margot Robbie, Viola D...			2016	
..	
995	Chiwetel Ejiofor, Nicole Kidman, Julia Roberts...			2015	
996	Lauren German, Heather Matarazzo, Bijou Philli...			2007	
997	Robert Hoffman, Briana Evigan, Cassie Ventura,...			2008	
998	Adam Pally, T.J. Miller, Thomas Middleditch,Sh...			2014	
999	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...			2016	
Runtime (Minutes)				Rating	Votes
0	121	8.1	757074	333.13	76.0
1	124	7.0	485820	126.46	65.0
2	117	7.3	157606	138.12	62.0
3	108	7.2	60545	270.32	59.0
4	123	6.2	393727	325.02	40.0
..
995	111	6.2	27585	NaN	45.0
996	94	5.5	73152	17.54	46.0
997	98	6.2	70699	58.01	50.0
998	93	5.6	4881	NaN	22.0
999	87	5.3	12435	19.64	11.0

[1000 rows x 12 columns]>

Question 4: Data Selection – Indexing and Slicing data

```
In [11]: df["Title"] #series
```

```
Out[11]: 0      Guardians of the Galaxy
1              Prometheus
2              Split
3              Sing
4      Suicide Squad
...
995     Secret in Their Eyes
996           Hostel: Part II
997     Step Up 2: The Streets
998           Search Party
999           Nine Lives
Name: Title, Length: 1000, dtype: object
```

```
In [12]: df[["Title"]] #dataframe
```

Out[12]:

	Title
0	Guardians of the Galaxy
1	Prometheus
2	Split
3	Sing
4	Suicide Squad
...	...
995	Secret in Their Eyes
996	Hostel: Part II
997	Step Up 2: The Streets
998	Search Party
999	Nine Lives

1000 rows × 1 columns

```
In [13]: df[["Title", "Genre"]]
```

Out[13]:

	Title	Genre
0	Guardians of the Galaxy	Action,Adventure,Sci-Fi
1	Prometheus	Adventure,Mystery,Sci-Fi
2	Split	Horror,Thriller
3	Sing	Animation,Comedy,Family
4	Suicide Squad	Action,Adventure,Fantasy
...
995	Secret in Their Eyes	Crime,Drama,Mystery
996	Hostel: Part II	Horror
997	Step Up 2: The Streets	Drama,Music,Romance
998	Search Party	Adventure,Comedy
999	Nine Lives	Comedy,Family,Fantasy

1000 rows × 2 columns

```
In [14]: df.iloc[3,3:10]
```

Out[14]:

Description	In a city of humanoid animals, a hustling thea...
Director	Christophe Lourdelet
Actors	Matthew McConaughey, Reese Witherspoon, Seth Ma...
Year	2016
Runtime (Minutes)	108
Rating	7.2
Votes	60545

Name: 3, dtype: object

```
In [15]: df.loc[3,["Title","Genre"]]
```

Out[15]:

Title	Sing
Genre	Animation, Comedy, Family

Name: 3, dtype: object

Question 5 : Data Selection – Based on Conditional filtering

In [16]:

df[df["Year"]>2011]

Out[16]:

	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...	2015
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
...
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
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
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...	2016
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	2016

677 rows × 12 columns

In [19]:

df[df["Rating"]>8][["Title","Genre"]].head()

Out[19]:

	Title	Genre
0	Guardians of the Galaxy	Action,Adventure,Sci-Fi
6	La La Land	Comedy,Drama,Music
16	Hacksaw Ridge	Biography,Drama,History
18	Lion	Biography,Drama
26	Bahubali: The Beginning	Action,Adventure,Drama

Question 6 : Groupby operations

```
In [18]: a=df.groupby("Genre")
a.mean()
```

Out[18]:

	Rank	Year	Runtime (Minutes)	Rating	Votes	Revenue (Millions)
Genre						
Action	352.500000	2016.000000	88.000000	6.150000	8618.500000	131.560
Action,Adventure	333.000000	2011.000000	124.333333	6.400000	334459.000000	223.740
Action,Adventure,Biography	284.000000	2015.500000	131.500000	7.000000	48780.000000	16.500
Action,Adventure,Comedy	407.142857	2014.214286	109.642857	6.592857	193502.357143	95.733
Action,Adventure,Crime	396.500000	2012.333333	116.500000	6.433333	200322.833333	90.620
...
Romance,Sci-Fi,Thriller	707.000000	2011.000000	106.000000	7.100000	208632.000000	62.450
Sci-Fi	400.500000	2016.000000	106.500000	4.950000	726.500000	20.760
Sci-Fi,Thriller	513.000000	2008.000000	91.000000	5.000000	170897.000000	64.510
Thriller	681.444444	2014.777778	95.222222	5.955556	33960.222222	0.320
Thriller,War	161.000000	2016.000000	106.000000	6.000000	5926.000000	1

207 rows × 7 columns

```
In [25]: df.groupby("Year")["Rating"].mean()
```

Out[25]:

Year	
2006	7.125000
2007	7.133962
2008	6.784615
2009	6.960784
2010	6.826667
2011	6.838095
2012	6.925000
2013	6.812088
2014	6.837755
2015	6.602362
2016	6.436700
Name: Rating, dtype: float64	

Question 7 : Sorting operation

```
In [29]: a=df.sort_values(by="Rating",ascending=False)
a
```

Out[29]:

	Rank	Title	Genre	Description	Director	Actors	Year	Run (Min)
54	55	The Dark Knight	Action, Crime, Drama	When the menace known as the Joker wreaks havoc and chaos on the people of Gotham, Batman must accept that he cannot un-	Christopher Nolan	Christian Bale, Heath Ledger, Aaron Eckhart, Michael	2008	
80	81	Inception	Action, Adventure, Sci-Fi	A thief, who steals corporate secrets through the use of dream-sharing technology, is given the inverse task of planting an idea into the mind of a company.	Christopher Nolan	Leonardo DiCaprio, Joseph Gordon-Levitt, Ellen Page, Tom Hardy, Ken Watanabe, Dileep	2010	
117	118	Dangal	Action, Biography, Drama	Former wrestler Mahavir Singh Phogat and his two daughters Geeta and Babita's story who inspire them to become world class wrestlers.	Nitesh Tiwari	Aamir Khan, Sakshi Tanwar, Fatima Sana Shaikh, Vicky Kaushal, Divyanka	2016	
36	37	Interstellar	Adventure, Drama, Sci-Fi	A team of explorers travel through a wormhole in space in an attempt to ensure humanity's survival.	Christopher Nolan	Matthew McConaughey, Anne Hathaway, Jessica Chastain, Mackenzie	2014	
96	97	Kimi no na wa	Animation, Drama, Fantasy	Two strangers find themselves linked in a bizarre way when they swap bodies and memories.	Makoto Shinkai	Ryunosuke Kamiki, Mone Kamishiraishi, Ryô Nishikubo, Yûsuke Kagekura, Yûsuke	2016	
...
968	969	Wrecker	Action, Horror, Thriller	Best friends Emily and Lesley go on a road trip to the coast to celebrate their senior prom.	Micheal Bafaro	Anna Hutchison, Andrea Whitburn, Jennifer Koenig, Michael	2015	
647	648	Tall Men	Fantasy, Horror, Thriller	A challenged man is stalked by tall phantoms in a small town.	Jonathan Holbrook	Dan Crisafulli, Kay Whitney, Richard Garcia, Peter	2016	
871	872	Dragonball Evolution	Action, Adventure, Fantasy	The young warrior Son Goku sets out on a quest to find his father.	James Wong	Justin Chatwin, James Marsters, Yun-Fat Chow, Brian	2009	
42	43	Don't Fuck in the Woods	Horror	A group of friends are going on a camping trip in the woods.	Shawn Burkett	Brittany Blanton, Ayse Howard, Roman Jossart, Nicole	2016	
829	830	Disaster Movie	Comedy	Over the course of one evening, an unsuspecting group of friends are stranded in a hotel when a massive earthquake strikes.	Jason Friedberg	Carmen Electra, Vanessa Lachey, Nicole Parker, David	2008	

1000 rows × 12 columns




```
In [55]: a=df.sort_index(ascending=False)
a
```

Out[55]:

	Rank	Title	Genre	Description	Director	Actors	Year
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	2016
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
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
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth	Lauren German, Heather Matarazzo, Bijou Philli...	2007
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
...
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
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	2016
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
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
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

1000 rows × 10 columns

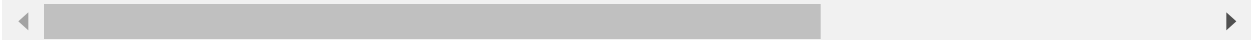


```
In [34]: df.sort_index(ascending=False)
```

Out[34]:

	Rank	Title	Genre	Description	Director	Actors	Year
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	2016
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
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
996	997	Hostel: Part II	Horror	Three American college students studying abroa...	Eli Roth	Lauren German, Heather Matarazzo, Bijou Philli...	2007
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
...
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
3	4	Sing	Animation,Comedy,Family	In a city of humanoid animals, a hustling thea...	Christophe Lourdelet	Matthew McConaughey,Reese Witherspoon, Seth Ma...	2016
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
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
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

1000 rows × 12 columns



Question 8: Dealing with missing values

```
In [41]: df.fillna(method="ffill")
```

Out[41]:

	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
...
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

1000 rows × 12 columns



Question 9 : Dropping columns and null values

```
In [49]: df=df.drop(columns=["Metascore"])
df
```

Out[49]:

	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
...
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

1000 rows × 10 columns



In [60]:

df.dropna(inplace=True)
df#dropping null values

Out[60]:

	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
...
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
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
999	1000	Nine Lives	Comedy,Family,Fantasy	A stuffy businessman finds himself trapped ins...	Barry Sonnenfeld	Kevin Spacey, Jennifer Garner, Robbie Amell,Ch...	2016

872 rows × 10 columns



Question 10 : Apply() functions

```
In [56]: df.nunique()
```

```
Out[56]: Rank          1000
         Title          999
         Genre          207
         Description    1000
         Director       644
         Actors         996
         Year            11
         Runtime (Minutes)  94
         Rating          55
         Revenue (Millions) 814
         dtype: int64
```

```
In [61]: df.isnull().sum()
```

```
Out[61]: Rank          0
         Title          0
         Genre          0
         Description    0
         Director       0
         Actors         0
         Year            0
         Runtime (Minutes)  0
         Rating          0
         Revenue (Millions) 0
         dtype: int64
```

```
In [63]: def new_rating(number):
         return number+0.2

df["Rating"].apply(new_rating)
```

```
Out[63]: 0      8.3
         1      7.2
         2      7.5
         3      7.4
         4      6.4
         ...
         993    6.1
         994    6.9
         996    5.7
         997    6.4
         999    5.5
         Name: Rating, Length: 872, dtype: float64
```