In [1]:

```
from sklearn import datasets
import pandas as pd
import matplotlib.pyplot as plt
```

In [2]:

```
# Loading IRIS dataset from scikit-learn object into iris variable.
iris = datasets.load_iris()

# Prints the type/type object of iris
print(type(iris))
# <class 'sklearn.datasets.base.Bunch'>

# prints the dictionary keys of iris data
print(iris.keys())

# prints the type/type object of given attributes
print(type(iris.data), type(iris.target))

# prints the no of rows and columns in the dataset
print(iris.data.shape)

# prints the target set of the data
print(iris.target_names)

# Load iris training dataset
X = iris.data

# Load iris target set
Y = iris.target

# Convert datasets' type into dataframe
df = pd.DataFrame(X, columns=iris.feature_names)

# Print the first five tuples of dataframe.
print(df.head())
```

```
<class 'sklearn.utils.Bunch'>
dict_keys(['data', 'target', 'target_names', 'DESCR', 'feature_names'])
<class 'numpy.ndarray'> <class 'numpy.ndarray'>
(150, 4)
['setosa' 'versicolor' 'virginica']
   sepal length (cm)  sepal width (cm)  petal length (cm)  petal width (cm)
0                5.1               3.5                1.4               0.2
1                4.9               3.0                1.4               0.2
2                4.7               3.2                1.3               0.2
3                4.6               3.1                1.5               0.2
4                5.0               3.6                1.4               0.2
```

KNN

In [3]:

```
from sklearn.neighbors import KNeighborsClassifier
```

In [4]:

```
# Load iris dataset from sklearn
iris = datasets.load_iris()

# Declare an of the KNN classifier class with the value with neighbors.
knn = KNeighborsClassifier(n_neighbors=6)

# Fit the model with training data and target values
knn.fit(iris['data'], iris['target'])

# Provide data whose class labels are to be predicted
X = [
    [5.9, 1.0, 5.1, 1.8],
    [3.4, 2.0, 1.1, 4.8],
]

# Prints the data provided
print(X)

# Store predicted class labels of X
prediction = knn.predict(X)

# Prints the predicted class labels of X
print(prediction)
```

```
[[5.9, 1.0, 5.1, 1.8], [3.4, 2.0, 1.1, 4.8]]
[1 1]
```

Linear Regression

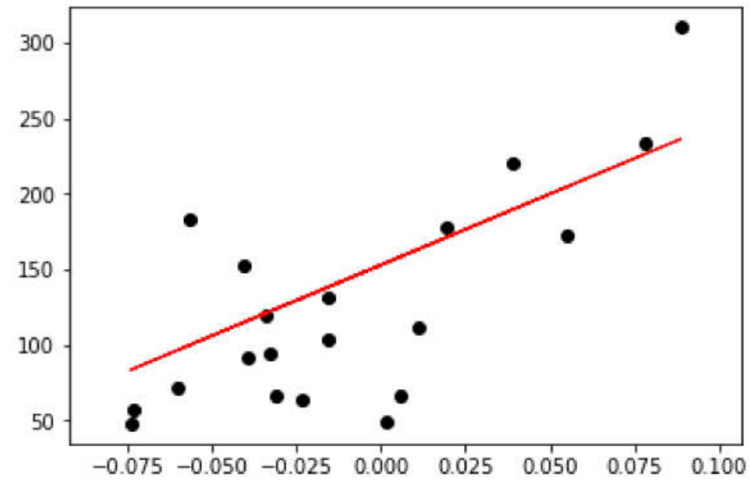
In [6]:

```
from sklearn import linear_model
import numpy as np
```

In [7]:

```
# Load the diabetes dataset
diabetes = datasets.load_diabetes()


# Use only one feature for training
diabetes_X = diabetes.data[:, np.newaxis, 2]

# Split the data into training/testing sets
diabetes_X_train = diabetes_X[:-20]
diabetes_X_test = diabetes_X[-20:]

# Split the targets into training/testing sets
diabetes_y_train = diabetes.target[:-20]
diabetes_y_test = diabetes.target[-20:]

# Create linear regression object
regr = linear_model.LinearRegression()

# Train the model using the training sets
regr.fit(diabetes_X_train, diabetes_y_train)

# Input data
print('Input Values')
print(diabetes_X_test)

# Make predictions using the testing set
diabetes_y_pred = regr.predict(diabetes_X_test)

# Predicted Data
print("Predicted Output Values")
print(diabetes_y_pred)

# Plot outputs
plt.scatter(diabetes_X_test, diabetes_y_test, color='black')
plt.plot(diabetes_X_test, diabetes_y_pred, color='red', linewidth=1)

plt.show()
```

```
Input Values
[[ 0.07786339]
 [-0.03961813]
 [ 0.01103904]
 [-0.04069594]
 [-0.03422907]
 [ 0.00564998]
 [ 0.08864151]
 [-0.03315126]
 [-0.05686312]
 [-0.03099563]
 [ 0.05522933]
 [-0.06009656]
 [ 0.00133873]
 [-0.02345095]
 [-0.07410811]
 [ 0.01966154]
 [-0.01590626]
 [-0.01590626]
 [ 0.03906215]
 [-0.0730303 ]]
Predicted Output Values
[225.9732401  115.74763374 163.27610621 114.73638965 120.80385422
 158.21988574 236.08568105 121.81509832  99.56772822 123.83758651
 204.73711411  96.53399594 154.17490936 130.91629517  83.3878227
 171.36605897 137.99500384 137.99500384 189.56845268  84.3990668 ]
```


300
250
200
150
100
50
−0.075
−0.050
−0.025
0.000
0.025
0.050
0.075
0.100