EXPERIMENT-2

<u>AIM</u>: Write a program using *Pandas* library to create and display data frames from a CSV and explore the functionalities of dataframes.

<u>CODE and OUTPUT:</u>

(i) Loading and Printing first ten rows of dataset:

```
import pandas as pd
df = pd.read_csv("Automobile_data.csv")
df.head(10)
```

	index	company	body-style	wheel-base	length	engine-type	num-of-cylinders	horsepower	average-mileage	price
0	0	alfa-romero	convertible	88.6	168.8	dohc	four	111	21	13495.0
1	1	alfa-romero	convertible	88.6	168.8	dohc	four	111	21	16500.0
2	2	alfa-romero	hatchback	94.5	171.2	ohcv	six	154	19	16500.0
3	3	audi	sedan	99.8	176.6	ohc	four	102	24	13950.0
4	4	audi	sedan	99.4	176.6	ohc	five	115	18	17450.0
5	5	audi	sedan	99.8	177.3	ohc	five	110	19	15250.0
6	6	audi	wagon	105.8	192.7	ohc	five	110	19	18920.0
7	9	bmw	sedan	101.2	176.8	ohc	four	101	23	16430.0
8	10	bmw	sedan	101.2	176.8	ohc	four	101	23	16925.0
9	11	bmw	sedan	101.2	176.8	ohc	six	121	21	20970.0

(ii) Dropping a column:

```
df.drop('index',axis='columns', inplace=True)
```

```
df.head(10)
```

	company	body-style	wheel-base	length	engine-type	num-of-cylinders	horsepower	average-mileage	price
0	alfa-romero	convertible	88.6	168.8	dohc	four	111	21	13495.0
1	alfa-romero	convertible	88.6	168.8	dohc	four	111	21	16500.0
2	alfa-romero	hatchback	94.5	171.2	ohcv	six	154	19	16500.0
3	audi	sedan	99.8	176.6	ohc	four	102	24	13950.0
4	audi	sedan	99.4	176.6	ohc	five	115	18	17450.0
5	audi	sedan	99.8	177.3	ohc	five	110	19	15250.0
6	audi	wagon	105.8	192.7	ohc	five	110	19	18920.0
7	bmw	sedan	101.2	176.8	ohc	four	101	23	16430.0
8	bmw	sedan	101.2	176.8	ohc	four	101	23	16925.0
9	bmw	sedan	101.2	176.8	ohc	six	121	21	20970.0

(iii) Printing last five rows

```
df.tail(5)
```

	company	body-style	wheel-base	length	engine-type	num-of-cylinders	horsepower	average-mileage	price
56	volkswagen	sedan	97.3	171.7	ohc	four	85	27	7975.0
57	volkswagen	sedan	97.3	171.7	ohc	four	52	37	7995.0
58	volkswagen	sedan	97.3	171.7	ohc	four	100	26	9995.0
59	volvo	sedan	104.3	188.8	ohc	four	114	23	12940.0
60	volvo	wagon	104.3	188.8	ohc	four	114	23	13415.0

(iv) Print All Toyota Cars details

```
o1 = df.groupby('company')
toyotaDf = o1.get_group('toyota')
toyotaDf
```

	company	body-style	wheel-base	length	engine-type	num-of-cylinders	horsepower	average-mileage	price
48	toyota	hatchback	95.7	158.7	ohc	four	62	35	5348.0
49	toyota	hatchback	95.7	158.7	ohc	four	62	31	6338.0
50	toyota	hatchback	95.7	158.7	ohc	four	62	31	6488.0
51	toyota	wagon	95.7	169.7	ohc	four	62	31	6918.0
52	toyota	wagon	95.7	169.7	ohc	four	62	27	7898.0
53	toyota	wagon	95.7	169.7	ohc	four	62	27	8778.0
54	toyota	wagon	104.5	187.8	dohc	six	156	19	15750.0

(v) Count total cars per company

```
df['company'].value_counts()
```

```
toyota           7
bmw              6
mazda            5
nissan           5
audi             4
mercedes-benz    4
volkswagen       4
mitsubishi       4
alfa-romero      3
honda            3
isuzu            3
jaguar           3
chevrolet        3
porsche          3
volvo            2
dodge            2
Name: company, dtype: int64
```

(vi) Find each company's Highest price car

```
car_Manufacturers = df.groupby('company')
priceDf = car_Manufacturers['company','price'].max()
priceDf
```

company	company	price
alfa-romero	alfa-romero	16500.0
audi	audi	18920.0
bmw	bmw	41315.0
chevrolet	chevrolet	6575.0
dodge	dodge	6377.0
honda	honda	12945.0
isuzu	isuzu	6785.0
jaguar	jaguar	36000.0
mazda	mazda	18344.0
mercedes-benz	mercedes-benz	45400.0
mitsubishi	mitsubishi	8189.0
nissan	nissan	13499.0
porsche	porsche	37028.0
toyota	toyota	15750.0
volkswagen	volkswagen	9995.0
volvo	volvo	13415.0

(vii) Getting average mileage of car

```
car_Manufacturers = df.groupby('company')
mileageDf = car_Manufacturers['company','average-mileage'].mean()
mileageDf
```

company	average-mileage
alfa-romero	20.333333
audi	20.000000
bmw	19.000000
chevrolet	41.000000
dodge	31.000000
honda	26.333333
isuzu	33.333333
jaguar	14.333333
mazda	28.000000
mercedes-benz	18.000000
mitsubishi	29.500000
nissan	31.400000
porsche	17.000000
toyota	28.714286
volkswagen	31.750000
volvo	23.000000

(viii) Sort all cars by Price column

```
carsDf = df.sort_values(by=['price'])
carsDf.head(5)
```

	index	company	body-style	wheel-base	length	engine-type	num-of-cylinders	horsepower	average-mileage	price
13	16	chevrolet	hatchback	88.4	141.1	l	three	48	47	5151.0
27	36	mazda	hatchback	93.1	159.1	ohc	four	68	30	5195.0
48	66	toyota	hatchback	95.7	158.7	ohc	four	62	35	5348.0
36	49	mitsubishi	hatchback	93.7	157.3	ohc	four	68	37	5389.0
28	37	mazda	hatchback	93.1	159.1	ohc	four	68	31	6095.0

Please perform two extra dataframe functionalities not already used in this example.