```
import numpy as np
import pandas as pd
import sklearn
import matplotlib.pyplot as plt
```

```
df=pd.read_csv('/content/drive/MyDrive/Colab Notebooks/Datasets/SOCR-HeightWeight.csv')
df
```

	Index	Height(Inches)	Weight(Pounds)
0	1	65.78331	112.9925
1	2	71.51521	136.4873
2	3	69.39874	153.0269
3	4	68.21660	142.3354
4	5	67.78781	144.2971
...	...	...	...
24995	24996	69.50215	118.0312
24996	24997	64.54826	120.1932
24997	24998	64.69855	118.2655
24998	24999	67.52918	132.2682
24999	25000	68.87761	124.8742

25000 rows × 3 columns

```
df.shape
```

```
(25000, 3)
```

```
df.isna().sum()
```

```
Index             0
Height(Inches)    0
Weight(Pounds)    0
dtype: int64
```

```
df.describe
```

```
<bound method NDFrame.describe of        Index  Height(Inches)  Weight(Pounds)
0          1        65.78331        112.9925
1          2        71.51521        136.4873
2          3        69.39874        153.0269
3          4        68.21660        142.3354
4          5        67.78781        144.2971
...      ...             ...             ...
24995  24996        69.50215        118.0312
24996  24997        64.54826        120.1932
24997  24998        64.69855        118.2655
24998  24999        67.52918        132.2682
24999  25000        68.87761        124.8742

[25000 rows x 3 columns]>
```

```
df.drop(['Index'],axis=1,inplace=True)
df
```

	Height(Inches)	Weight(Pounds)
0	65.78331	112.9925
1	71.51521	136.4873
2	69.39874	153.0269
3	68.21660	142.3354
4	67.78781	144.2971

```
x=df.iloc[:,:-1].values
y=df.iloc[:,-1].values
x
```

```
array([[65.78331],
       [71.51521],
       [69.39874],
       ...,
       [64.69855],
       [67.52918],
       [68.87761]])
```

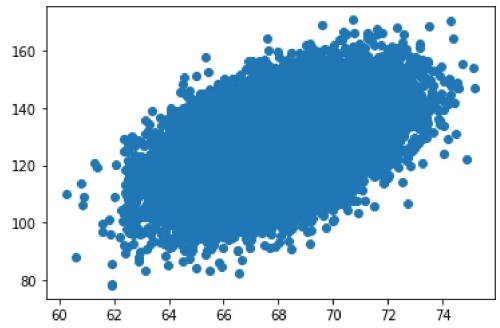
25000 rows × 2 columns

```
y
```

```
array([112.9925, 136.4873, 153.0269, ..., 118.2655, 132.2682, 124.8742])
```

```
plt.scatter(x,y)
```

```
<matplotlib.collections.PathCollection at 0x7ffba26e5d10>
```




```
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.20,random_state=1)
x_train
```

```
array([[69.51352],
       [65.01631],
       [67.06874],
       ...,
       [66.21022],
       [65.25058],
       [67.27951]])
```

```
y_train
```

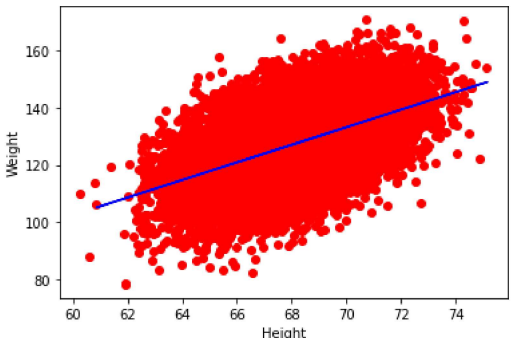
```
array([143.2796, 106.8729, 123.2887, ..., 116.362 , 127.0436, 132.9248])
```

```
#model creation
from sklearn.linear_model import LinearRegression
reg=LinearRegression()
reg.fit(x_train,y_train)
y_pred=reg.predict(x_test)
y_pred
```

```
array([132.19630264, 122.53871358, 125.09203016, ..., 125.83810113,
       124.0791552 , 120.30145616])
```

```
plt.scatter(x_train,y_train,color='red')
plt.plot(x_test,y_pred,color='blue')
plt.xlabel('Height')
plt.ylabel('Weight')
```

```
Text(0, 0.5, 'Weight')
```




```
print('Coeffience or slope',reg.coef_)
print('intercept',reg.intercept_)
```

```
Coeffience or slope [3.08230109]
intercept -82.54379211301277
```

```
predict_df=pd.DataFrame({'Actual_value':y_test,'Predicted_value':y_pred})
predict_df
```

	Actual_value	Predicted_value
0	126.5893	132.196303
1	138.7161	122.538714
2	124.0105	125.092030
3	138.6052	129.189765
4	134.4170	125.299870
...	...	...
4995	108.4437	123.020878
4996	132.7352	128.543807
4997	121.1687	125.838101
4998	127.6698	124.079155
4999	107.5309	120.301456

5000 rows × 2 columns

```
#Mean Absolute Error
from sklearn.metrics import mean_absolute_error,mean_absolute_percentage_error
print("Mean Absolute Error is ",mean_absolute_error(y_test,y_pred))
print("Error Percentage ",mean_absolute_percentage_error(y_test,y_pred))
```

```
Mean Absolute Error is  7.992415830591776
Error Percentage  0.06364888041188978
```

```
#Mean Squared Error
from sklearn.metrics import mean_squared_error
print("MSE",mean_squared_error(y_test,y_pred))
```

```
MSE 99.74259398052973
```

```
#Root Mean Squared Error
print("Root Mean Squared Error",np.sqrt(mean_squared_error(y_test,y_pred)))
```

```
Root Mean Squared Error 9.987121406117467
```