

### Practical no:3

1. Summary statistics
2. Types of Variables
3. Summary statistics of income grouped by the age groups
4. Display basic statistical details on the iris dataset.

```
import pandas as pd
```

```
import numpy as np
```

```
df=pd.read_csv("C:\\Users\\SS0S03\\Desktop\\data.csv")
```

```
df
```

	Unnamed: 0	customer id	age	income	spending	score
0	0	1	19.0	42.0		NaN
1	1	2	20.0	NaN		55.0
2	2	3	28.0	NaN		NaN
3	3	4	29.0	NaN		NaN
4	4	5	23.0	NaN		NaN
5	5	6	23.0	NaN		NaN
6	6	7	NaN	NaN		NaN
7	7	8	32.0	NaN		NaN
8	8	9	43.0	NaN		NaN
9	9	10	36.0	NaN		NaN
10	10	11	NaN	NaN		NaN
11	11	12	20.0	NaN		NaN
12	12	13	19.0	NaN		NaN
13	13	14	23.0	NaN		NaN
14	14	15	49.0	NaN		NaN
15	15	16	43.0	NaN		NaN
16	16	17	NaN	NaN		NaN
17	17	18	47.0	NaN		NaN
18	18	19	49.0	NaN		NaN
19	19	20	38.0	NaN		NaN
20	20	21	NaN	NaN		NaN
21	21	22	31.0	NaN		NaN
22	22	23	33.0	NaN		NaN
23	23	24	NaN	NaN		NaN
24	24	25	NaN	NaN		NaN
25	25	26	NaN	NaN		NaN
26	26	27	NaN	NaN		NaN
27	27	28	NaN	NaN		NaN
28	28	29	40.0	NaN		NaN
29	29	30	NaN	NaN		NaN
30	30	31	21.0	NaN		NaN
31	31	32	NaN	NaN		NaN

32	32	33	NaN	NaN	NaN
33	33	34	NaN	NaN	NaN
34	34	35	21.0	NaN	NaN
35	35	36	50.0	NaN	NaN
36	36	37	29.0	NaN	NaN
37	37	38	33.0	NaN	NaN
38	38	39	28.0	NaN	NaN
39	39	40	45.0	NaN	NaN
40	40	41	40.0	NaN	NaN
41	41	42	36.0	NaN	NaN
42	42	43	36.0	NaN	NaN
43	43	44	29.0	NaN	NaN
44	44	45	29.0	NaN	NaN
45	45	46	20.0	NaN	NaN
46	46	47	33.0	NaN	NaN
47	47	48	34.0	NaN	NaN
48	48	49	22.0	NaN	NaN
49	49	50	37.0	NaN	NaN
50	50	51	19.0	NaN	NaN
51	51	52	45.0	NaN	NaN
52	52	53	45.0	NaN	NaN

```
df.mean()
```

```

Unnamed: 0      26.000
customer id      27.000
age              32.425
income           42.000
spending score   55.000
dtype: float64

```

```
df.loc[:, 'age '].mean()
```

```
32.425
```

```
df.mean(axis=1)[0:4]
```

```

0      15.5
1      19.5
2      11.0
3      12.0
dtype: float64

```

```
df.median()
```

```

Unnamed: 0      26.0
customer id      27.0
age              32.5
income           42.0
spending score   55.0
dtype: float64

```

```
df.loc[:, 'age '].median()
```

```
32.5
```

```
df.mode()
```

	Unnamed: 0	customer id	age	income	spending	score
0	0	1	29.0	42.0		55.0
1	1	2	NaN	NaN		NaN
2	2	3	NaN	NaN		NaN
3	3	4	NaN	NaN		NaN
4	4	5	NaN	NaN		NaN
5	5	6	NaN	NaN		NaN
6	6	7	NaN	NaN		NaN
7	7	8	NaN	NaN		NaN
8	8	9	NaN	NaN		NaN
9	9	10	NaN	NaN		NaN
10	10	11	NaN	NaN		NaN
11	11	12	NaN	NaN		NaN
12	12	13	NaN	NaN		NaN
13	13	14	NaN	NaN		NaN
14	14	15	NaN	NaN		NaN
15	15	16	NaN	NaN		NaN
16	16	17	NaN	NaN		NaN
17	17	18	NaN	NaN		NaN
18	18	19	NaN	NaN		NaN
19	19	20	NaN	NaN		NaN
20	20	21	NaN	NaN		NaN
21	21	22	NaN	NaN		NaN
22	22	23	NaN	NaN		NaN
23	23	24	NaN	NaN		NaN
24	24	25	NaN	NaN		NaN
25	25	26	NaN	NaN		NaN
26	26	27	NaN	NaN		NaN
27	27	28	NaN	NaN		NaN
28	28	29	NaN	NaN		NaN
29	29	30	NaN	NaN		NaN
30	30	31	NaN	NaN		NaN
31	31	32	NaN	NaN		NaN
32	32	33	NaN	NaN		NaN
33	33	34	NaN	NaN		NaN
34	34	35	NaN	NaN		NaN
35	35	36	NaN	NaN		NaN
36	36	37	NaN	NaN		NaN
37	37	38	NaN	NaN		NaN
38	38	39	NaN	NaN		NaN
39	39	40	NaN	NaN		NaN
40	40	41	NaN	NaN		NaN
41	41	42	NaN	NaN		NaN
42	42	43	NaN	NaN		NaN

43	43	44	NaN	NaN	NaN
44	44	45	NaN	NaN	NaN
45	45	46	NaN	NaN	NaN
46	46	47	NaN	NaN	NaN
47	47	48	NaN	NaN	NaN
48	48	49	NaN	NaN	NaN
49	49	50	NaN	NaN	NaN
50	50	51	NaN	NaN	NaN
51	51	52	NaN	NaN	NaN
52	52	53	NaN	NaN	NaN

```
df.loc[:, 'age '].mode()
```

```
0    29.0
```

```
Name: age , dtype: float64
```

```
df.min()
```

```
Unnamed: 0    0.0
customer id    1.0
age           19.0
income         42.0
spending score 55.0
dtype: float64
```

```
df.loc[:, 'age '].min(skipna = False)
```

```
nan
```

```
df.max()
```

```
Unnamed: 0    52.0
customer id    53.0
age           50.0
income         42.0
spending score 55.0
dtype: float64
```

```
df.loc[:, 'age '].max(skipna = False)
```

```
nan
```

```
df.std()
```

```
Unnamed: 0    15.443445
customer id    15.443445
age           9.747814
income         NaN
spending score NaN
dtype: float64
```

```
df.loc[:, 'age '].std()
```

```
9.747813693073532
```

```
df.std(axis=1)[0:4]
```

```
0    19.706175
```

```
1    25.225648
```

```
2    14.730920
```

```
3    14.730920
```

```
dtype: float64
```

```
df.groupby(['customer id'])['age'].mean()
```

```
customer id
```

```
1      19.0
```

```
2      20.0
```

```
3      28.0
```

```
4      29.0
```

```
5      23.0
```

```
6      23.0
```

```
7      NaN
```

```
8      32.0
```

```
9      43.0
```

```
10     36.0
```

```
11     NaN
```

```
12     20.0
```

```
13     19.0
```

```
14     23.0
```

```
15     49.0
```

```
16     43.0
```

```
17     NaN
```

```
18     47.0
```

```
19     49.0
```

```
20     38.0
```

```
21     NaN
```

```
22     31.0
```

```
23     33.0
```

```
24     NaN
```

```
25     NaN
```

```
26     NaN
```

```
27     NaN
```

```
28     NaN
```

```
29     40.0
```

```
30     NaN
```

```
31     21.0
```

```
32     NaN
```

```
33     NaN
```

```
34     NaN
```

```
35     21.0
```

```
36     50.0
```

```
37     29.0
```

```
38    33.0
39    28.0
40    45.0
41    40.0
42    36.0
43    36.0
44    29.0
45    29.0
46    20.0
47    33.0
48    34.0
49    22.0
50    37.0
51    19.0
52    45.0
53    45.0
```

```
Name: age , dtype: float64
```

```
df_u=df.rename(columns= {'income':' new income'},inplace=False)
df_u.groupby(['age ']).income.mean()
```

```
age
19.0    42.0
20.0     NaN
21.0     NaN
22.0     NaN
23.0     NaN
28.0     NaN
29.0     NaN
31.0     NaN
32.0     NaN
33.0     NaN
34.0     NaN
36.0     NaN
37.0     NaN
38.0     NaN
40.0     NaN
43.0     NaN
45.0     NaN
47.0     NaN
49.0     NaN
50.0     NaN
```

```
Name: income, dtype: float64
```

```
from sklearn import preprocessing
enc = preprocessing.OneHotEncoder()
enc_df = pd.DataFrame(enc.fit_transform(df[['age ']]).toarray())
enc_df
```



24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	1.0												
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
30	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
34	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
36	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	...	0.0	0.0
0.0	0.0												
38	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	1.0												
41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	1.0	0.0
0.0	0.0												
42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	1.0	0.0
0.0	0.0												
43	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
44	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
45	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	...	0.0	0.0
0.0	0.0												



49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	1.0
0.0	0.0												
50	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												
52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0
0.0	0.0												

	15	16	17	18	19	20
0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	1.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	1.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	1.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	1.0	0.0	0.0
15	1.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	1.0
17	0.0	0.0	1.0	0.0	0.0	0.0
18	0.0	0.0	0.0	1.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	1.0
21	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	1.0
24	0.0	0.0	0.0	0.0	0.0	1.0
25	0.0	0.0	0.0	0.0	0.0	1.0
26	0.0	0.0	0.0	0.0	0.0	1.0
27	0.0	0.0	0.0	0.0	0.0	1.0
28	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	1.0
30	0.0	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.0	0.0	1.0
32	0.0	0.0	0.0	0.0	0.0	1.0
33	0.0	0.0	0.0	0.0	0.0	1.0
34	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	1.0	0.0
36	0.0	0.0	0.0	0.0	0.0	0.0
37	0.0	0.0	0.0	0.0	0.0	0.0
38	0.0	0.0	0.0	0.0	0.0	0.0
39	0.0	1.0	0.0	0.0	0.0	0.0

```

40  0.0  0.0  0.0  0.0  0.0  0.0
41  0.0  0.0  0.0  0.0  0.0  0.0
42  0.0  0.0  0.0  0.0  0.0  0.0
43  0.0  0.0  0.0  0.0  0.0  0.0
44  0.0  0.0  0.0  0.0  0.0  0.0
45  0.0  0.0  0.0  0.0  0.0  0.0
46  0.0  0.0  0.0  0.0  0.0  0.0
47  0.0  0.0  0.0  0.0  0.0  0.0
48  0.0  0.0  0.0  0.0  0.0  0.0
49  0.0  0.0  0.0  0.0  0.0  0.0
50  0.0  0.0  0.0  0.0  0.0  0.0
51  0.0  1.0  0.0  0.0  0.0  0.0
52  0.0  1.0  0.0  0.0  0.0  0.0

```

```
[53 rows x 21 columns]
```

```

df_encode =df_u.join(enc_df)
df_encode

```

	Unnamed: 0	customer id	age	income	spending score	0	1
2 \							
0	0	1	19.0	42.0	NaN	1.0	0.0
0.0							
1	1	2	20.0	NaN	55.0	0.0	1.0
0.0							
2	2	3	28.0	NaN	NaN	0.0	0.0
0.0							
3	3	4	29.0	NaN	NaN	0.0	0.0
0.0							
4	4	5	23.0	NaN	NaN	0.0	0.0
0.0							
5	5	6	23.0	NaN	NaN	0.0	0.0
0.0							
6	6	7	NaN	NaN	NaN	0.0	0.0
0.0							
7	7	8	32.0	NaN	NaN	0.0	0.0
0.0							
8	8	9	43.0	NaN	NaN	0.0	0.0
0.0							
9	9	10	36.0	NaN	NaN	0.0	0.0
0.0							
10	10	11	NaN	NaN	NaN	0.0	0.0
0.0							
11	11	12	20.0	NaN	NaN	0.0	1.0
0.0							
12	12	13	19.0	NaN	NaN	1.0	0.0
0.0							
13	13	14	23.0	NaN	NaN	0.0	0.0
0.0							
14	14	15	49.0	NaN	NaN	0.0	0.0

