In [3]:

```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
```

In [4]:

```
data=pd.read_csv("AI_Lab1.txt")
print(data)
```

```
    population    profit
0       6.1101  17.59200
1       5.5277   9.13020
2       8.5186  13.66200
3       7.0032  11.85400
4       5.8598   6.82330
..         ...       ...
92      5.8707   7.20290
93      5.3054   1.98690
94      8.2934   0.14454
95     13.3940   9.05510
96      5.4369   0.61705

[97 rows x 2 columns]
```

In [23]:

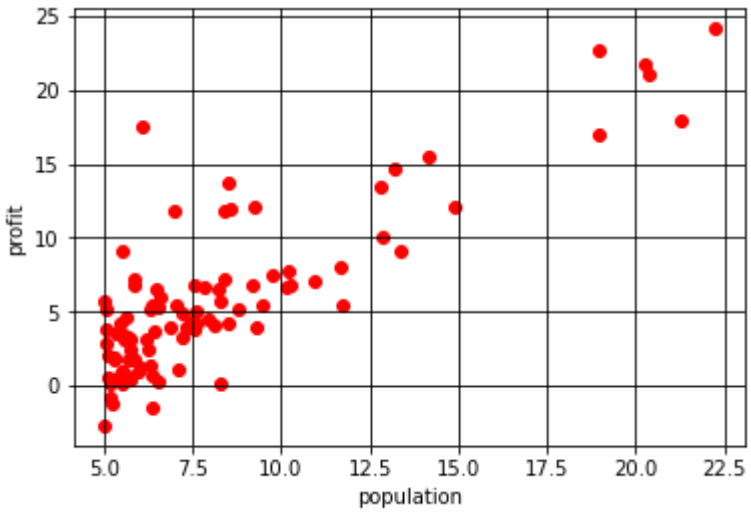
```
x=data[['population']].values
y=data[['profit']].values
```

In [28]:

```
%matplotlib inline
plt.scatter(x,y,c='r',label ='scatter_data')
plt.xlabel("population")
plt.ylabel("profit")
#plt.title('food_truck_profit_graph')
plt.grid(True,color='k')
plt.show
```

Out[28]:

```
<function matplotlib.pyplot.show(close=None, block=None)>
```



In [19]:

```
k=LinearRegression()
k.fit(x,y)
```

Out[19]:

```
LinearRegression()
```

In [8]:

```
print("C value:",k.intercept_)
print("m value:",k.coef_)
```

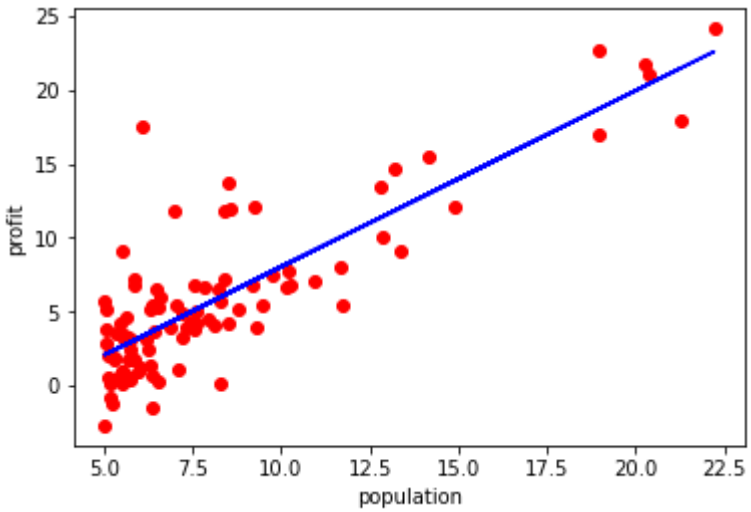
```
C value: [-3.89578088]
m value: [[1.19303364]]
```

In [9]:

```
y_pred=k.predict(x)
```

In [10]:

```
plt.scatter(x,y,color="red")
plt.plot(x,y_pred,color="blue")
plt.title=("food_truck_profit_graph")
plt.xlabel("population")
plt.ylabel("profit")
plt.show()
```



In [11]:

```
from sklearn.metrics import r2_score
r_sq=r2_score(y,y_pred)
r_sq
```

