

```
In [4]: !pip3 install pandas
import pandas as pd
import numpy as np
import numpy as np
```

```
Requirement already satisfied: pandas in ./anaconda3/lib/python3.10/site-packages (1.5.3)
Requirement already satisfied: python-dateutil>=2.8.1 in ./anaconda3/lib/python3.10/site-packages (from pandas) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in ./anaconda3/lib/python3.10/site-packages (from pandas) (2022.7)
Requirement already satisfied: numpy>=1.21.0 in ./anaconda3/lib/python3.10/site-packages (from pandas) (1.23.5)
Requirement already satisfied: six>=1.5 in ./anaconda3/lib/python3.10/site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)
```

```
In [2]: import pandas as pd
import numpy as np
```

```
In [3]: data=pd.read_csv("/home/placement/Desktop/nio/movies.csv")#readin the file to analyze the data
```

```
In [4]: data.describe()
```

```
Out[4]:
```

	srno	year	rating	time
count	49590.000000	49590.000000	10814.000000	45836.000000
mean	24795.500000	2002.303428	3.451248	2628.445436
std	14315.544261	12.534555	0.495601	1604.646265
min	1.000000	1913.000000	1.400000	52.000000
25%	12398.250000	1999.000000	3.100000	1356.000000
50%	24795.500000	2007.000000	3.500000	2563.000000
75%	37192.750000	2010.000000	3.800000	2877.000000
max	49590.000000	2014.000000	4.500000	28813.000000

```
In [17]: data.head()
```

```
Out[17]:
```

	srno	movie	year	rating	time
0	1	The Nightmare Before	1993	3.9	4568.0
1	2	The Mummy	1932	3.5	4388.0
2	3	Orphans of the Storm	1921	3.2	9062.0
3	4	The Object of Beauty	1991	2.8	6150.0
4	5	Night Tide	1963	2.8	5126.0

In [18]: data.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 49590 entries, 0 to 49589
Data columns (total 5 columns):
#   Column  Non-Null Count  Dtype  
---  -
0    srno    49590 non-null     int64  
1    movie    49590 non-null     object  
2    year     49590 non-null     int64  
3    rating   10814 non-null     float64 
4    time     45836 non-null     float64 
dtypes: float64(2), int64(2), object(1)
memory usage: 1.9+ MB
```

In [19]: data["rating"].unique()

Out[19]: array([3.9, 3.5, 3.2, 2.8, 3.8, 3.4, 3.3, 3.6, 2.9, 4. , 3.7, 3.1, 3. ,
2.5, 2.7, 4.1, 2.6, 2.4, 2.2, 4.2, 2.1, 4.3, 1.9, 2.3, 4.4, nan,
2. , 1.8, 4.5, 1.7, 1.6, 1.4, 1.5])

In [20]: data.tail(5)#sho

Out[20]:

	srno	movie	year	rating	time
49585	49586	Winter Wonderland	2013	2.8	1812.0
49586	49587	Top Gear: Series 19: Africa Special	2013	NaN	6822.0
49587	49588	Fireplace For Your Home: Crackling Fireplace w...	2010	NaN	3610.0
49588	49589	Kate Plus Ei8ht	2010	2.7	NaN
49589	49590	Kate Plus Ei8ht: Season 1	2010	2.7	NaN

In [21]: data['rating'].sum()

Out[21]: 37321.799999999996

```
In [22]: data4=data.loc[(data.time>5000)]  
data4
```

```
Out[22]:
```

	srno	movie	year	rating	time	
	2	3	Orphans of the Storm	1921	3.2	9062.0
	3	4	The Object of Beauty	1991	2.8	6150.0
	4	5	Night Tide	1963	2.8	5126.0
	5	6	One Magic Christmas	1985	3.8	5333.0
	6	7	Muriel's Wedding	1994	3.5	6323.0

49564	49565	American Addict	2013	3.5	5377.0	
49579	49580	Underground: The Julian Assange Story	2012	3.7	5665.0	
49583	49584	Sunset Strip	2012	3.0	5770.0	
49584	49585	Silver Bells	2013	3.5	5287.0	
49586	49587	Top Gear: Series 19: Africa Special	2013	NaN	6822.0	

5897 rows × 5 columns

```
In [23]: dat3=data.loc[(data.rating>4.0)]  
dat3
```

```
Out[23]:
```

	srno	movie	year	rating	time
138	139	Pulp Fiction	1994	4.1	9265.0
287	288	Life Is Beautiful	1997	4.2	6973.0
302	303	Mulan: Special Edition	1998	4.2	5270.0
464	465	Forrest Gump	1994	4.3	8525.0
490	491	Braveheart	1995	4.2	10658.0
...
49548	49549	Life With Boys: Season 1	2011	4.1	NaN
49553	49554	Max Steel	2013	4.1	NaN
49555	49556	Lilyhammer: Season 1 (Recap)	2013	4.2	194.0
49570	49571	The Short Game (Trailer)	2013	4.1	156.0
49578	49579	Transformers Prime Beast Hunters: Predacons Ri...	2013	4.2	3950.0

897 rows × 5 columns

```
In [25]: da=data.loc[(data.year==2000)&(data.time>5000)]  
da
```

Out[25]:

	srno	movie	year	rating	time
409	410	Believe	2000	3.3	5767.0
416	417	The Prophecy 3: The Ascent	2000	3.4	5048.0
430	431	Scream 3	2000	3.2	7013.0
432	433	Holy Smoke	2000	3.0	6855.0
437	438	Requiem for a Dream	2000	3.9	6087.0
...
32557	32558	Shaded Places	2000	2.9	5350.0
36229	36230	The Three Stooges	2000	3.7	5256.0
37333	37334	Les Miserables: Pt. 2	2000	NaN	5170.0
37336	37337	Les Miserables: Pt. 1	2000	NaN	5194.0
39493	39494	The Prophet's Game	2000	3.2	6486.0

137 rows × 5 columns

In [26]: `data.tail(50)`

Out[26]:

	srno	movie	year	rating	time
49540	49541	Life With Boys: Season 1: This Time the Proble...	2011	NaN	1368.0
49541	49542	Life With Boys: Season 1: In the Principal's O...	2011	NaN	1368.0
49542	49543	El Fuente: 5994 MP	2013	3.5	471.0
49543	49544	Life With Boys: Season 1: Monkey Talk with Boys	2011	NaN	1368.0
49544	49545	El Fuente: 50 MP	2013	3.3	465.0
49545	49546	Bo Burnham: what.	2013	4.1	3614.0
49546	49547	Life With Boys: Season 1: A Perfect Life with ...	2011	NaN	1368.0
49547	49548	Life With Boys: Season 1: Wrestling with Boys	2011	NaN	1369.0
49548	49549	Life With Boys: Season 1	2011	4.1	NaN
49549	49550	El Fuente: 30 MP	2013	3.3	471.0
49550	49551	El Fuente: 2997 MP	2013	3.2	471.0
49551	49552	El Fuente: 25 MP	2013	3.3	465.0
49552	49553	El Fuente: 24 MP	2013	3.5	484.0
49553	49554	Max Steel	2013	4.1	NaN
49554	49555	Saving Santa	2013	3.8	5038.0
49555	49556	Lilyhammer: Season 1 (Recap)	2013	4.2	194.0
49556	49557	Shinobi Girl	2012	2.0	NaN
49557	49558	GLOW: The Story of the Gorgeous Ladies of Wres...	2012	3.7	4593.0
49558	49559	Mitt (Trailer)	2013	3.0	138.0
49559	49560	My Hope America with Billy Graham: The Cross	2013	NaN	1706.0
49560	49561	The Square (Trailer)	2014	3.6	154.0
49561	49562	My Hope America with Billy Graham	2013	3.9	NaN
49562	49563	My Hope America with Billy Graham: Defining Mo...	2013	NaN	1791.0
49563	49564	My Hope America with Billy Graham: Lose to Gain	2013	NaN	1400.0

	srno	movie	year	rating	time
49564	49565	American Addict	2013	3.5	5377.0
49565	49566	My Hope America with Billy Graham	2013	3.9	NaN
49566	49567	El Fuente: 2997 MP10	2013	2.7	470.0
49567	49568	El Fuente: 25 MP10	2013	2.9	464.0
49568	49569	El Fuente: 24 MP10	2013	2.8	484.0
49569	49570	El Fuente: 23976 MP10	2013	2.9	484.0
49570	49571	The Short Game (Trailer)	2013	4.1	156.0
49571	49572	El Fuente: 5994 MP10	2013	2.8	471.0
49572	49573	El Fuente: 50 MP10	2013	2.9	464.0
49573	49574	El Fuente: 30 MP10	2013	2.8	470.0
49574	49575	Greg Fitzsimmons: Life on Stage	2013	3.3	3671.0
49575	49576	Dave Foley: Relatively Well	2013	3.2	3446.0
49576	49577	Barbie: Life in the Dreamhouse: Barbie Life in...	2013	NaN	1390.0
49577	49578	Barbie: Life in the Dreamhouse: Barbie Life in...	2013	NaN	1458.0
49578	49579	Transformers Prime Beast Hunters: Predacons Ri...	2013	4.2	3950.0
49579	49580	Underground: The Julian Assange Story	2012	3.7	5665.0
49580	49581	Curious George: A Very Monkey Christmas	2009	3.8	3438.0
49581	49582	Mumfie's White Christmas	1996	2.4	1350.0
49582	49583	Lady Gaga & The Muppets' Holiday Spectacular	2013	3.1	3496.0
49583	49584	Sunset Strip	2012	3.0	5770.0
49584	49585	Silver Bells	2013	3.5	5287.0
49585	49586	Winter Wonderland	2013	2.8	1812.0
49586	49587	Top Gear: Series 19: Africa Special	2013	NaN	6822.0
49587	49588	Fireplace For Your Home: Crackling Fireplace w...	2010	NaN	3610.0
49588	49589	Kate Plus Ei8ht	2010	2.7	NaN
49589	49590	Kate Plus Ei8ht: Season 1	2010	2.7	NaN


```
In [27]: import pandas as pd
import numpy as np
```

Out[27]:

	srno	movie	year	rating	time
0	1	The Nightmare Before	1993	3.9	4568.0
1	2	The Mummy	1932	3.5	4388.0
2	3	Orphans of the Storm	1921	3.2	9062.0
3	4	The Object of Beauty	1991	2.8	6150.0
4	5	Night Tide	1963	2.8	5126.0
...
49585	49586	Winter Wonderland	2013	2.8	1812.0
49586	49587	Top Gear: Series 19: Africa Special	2013	NaN	6822.0
49587	49588	Fireplace For Your Home: Crackling Fireplace w...	2010	NaN	3610.0
49588	49589	Kate Plus Ei8ht	2010	2.7	NaN
49589	49590	Kate Plus Ei8ht: Season 1	2010	2.7	NaN

49590 rows × 5 columns

In [29]: `data.tail(50)`

Out[29]:

	srno	movie	year	rating	time
49540	49541	Life With Boys: Season 1: This Time the Proble...	2011	NaN	1368.0
49541	49542	Life With Boys: Season 1: In the Principal's O...	2011	NaN	1368.0
49542	49543	El Fuente: 5994 MP	2013	3.5	471.0
49543	49544	Life With Boys: Season 1: Monkey Talk with Boys	2011	NaN	1368.0
49544	49545	El Fuente: 50 MP	2013	3.3	465.0
49545	49546	Bo Burnham: what.	2013	4.1	3614.0
49546	49547	Life With Boys: Season 1: A Perfect Life with ...	2011	NaN	1368.0
49547	49548	Life With Boys: Season 1: Wrestling with Boys	2011	NaN	1369.0
49548	49549	Life With Boys: Season 1	2011	4.1	NaN
49549	49550	El Fuente: 30 MP	2013	3.3	471.0
49550	49551	El Fuente: 2997 MP	2013	3.2	471.0
49551	49552	El Fuente: 25 MP	2013	3.3	465.0
49552	49553	El Fuente: 24 MP	2013	3.5	484.0
49553	49554	Max Steel	2013	4.1	NaN
49554	49555	Saving Santa	2013	3.8	5038.0
49555	49556	Lilyhammer: Season 1 (Recap)	2013	4.2	194.0
49556	49557	Shinobi Girl	2012	2.0	NaN
49557	49558	GLOW: The Story of the Gorgeous Ladies of Wres...	2012	3.7	4593.0
49558	49559	Mitt (Trailer)	2013	3.0	138.0
49559	49560	My Hope America with Billy Graham: The Cross	2013	NaN	1706.0
49560	49561	The Square (Trailer)	2014	3.6	154.0
49561	49562	My Hope America with Billy Graham	2013	3.9	NaN
49562	49563	My Hope America with Billy Graham: Defining Mo...	2013	NaN	1791.0
49563	49564	My Hope America with Billy Graham: Lose to Gain	2013	NaN	1400.0

	srno	movie	year	rating	time
49564	49565	American Addict	2013	3.5	5377.0
49565	49566	My Hope America with Billy Graham	2013	3.9	NaN
49566	49567	El Fuente: 2997 MP10	2013	2.7	470.0
49567	49568	El Fuente: 25 MP10	2013	2.9	464.0
49568	49569	El Fuente: 24 MP10	2013	2.8	484.0
49569	49570	El Fuente: 23976 MP10	2013	2.9	484.0
49570	49571	The Short Game (Trailer)	2013	4.1	156.0
49571	49572	El Fuente: 5994 MP10	2013	2.8	471.0
49572	49573	El Fuente: 50 MP10	2013	2.9	464.0
49573	49574	El Fuente: 30 MP10	2013	2.8	470.0
49574	49575	Greg Fitzsimmons: Life on Stage	2013	3.3	3671.0
49575	49576	Dave Foley: Relatively Well	2013	3.2	3446.0
49576	49577	Barbie: Life in the Dreamhouse: Barbie Life in...	2013	NaN	1390.0
49577	49578	Barbie: Life in the Dreamhouse: Barbie Life in...	2013	NaN	1458.0
49578	49579	Transformers Prime Beast Hunters: Predacons Ri...	2013	4.2	3950.0
49579	49580	Underground: The Julian Assange Story	2012	3.7	5665.0
49580	49581	Curious George: A Very Monkey Christmas	2009	3.8	3438.0
49581	49582	Mumfie's White Christmas	1996	2.4	1350.0
49582	49583	Lady Gaga & The Muppets' Holiday Spectacular	2013	3.1	3496.0
49583	49584	Sunset Strip	2012	3.0	5770.0
49584	49585	Silver Bells	2013	3.5	5287.0
49585	49586	Winter Wonderland	2013	2.8	1812.0
49586	49587	Top Gear: Series 19: Africa Special	2013	NaN	6822.0
49587	49588	Fireplace For Your Home: Crackling Fireplace w...	2010	NaN	3610.0
49588	49589	Kate Plus Ei8ht	2010	2.7	NaN
49589	49590	Kate Plus Ei8ht: Season 1	2010	2.7	NaN