0.0							
15	15	16	43.0	NaN	NaN	0.0	0.0
0.0							
16	16	17	NaN	NaN	NaN	0.0	0.0
0.0							
17	17	18	47.0	NaN	NaN	0.0	0.0
0.0							
18	18	19	49.0	NaN	NaN	0.0	0.0
0.0							
19	19	20	38.0	NaN	NaN	0.0	0.0
0.0							
20	20	21	NaN	NaN	NaN	0.0	0.0
0.0							
21	21	22	31.0	NaN	NaN	0.0	0.0
0.0							
22	22	23	33.0	NaN	NaN	0.0	0.0
0.0							
23	23	24	NaN	NaN	NaN	0.0	0.0
0.0							
24	24	25	NaN	NaN	NaN	0.0	0.0
0.0							
25	25	26	NaN	NaN	NaN	0.0	0.0
0.0							
26	26	27	NaN	NaN	NaN	0.0	0.0
0.0							
27	27	28	NaN	NaN	NaN	0.0	0.0
0.0							
28	28	29	40.0	NaN	NaN	0.0	0.0
0.0							
29	29	30	NaN	NaN	NaN	0.0	0.0
0.0							
30	30	31	21.0	NaN	NaN	0.0	0.0
1.0							
31	31	32	NaN	NaN	NaN	0.0	0.0
0.0							
32	32	33	NaN	NaN	NaN	0.0	0.0
0.0							
33	33	34	NaN	NaN	NaN	0.0	0.0
0.0							
34	34	35	21.0	NaN	NaN	0.0	0.0
1.0							
35	35	36	50.0	NaN	NaN	0.0	0.0
0.0							
36	36	37	29.0	NaN	NaN	0.0	0.0
0.0							
37	37	38	33.0	NaN	NaN	0.0	0.0
0.0							
38	38	39	28.0	NaN	NaN	0.0	0.0
0.0							

39	39	40	45.0	NaN	NaN	0.0	0.0						
0.0													
40	40	41	40.0	NaN	NaN	0.0	0.0						
0.0													
41	41	42	36.0	NaN	NaN	0.0	0.0						
0.0													
42	42	43	36.0	NaN	NaN	0.0	0.0						
0.0													
43	43	44	29.0	NaN	NaN	0.0	0.0						
0.0													
44	44	45	29.0	NaN	NaN	0.0	0.0						
0.0													
45	45	46	20.0	NaN	NaN	0.0	1.0						
0.0													
46	46	47	33.0	NaN	NaN	0.0	0.0						
0.0													
47	47	48	34.0	NaN	NaN	0.0	0.0						
0.0													
48	48	49	22.0	NaN	NaN	0.0	0.0						
0.0													
49	49	50	37.0	NaN	NaN	0.0	0.0						
0.0													
50	50	51	19.0	NaN	NaN	1.0	0.0						
0.0													
51	51	52	45.0	NaN	NaN	0.0	0.0						
0.0													
52	52	53	45.0	NaN	NaN	0.0	0.0						
0.0													
	3	4	...	11	12	13	14	15	16	17	18	19	20
0	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	1.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	1.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
7	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	...	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	...	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
11	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	1.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0
15	0.0	0.0	...	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
17	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
18	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0

19	0.0	0.0	...	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
21	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
24	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
25	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
26	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
27	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
28	0.0	0.0	...	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
29	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
30	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
32	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
33	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
34	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
36	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
40	0.0	0.0	...	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
41	0.0	0.0	...	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42	0.0	0.0	...	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
43	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	1.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49	0.0	0.0	...	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
51	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
52	0.0	0.0	...	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0

[53 rows x 26 columns]

```
col_names
=['Sepal_Length', 'Sepal_Width', 'Petal_Length', 'Petal_Width', 'Species']

iris = pd.read_csv('https://archive.ics.uci.edu/ml/machine-learning-
databases/iris/iris.data', names = col_names)

irisSet = (iris['Species']== 'Iris-setosa')

print('Iris-setosa')
print(iris[irisSet].describe())
```

```
Iris-setosa
Sepal_Length  Sepal_Width  Petal_Length  Petal_Width
```

count	50.00000	50.000000	50.000000	50.00000
mean	5.00600	3.418000	1.464000	0.24400
std	0.35249	0.381024	0.173511	0.10721
min	4.30000	2.300000	1.000000	0.10000
25%	4.80000	3.125000	1.400000	0.20000
50%	5.00000	3.400000	1.500000	0.20000
75%	5.20000	3.675000	1.575000	0.30000
max	5.80000	4.400000	1.900000	0.60000

```
irisVer = (iris['Species']== 'Iris-versicolor')
```

```
print('Iris-versicolor')
```

```
print(iris[irisVer].describe())
```

Iris-versicolor

	Sepal_Length	Sepal_Width	Petal_Length	Petal_Width
count	50.000000	50.000000	50.000000	50.000000
mean	5.936000	2.770000	4.260000	1.326000
std	0.516171	0.313798	0.469911	0.197753
min	4.900000	2.000000	3.000000	1.000000
25%	5.600000	2.525000	4.000000	1.200000
50%	5.900000	2.800000	4.350000	1.300000
75%	6.300000	3.000000	4.600000	1.500000
max	7.000000	3.400000	5.100000	1.800000

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