Out[11]:

```
0.7020315537841397
```

In [12]:

```
from sklearn.metrics import mean_squared_error
rmse=mean_squared_error(y,y_pred)
rmse
```

Out[12]:

```
8.953942751950358
```

In [14]:

```
n1=4.5
n2=6.5
print("profit from 45000 people city is:",k.predict([[n1]])*10000,'$')
print("profit from 65000 people city is:",k.predict([[n2]])*10000,'$')
```

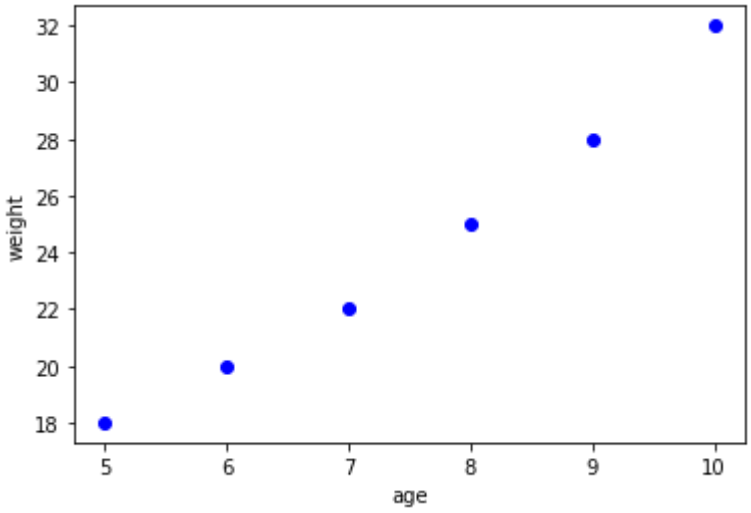
```
profit from 45000 people city is: [[14728.70520541]] $
profit from 65000 people city is: [[38589.37808921]] $
```

In [40]:

```
x=np.array([5,6,7,8,9,10]) #age
y=np.array([18,20,22,25,28,32]) #weight
x1=x.reshape(1, -1)
y1=y.reshape(1, -1)
```

In [41]:

```
plt.scatter(x1,y1,c='blue')
plt.xlabel("age")
plt.ylabel("weight")
#plt.title("age_weight")
plt.show()
```



In [43]:

```
k=LinearRegression()
k.fit(x1,y1)
```

Out[43]:

```
LinearRegression()
```

In [45]:

```
print("c value:",k.intercept_)
print("m value:",k.coef_)
```

```
c value: [18. 20. 22. 25. 28. 32.]
m value: [[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. 0. 0.]
 [0. 0. 0. 0. 0. 0.]]
```

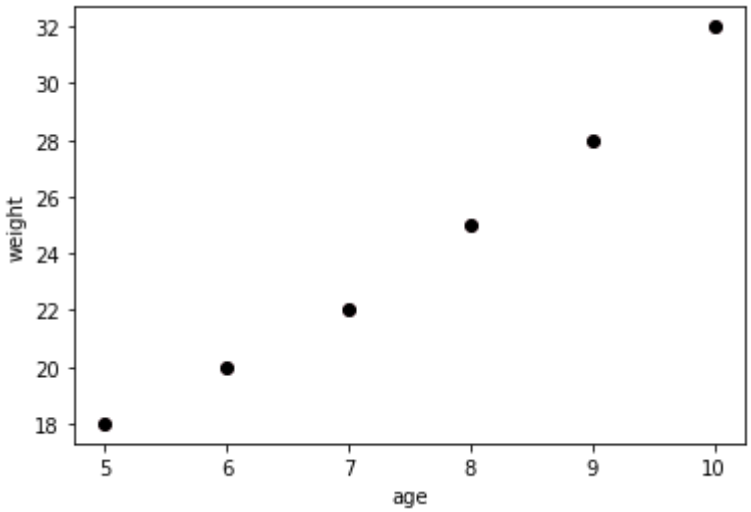
In [46]:

```
y_pred=k.predict(x1)
print(y_pred)
```

```
[[18. 20. 22. 25. 28. 32.]]
```

In [56]:

```
plt.scatter(x1,y1,color="pink")
plt.scatter(x1,y_pred,color="black")
plt.xlabel("age")
plt.ylabel("weight")
#plt.title("age_weight")
plt.show()
```



In [ ]:

```

```