In [2]:
```
# Cross Validation Classification Accuracy
from pandas import read_csv
from sklearn.model_selection import KFold
from sklearn.model_selection import cross_val_score
from sklearn.linear_model import LogisticRegression
import warnings
warnings.filterwarnings("ignore")

filename = 'D:\\Dataset\pima-indians-diabetes.csv'
names = ['preg', 'plas', 'pres', 'skin', 'test', 'mass', 'pedi', 'age', 'class
dataframe = read_csv(filename, names=names)
array = dataframe.values
X = array[:,0:8]
Y = array[:,8]

kfold = KFold(n_splits=10)
model = LogisticRegression()
scoring = 'accuracy'
results = cross_val_score(model, X, Y, cv=kfold, scoring=scoring)

print(results.mean())
```

```
0.7682330827067668
```

In [4]:
```
# Cross Validation Classification LogLoss
from pandas import read_csv
from sklearn.model_selection import KFold
from sklearn.model_selection import cross_val_score
from sklearn.linear_model import LogisticRegression
import warnings
warnings.filterwarnings("ignore")

filename = 'D:\\Dataset\pima-indians-diabetes.csv'
names = ['preg', 'plas', 'pres', 'skin', 'test', 'mass', 'pedi', 'age', 'class
dataframe = read_csv(filename, names=names)
array = dataframe.values
X = array[:,0:8]
Y = array[:,8]

kfold = KFold(n_splits=10)
model = LogisticRegression()
scoring = 'neg_log_loss'
results = cross_val_score(model, X, Y, cv=kfold, scoring=scoring)

print(results.mean())
```

```
-0.48654703727988285
```

In [7]:
```
# Cross Validation Classification ROC AUC
from pandas import read_csv
from sklearn.model_selection import KFold
from sklearn.model_selection import cross_val_score
from sklearn.linear_model import LogisticRegression

import warnings
warnings.filterwarnings("ignore")

filename = 'D:\\Dataset\pima-indians-diabetes.csv'
names = ['preg', 'plas', 'pres', 'skin', 'test', 'mass', 'pedi', 'age', 'class
dataframe = read_csv(filename, names=names)
array = dataframe.values
X = array[:,0:8]
Y = array[:,8]

kfold = KFold(n_splits=10)
model = LogisticRegression()
scoring = 'roc_auc'
results = cross_val_score(model, X, Y, cv=kfold, scoring=scoring)
print(results)
print(results.mean())
```

```
[0.75416667 0.85289256 0.82626539 0.7893617  0.80962963 0.83262411
 0.79024943 0.92076923 0.85576923 0.82391304]
0.8255641001882784
```

In [9]:
```
# Cross Validation Classification Confusion Matrix
from pandas import read_csv
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import confusion_matrix
import warnings
warnings.filterwarnings("ignore")

filename = 'D:\\Dataset\pima-indians-diabetes.csv'
names = ['preg', 'plas', 'pres', 'skin', 'test', 'mass', 'pedi', 'age', 'class
dataframe = read_csv(filename, names=names)
array = dataframe.values
X = array[:,0:8]
Y = array[:,8]

test_size = 0.33

X_train, X_test, Y_train, Y_test = train_test_split(X, Y, test_size=test_size)
model = LogisticRegression()
model.fit(X_train, Y_train)
predicted = model.predict(X_test)

matrix = confusion_matrix(Y_test, predicted)
print(matrix)
```

```
[[154  14]
 [ 33  53]]
```

In [10]:
```
# Cross Validation Classification Report
from pandas import read_csv
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression #classification technique
from sklearn.metrics import classification_report
import warnings
warnings.filterwarnings("ignore")

filename = 'D:\\Dataset\pima-indians-diabetes.csv'
names = ['preg', 'plas', 'pres', 'skin', 'test', 'mass', 'pedi', 'age', 'class
dataframe = read_csv(filename, names=names)
array = dataframe.values
X = array[:,0:8]
Y = array[:,8]

test_size = 0.33
test_size = 0.33
seed = 7
X_train, X_test, Y_train, Y_test = train_test_split(X, Y, test_size=test_size,
model = LogisticRegression()
model.fit(X_train, Y_train)
predicted = model.predict(X_test)
report = classification_report(Y_test, predicted)
print(report)
```

```
              precision    recall  f1-score   support

         0.0       0.81      0.88      0.84       162
         1.0       0.74      0.63      0.68        92

    accuracy                           0.79       254
   macro avg       0.78      0.75      0.76       254
weighted avg       0.78      0.79      0.78       254
```

In [14]:
```
# Cross Validation Regression MAE
from pandas import read_csv
from sklearn.model_selection import KFold
from sklearn.model_selection import cross_val_score
from sklearn.linear_model import LinearRegression #Regression rechnique

import warnings
warnings.filterwarnings("ignore")

filename = 'D:\\Dataset\housing.csv'
names = ['CRIM', 'ZN', 'INDUS', 'CHAS', 'NOX', 'RM', 'AGE', 'DIS', 'RAD', 'TAX
dataframe = read_csv(filename, delim_whitespace=True, names=names)
array = dataframe.values
X = array[:,0:13]
Y = array[:,13]

kfold = KFold(n_splits=10)
model = LinearRegression()
scoring = 'neg_mean_absolute_error'
results = cross_val_score(model, X, Y, cv=kfold, scoring=scoring)
print(results.mean())
```

```
-4.004946635323977
```

In [15]:
```
# Cross Validation Regression MSE
from pandas import read_csv
from sklearn.model_selection import KFold
from sklearn.model_selection import cross_val_score
from sklearn.linear_model import LinearRegression #Regression rechnique

import warnings
warnings.filterwarnings("ignore")

filename = 'D:\\Dataset\housing.csv'
names = ['CRIM', 'ZN', 'INDUS', 'CHAS', 'NOX', 'RM', 'AGE', 'DIS', 'RAD', 'TAX
dataframe = read_csv(filename, delim_whitespace=True, names=names)
array = dataframe.values
X = array[:,0:13]
Y = array[:,13]

kfold = KFold(n_splits=10)
model = LinearRegression()
scoring = 'neg_mean_squared_error'
results = cross_val_score(model, X, Y, cv=kfold, scoring=scoring)
print(results.mean())
```

```
-34.705255944524815
```

In [16]:
```
# Cross Validation Regression R^2
from pandas import read_csv
from sklearn.model_selection import KFold
from sklearn.model_selection import cross_val_score
from sklearn.linear_model import LinearRegression #Regression rechnique

import warnings
warnings.filterwarnings("ignore")

filename = 'D:\\Dataset\housing.csv'
names = ['CRIM', 'ZN', 'INDUS', 'CHAS', 'NOX', 'RM', 'AGE', 'DIS', 'RAD', 'TAX
dataframe = read_csv(filename, delim_whitespace=True, names=names)
array = dataframe.values
X = array[:,0:13]
Y = array[:,13]

kfold = KFold(n_splits=10)
model = LinearRegression()
scoring = 'r2'
results = cross_val_score(model, X, Y, cv=kfold, scoring=scoring)
print(results.mean())
```

```
0.2025289900605657
```

In [ ]: