



```
In [1]: import pandas as pd
import numpy as np
import sklearn
import math
```

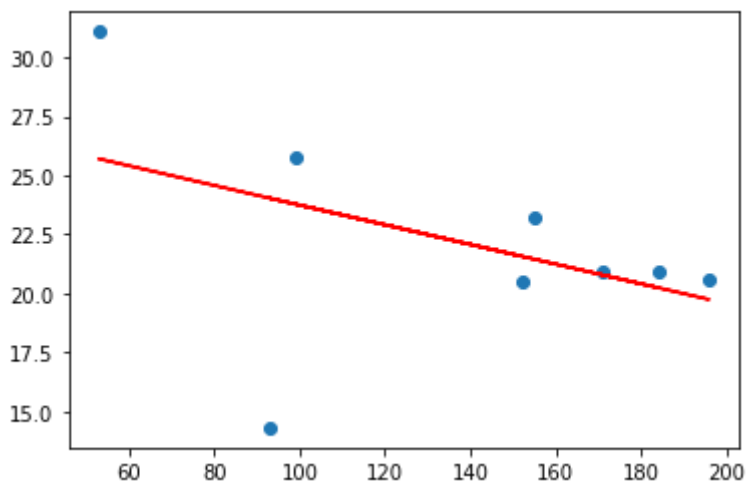
```
In [5]: # dataset 1
# 激素含量      25.8      20.5      14.3      23.2      20.6      31.1      20.9      20.9
# 使用时间      99      152      93      155      196      53      184      171

list_content = [25.8, 20.5, 14.3, 23.2, 20.6, 31.1, 20.9, 20.9]
list_time = [99, 152, 93, 155, 196, 53, 184, 171]

# 拟合线性回归模型
from sklearn.linear_model import LinearRegression
model = LinearRegression()
model.fit(np.array(list_time).reshape(-1, 1), list_content)
# 输出线性回归方程
print('y = {}x + {}'.format(model.coef_[0], model.intercept_))
print(model.coef_)
print(model.intercept_)
print(model.score(np.array(list_time).reshape(-1, 1), list_content))

# 画图
import matplotlib.pyplot as plt
plt.scatter(list_time, list_content)
plt.plot(list_time, model.predict(np.array(list_time).reshape(-1, 1)), color='red')
plt.show()
```

```
y = -0.041724696526623646x + 27.915292533608238
[-0.0417247]
27.915292533608238
0.18876190654107605
```



```
In [6]: # dataset 2
# 激素含量      16.3      11.6      11.8      32.5      32      18      24.1      26.5
# 使用时间      376      385      402      29      76      296      151      177

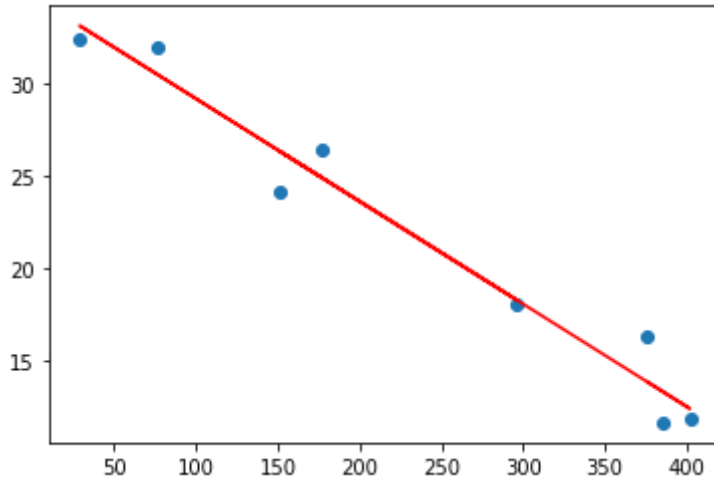
list_content = [16.3, 11.6, 11.8, 32.5, 32, 18, 24.1, 26.5]
list_time = [376, 385, 402, 29, 76, 296, 151, 177]

# 拟合线性回归模型
from sklearn.linear_model import LinearRegression
model = LinearRegression()
model.fit(np.array(list_time).reshape(-1, 1), list_content)
# 输出线性回归方程
print('y = {}x + {}'.format(model.coef_[0], model.intercept_))
print(model.coef_)
```

```
print(model.intercept_)
print(model.score(np.array(list_time).reshape(-1,1),list_content))

# 画图
import matplotlib.pyplot as plt
plt.scatter(list_time,list_content)
plt.plot(list_time,model.predict(np.array(list_time).reshape(-1,1)),color='red')
plt.show()
```

```
y = -0.055858917888370246x + 34.81063408059956
[-0.05585892]
34.81063408059956
0.9601401270879503
```



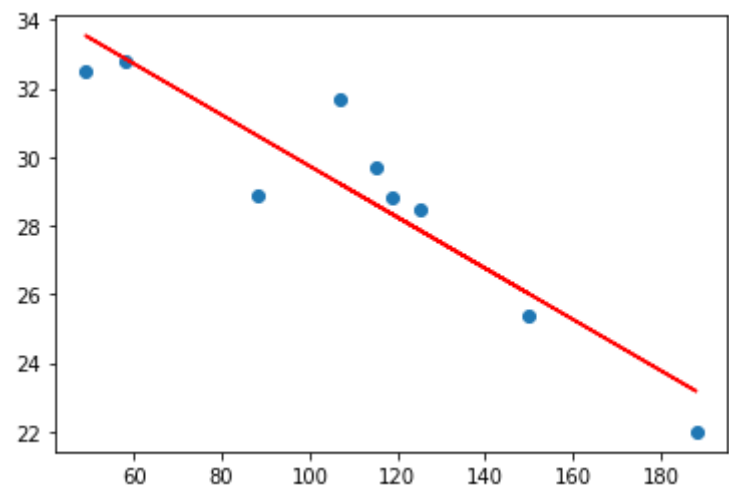
```
In [7]: # dataset 3
# 激素含量      28.8      22      29.7      28.9      32.8      32.5      25.4      31.7      28.5
# 使用时间      119      188      115      88      58      49      150      107      125

list_content = [28.8, 22, 29.7, 28.9, 32.8, 32.5, 25.4, 31.7, 28.5]
list_time = [119, 188, 115, 88, 58, 49, 150, 107, 125]
```

```
# 拟合线性回归模型
from sklearn.linear_model import LinearRegression
model = LinearRegression()
model.fit(np.array(list_time).reshape(-1,1),list_content)
# 输出线性回归方程
print('y = {}x + {}'.format(model.coef_[0],model.intercept_))
print(model.coef_)
print(model.intercept_)
print(model.score(np.array(list_time).reshape(-1,1),list_content))

# 画图
import matplotlib.pyplot as plt
plt.scatter(list_time,list_content)
plt.plot(list_time,model.predict(np.array(list_time).reshape(-1,1)),color='red')
plt.show()
```

```
y = -0.07451755561511658x + 37.19367089550016
[-0.07451756]
37.19367089550016
0.857207110146355
```



In []: