In [2]:
```
1 import pandas as pd
2 df=pd.read_csv("Boston_Housing.csv")
3 df.head(5)
```

Out[2]:

	CRIM	ZN	INDUS	CHAS	NOX	RM	AGE	DIS	RAD	TAX	PTRATIO	B	LS
0	0.00632	18.0	2.31	0	0.538	6.575	65.2	4.0900	1	296	15.3	396.90	
1	0.02731	0.0	7.07	0	0.469	6.421	78.9	4.9671	2	242	17.8	396.90	
2	0.02729	0.0	7.07	0	0.469	7.185	61.1	4.9671	2	242	17.8	392.83	
3	0.03237	0.0	2.18	0	0.458	6.998	45.8	6.0622	3	222	18.7	394.63	
4	0.06905	0.0	2.18	0	0.458	7.147	54.2	6.0622	3	222	18.7	396.90	

In [3]:
```
1 df.sample(5)
```

Out[3]:

	CRIM	ZN	INDUS	CHAS	NOX	RM	AGE	DIS	RAD	TAX	PTRATIO	B
27	0.95577	0.0	8.14	0	0.538	6.047	88.8	4.4534	4	307	21.0	306.38
419	11.81230	0.0	18.10	0	0.718	6.824	76.5	1.7940	24	666	20.2	48.45
137	0.35233	0.0	21.89	0	0.624	6.454	98.4	1.8498	4	437	21.2	394.08
201	0.03445	82.5	2.03	0	0.415	6.162	38.4	6.2700	2	348	14.7	393.77
314	0.36920	0.0	9.90	0	0.544	6.567	87.3	3.6023	4	304	18.4	395.69

In [4]:
```
1 x= df.iloc[:,:-1]
2 x.shape
```

Out[4]: (506, 13)

In [6]:
```
1 y =df.iloc[:,-1]
2 y.shape
```

Out[6]: (506,)

In [9]:
```
1 from sklearn.preprocessing import StandardScaler
```

In [12]:
```
sc = StandardScaler()
x_sc = sc.fit_transform(x)
x_sc
```

Out[12]:
```
array([[-0.41978194,  0.28482986, -1.2879095 , ..., -1.45900038,
         0.44105193, -1.0755623 ],
       [-0.41733926, -0.48772236, -0.59338101, ..., -0.30309415,
         0.44105193, -0.49243937],
       [-0.41734159, -0.48772236, -0.59338101, ..., -0.30309415,
         0.39642699, -1.2087274 ],
       ...,
       [-0.41344658, -0.48772236,  0.11573841, ...,  1.17646583,
         0.44105193, -0.98304761],
       [-0.40776407, -0.48772236,  0.11573841, ...,  1.17646583,
         0.4032249 , -0.86530163],
       [-0.41500016, -0.48772236,  0.11573841, ...,  1.17646583,
         0.44105193, -0.66905833]])
```

In [15]:
```
from sklearn.linear_model import Lasso
names = x.columns

def lasso(alphas):
    df1 = pd.DataFrame()
    df1['FeatureName'] = names
    for alpha in alphas:
        lasso = Lasso(alpha = alpha)
        lasso.fit(x_sc,y)
        column_name = 'Alpha = %f' %alpha
        df1[column_name] = lasso.coef_
    return df1
lasso([0.0001,0.001,0.01])
```

Out[15]:

	FeatureName	Alpha = 0.000100	Alpha = 0.001000	Alpha = 0.010000
0	CRIM	-0.927866	-0.925348	-0.900245
1	ZN	1.081086	1.076739	1.035916
2	INDUS	0.139960	0.131471	0.046924
3	CHAS	0.681771	0.682060	0.684152
4	NOX	-2.055877	-2.048349	-1.980551
5	RM	2.674402	2.675950	2.687312
6	AGE	0.019026	0.015049	0.000000
7	DIS	-3.103667	-3.100300	-3.058301
8	RAD	2.660381	2.643836	2.481844
9	TAX	-2.074993	-2.058853	-1.899442
10	PTRATIO	-2.060372	-2.058263	-2.038645
11	B	0.849183	0.848414	0.839724
12	LSTAT	-3.743418	-3.741514	-3.730874

In [ ]:
```

```