```
import pandas as pd
```

```
iris=pd.read_csv('/content/sample_data/Iris.csv')
```

```
iris.head()
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

```
iris.tail()
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

```
#iris=iris[['ID','SepalLengthCm','SepalWidthCm','PetalLengthCm','PetalWidthCm','Species']]
iris.columns=['id','s.length','s.width','p.length','p.width','species']
```

```
iris.head()
```

	id	s.length	s.width	p.length	p.width	species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

```
iris[iris['s.width']>4]
```

	id	s.length	s.width	p.length	p.width	species
15	16	5.7	4.4	1.5	0.4	Iris-setosa
32	33	5.2	4.1	1.5	0.1	Iris-setosa
33	34	5.5	4.2	1.4	0.2	Iris-setosa

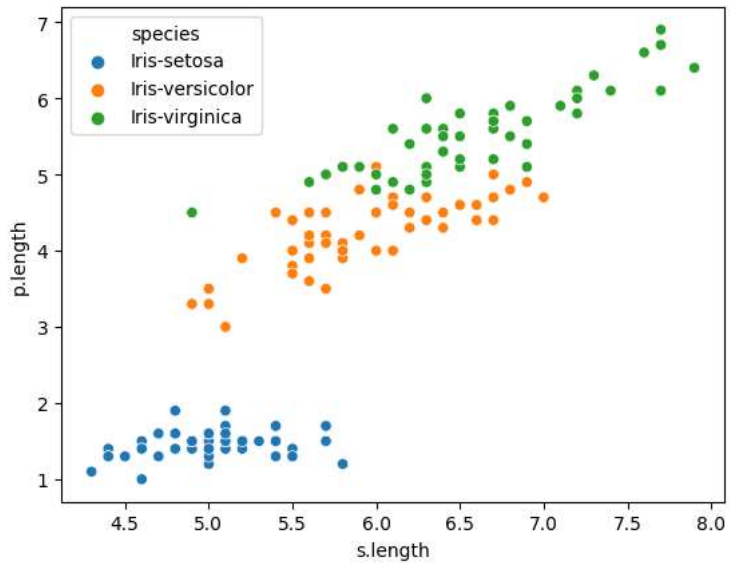
```
iris[iris['p.width']>2]
```

	id	s.length	s.width	p.length	p.width	species
100	101	6.3	3.3	6.0	2.5	Iris-virginica
102	103	7.1	3.0	5.9	2.1	Iris-virginica
104	105	6.5	3.0	5.8	2.2	Iris-virginica
105	106	7.6	3.0	6.6	2.1	Iris-virginica
109	110	7.2	3.6	6.1	2.5	Iris-virginica
112	113	6.8	3.0	5.5	2.1	Iris-virginica
114	115	5.8	2.8	5.1	2.4	Iris-virginica
115	116	6.4	3.2	5.3	2.3	Iris-virginica
117	118	7.7	3.8	6.7	2.2	Iris-virginica
118	119	7.7	2.6	6.9	2.3	Iris-virginica
120	121	6.9	3.2	5.7	2.3	Iris-virginica
124	125	6.7	3.3	5.7	2.1	Iris-virginica
128	129	6.4	2.8	5.6	2.1	Iris-virginica
132	133	6.4	2.8	5.6	2.2	Iris-virginica
135	136	7.7	3.0	6.1	2.3	Iris-virginica

```
import matplotlib.pyplot as plt
import seaborn as sns
```

```
sns.scatterplot(x='s.length',y='p.length',data=iris,hue='species')
plt.plot()
```

```
[]
```




```
y=iris[['s.length']]
x=iris[['s.width']]
```

```
from sklearn.model_selection import train_test_split
```

```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3)
```

```
x_train.head()
```

	s.width
111	2.7
22	3.6

```
x_test.head()
```

	s.width
41	2.3
29	3.2
8	2.9
14	4.0
116	3.0

```
y_train.head()
```

	s.length
111	6.4
22	4.6
27	5.2
45	4.8
143	6.8

```
y_test.head()
```

	s.length
41	4.5
29	4.7
8	4.4
14	5.8
116	6.5

```
from sklearn.linear_model import LinearRegression
```

```
lr=LinearRegression()
```

```
lr.fit(x_train,y_train)
y_pred=lr.predict(x_test)
```

```
y_pred[0:5]
```

```
array([[6.10820296],
       [5.79440091],
       [5.89900159],
       [5.51546575],
       [5.8641347 ]])
```

```
y_test.head()
```

	s.length
41	4.5
29	4.7
8	4.4
14	5.8
116	6.5

```
from sklearn.metrics import mean_squared_error
```

```
mean_squared_error(y_test,y_pred)
```

```
0.7635070070310014
```

```
y=iris[['s.length']]
x=iris[['s.width','p.width']]
```

```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3)
```

```
lr=LinearRegression()
```

```
lr.fit(x_train,y_train)
y_pred=lr.predict(x_test)
```

```
y_pred[0:5]
```

```
array([[5.40199523],
       [6.64738234],
       [4.71327828],
       [4.78485678],
       [5.69874681]])
```

```
y_test.head()
```

	s.length
57	4.9
105	7.6
41	4.5
13	4.3
82	5.8

```
mean_squared_error(y_test,y_pred)
```

```
0.21724296055163858
```

```
y=iris[['s.length']]
x=iris[['p.length','p.width']]
```

```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3)
```

```
lr=LinearRegression()
```

```
lr.fit(x_train,y_train)
```

```
▾ LinearRegression
LinearRegression()
```

```
y_pred=lr.predict(x_test)
```

```
y_pred[0:5]
```

```
array([[4.89439611],
       [6.1152248 ],
       [6.31216296],
       [5.90613102],
       [6.19211552]])
```

```
y_test.head()
```

	s.length
7	5.0
68	6.2
142	5.8
89	5.5
56	6.3

```
mean_squared_error(y_test,y_pred)
```

```
0.14811724990471348
```

```
y=iris[['s.length']]
x=iris[['s.width','p.length','p.width']]
```

```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3)
```

```
lr=LinearRegression()
```

```
lr.fit(x_train,y_train)
```

```
▾ LinearRegression
LinearRegression()
```

```
y_pred=lr.predict(x_test)
```

```
y_pred[0:5]
```

```
array([[4.6191772 ],
       [5.39178696],
       [6.09565857],
       [5.48257376],
       [6.701151  ]])
```

```
y_test.head()
```

	s.length
45	4.8
44	5.1
123	6.3
15	5.7
120	6.9

```
mean_squared_error(y_pred,y_test)
```

```
0.09266614748755732
```

+ Code + Text