```
In [33]: data9=data.loc[(data.rating>=3.0)&(data.year>=2000)&(data.year<=2010)]
data9
```

Out[33]:

	srno	movie	year	rating	time
409	410	Believe	2000	3.3	5767.0
416	417	The Prophecy 3: The Ascent	2000	3.4	5048.0
430	431	Scream 3	2000	3.2	7013.0
431	432	The Tigger Movie	2000	3.5	4626.0
432	433	Holy Smoke	2000	3.0	6855.0
...
49320	49321	Dave Gorman Stand-Up. Live.	2010	3.4	5090.0
49333	49334	Frank Skinner Stand-Up: Live from Birmingham's...	2008	3.0	2900.0
49334	49335	Signing Time: Collection 1	2007	3.8	NaN
49394	49395	A Liga	2010	3.8	NaN
49580	49581	Curious George: A Very Monkey Christmas	2009	3.8	3438.0

4495 rows × 5 columns

```
In [36]: data0=data.sort_values('time')
data.head(10)
```

```
Out[36]:
```

	srno	movie	year	rating	time
0	1	The Nightmare Before	1993	3.9	4568.0
1	2	The Mummy	1932	3.5	4388.0
2	3	Orphans of the Storm	1921	3.2	9062.0
3	4	The Object of Beauty	1991	2.8	6150.0
4	5	Night Tide	1963	2.8	5126.0
5	6	One Magic Christmas	1985	3.8	5333.0
6	7	Muriel's Wedding	1994	3.5	6323.0
7	8	Mother's Boys	1994	3.4	5733.0
8	9	Nosferatu: Original Version	1929	3.5	5651.0
9	10	Nick of Time	1995	3.4	5333.0

```
In [37]: data0.head(10)
```

```
Out[37]:
```

	srno	movie	year	rating	time
40150	40151	Trailer: Pain	2012	3.6	52.0
41081	41082	Trailer: Get to Work	2012	3.3	55.0
41082	41083	Trailer: Give and Take	2012	3.3	66.0
43166	43167	Trailer: Emperor	2013	3.1	67.0
43330	43331	Trailer: Blood Angel	2013	4.2	69.0
40149	40150	Trailer: Lift the Veil	2012	3.6	69.0
40789	40790	Trailer: Gray Area	2012	3.7	70.0
40154	40155	Trailer: Cleave	2012	3.5	71.0
43168	43169	Trailer: Masks	2013	4.2	73.0
45745	45746	Trailer: Strip Search	2013	3.6	73.0

```
In [38]: data01=data.sort_values('rating')
data01.head(10)
```

```
Out[38]:
```

	srno	movie	year	rating	time
40934	40935	Lagegi	2007	1.4	NaN
42115	42116	Sun Yaar Chill Maar	2007	1.4	NaN
40826	40827	Lagegi	2007	1.4	NaN
42160	42161	Sun Yaar Chill Maar	2007	1.4	NaN
41396	41397	Meri Toh Lag Gayi Naukri	2011	1.5	NaN
41083	41084	Meri Toh Lag Gayi Naukri	2011	1.5	NaN
35597	35598	1313: UFO Invasion	2011	1.6	5053.0
40035	40036	Champ	2008	1.6	NaN
38729	38730	The Tulse Luper Suitcases - The TV Series	2004	1.6	NaN
41350	41351	Sid vs. Varun	2009	1.6	NaN

In [4]: data

Out[4]:

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price
0	1	lounge	51	882	25000	1	44.907242	8.611560	8900
1	2	pop	51	1186	32500	1	45.666359	12.241890	8800
2	3	sport	74	4658	142228	1	45.503300	11.417840	4200
3	4	lounge	51	2739	160000	1	40.633171	17.634609	6000
4	5	pop	73	3074	106880	1	41.903221	12.495650	5700
...
1533	1534	sport	51	3712	115280	1	45.069679	7.704920	5200
1534	1535	lounge	74	3835	112000	1	45.845692	8.666870	4600
1535	1536	pop	51	2223	60457	1	45.481541	9.413480	7500
1536	1537	lounge	51	2557	80750	1	45.000702	7.682270	5990
1537	1538	pop	51	1766	54276	1	40.323410	17.568270	7900

1538 rows × 9 columns

In [6]: data

Out[6]:

	srno	movie	year	rating	time
0	1	The Nightmare Before	1993	3.9	4568.0
1	2	The Mummy	1932	3.5	4388.0
2	3	Orphans of the Storm	1921	3.2	9062.0
3	4	The Object of Beauty	1991	2.8	6150.0
4	5	Night Tide	1963	2.8	5126.0
...
49585	49586	Winter Wonderland	2013	2.8	1812.0
49586	49587	Top Gear: Series 19: Africa Special	2013	NaN	6822.0
49587	49588	Fireplace For Your Home: Crackling Fireplace w...	2010	NaN	3610.0
49588	49589	Kate Plus Ei8ht	2010	2.7	NaN
49589	49590	Kate Plus Ei8ht: Season 1	2010	2.7	NaN

49590 rows × 5 columns


```
In [7]: data.head(10)
```

```
Out[7]:
```

	srno	movie	year	rating	time
0	1	The Nightmare Before	1993	3.9	4568.0
1	2	The Mummy	1932	3.5	4388.0
2	3	Orphans of the Storm	1921	3.2	9062.0
3	4	The Object of Beauty	1991	2.8	6150.0
4	5	Night Tide	1963	2.8	5126.0
5	6	One Magic Christmas	1985	3.8	5333.0
6	7	Muriel's Wedding	1994	3.5	6323.0
7	8	Mother's Boys	1994	3.4	5733.0
8	9	Nosferatu: Original Version	1929	3.5	5651.0
9	10	Nick of Time	1995	3.4	5333.0

```
In [11]: data=pd.read_csv("/home/placement/Downloads/sid.csv")
```

```
In [12]: data.head()
```

```
Out[12]:
```

	ID	model	engine_power	age in days	km	previous_owners	lat	lon	price
0	1	lounge	51	882	25000	1	44.907242	8.611560	8900
1	2	pop	51	1186	32500	1	45.666359	12.241890	8800
2	3	sport	74	4658	142228	1	45.503300	11.417840	4200
3	4	lounge	51	2739	160000	1	40.633171	17.634609	6000
4	5	pop	73	3074	106880	1	41.903221	12.495650	5700

```
In [10]: cor_mat=data.corr()  
cor_mat
```

/tmp/ipykernel_5378/2947089049.py:1: FutureWarning: The default value of numeric_only in DataFrame.corr is deprecated. In a future version, it will default to False. Select only valid columns or specify the value of numeric_only to silence this warning.

```
cor_mat=data.corr()
```

Out[10]:

	ID	engine_power	age_in_days	km	previous_owners	lat	lon	price
ID	1.000000	-0.034059	-0.060753	-0.006537	0.007803	-0.058207	0.058941	0.028516
engine_power	-0.034059	1.000000	0.319190	0.285495	-0.005030	0.005721	-0.005032	-0.277235
age_in_days	-0.060753	0.319190	1.000000	0.833890	0.075775	0.062982	-0.042667	-0.893328
km	-0.006537	0.285495	0.833890	1.000000	0.097539	0.035519	0.004839	-0.859373
previous_owners	0.007803	-0.005030	0.075775	0.097539	1.000000	0.001697	-0.026836	-0.076274
lat	-0.058207	0.005721	0.062982	0.035519	0.001697	1.000000	-0.766646	-0.011733
lon	0.058941	-0.005032	-0.042667	0.004839	-0.026836	-0.766646	1.000000	-0.003541
price	0.028516	-0.277235	-0.893328	-0.859373	-0.076274	-0.011733	-0.003541	1.000000

```
In [14]: data1=data.drop(["model"],axis=1)
```

```
In [15]: cor_mat=data1.corr()  
cor_mat
```

```
Out[15]:
```

	ID	engine_power	age_in_days	km	previous_owners	lat	lon	price
ID	1.000000	-0.034059	-0.060753	-0.006537	0.007803	-0.058207	0.058941	0.028516
engine_power	-0.034059	1.000000	0.319190	0.285495	-0.005030	0.005721	-0.005032	-0.277235
age_in_days	-0.060753	0.319190	1.000000	0.833890	0.075775	0.062982	-0.042667	-0.893328
km	-0.006537	0.285495	0.833890	1.000000	0.097539	0.035519	0.004839	-0.859373
previous_owners	0.007803	-0.005030	0.075775	0.097539	1.000000	0.001697	-0.026836	-0.076274
lat	-0.058207	0.005721	0.062982	0.035519	0.001697	1.000000	-0.766646	-0.011733
lon	0.058941	-0.005032	-0.042667	0.004839	-0.026836	-0.766646	1.000000	-0.003541
price	0.028516	-0.277235	-0.893328	-0.859373	-0.076274	-0.011733	-0.003541	1.000000

```
In [16]: data=pd.read_csv("/home/placement/Downloads/movies.csv")
```

In [17]: data

Out[17]:

	srno	movie	year	rating	time
0	1	The Nightmare Before	1993	3.9	4568.0
1	2	The Mummy	1932	3.5	4388.0
2	3	Orphans of the Storm	1921	3.2	9062.0
3	4	The Object of Beauty	1991	2.8	6150.0
4	5	Night Tide	1963	2.8	5126.0
...
49585	49586	Winter Wonderland	2013	2.8	1812.0
49586	49587	Top Gear: Series 19: Africa Special	2013	NaN	6822.0
49587	49588	Fireplace For Your Home: Crackling Fireplace w...	2010	NaN	3610.0
49588	49589	Kate Plus Ei8ht	2010	2.7	NaN
49589	49590	Kate Plus Ei8ht: Season 1	2010	2.7	NaN

49590 rows × 5 columns

In []: