In [ ]:
```
# Author : Amir Shokri
# github link : https://github.com/amirshnll/Cryotherapy
# dataset link : http://archive.ics.uci.edu/ml/datasets/Cryotherapy+Dataset+
# email : amirsh.nll@gmail.com
```

In [21]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.metrics import classification_report, confusion_matrix, accuracy_
score
```

In [22]:
```
col_names= ['Result_of_Treatment','sex', 'age', 'Time', 'Number_of_Warts', 'Ty
pe', 'Area' ]
cry=pd.read_csv("Cryotherapy.csv",header=None, names=col_names)
```

In [23]:
```
inputs =cry.drop('Result_of_Treatment',axis='columns')
target =cry['Result_of_Treatment']
```

In [24]:
```
input_train,input_test,target_train,target_test=train_test_split(inputs,target
,test_size=0.3,random_state=1)
```

In [25]:
```
from sklearn.preprocessing import StandardScaler
scaler =StandardScaler()
scaler.fit(input_train)
input_train=scaler.transform(input_train)
input_test =scaler.transform(input_test)
```

In [51]:

```
from sklearn.neighbors import KNeighborsClassifier
best=[]
k=[1, 3, 5, 7, 9]
for i in range(len(k)):
    classifier = KNeighborsClassifier(n_neighbors=k[i])
    classifier.fit(input_train,target_train)
    y_pred = classifier.predict(input_test)
    y_pred
    result1 = classification_report(target_test,y_pred)
    print("Classification Report:",)
    print (result1)
    result2 = accuracy_score(target_test,y_pred)
    print("Accuracy",k[i],":",result2)
```

```
Classification Report:
              precision    recall  f1-score   support

           0       0.92      0.79      0.85        14
           1       0.80      0.92      0.86        13

    accuracy                           0.85        27
   macro avg       0.86      0.85      0.85        27
weighted avg       0.86      0.85      0.85        27

Accuracy 1 : 0.8518518518518519
Classification Report:
              precision    recall  f1-score   support

           0       0.92      0.79      0.85        14
           1       0.80      0.92      0.86        13

    accuracy                           0.85        27
   macro avg       0.86      0.85      0.85        27
weighted avg       0.86      0.85      0.85        27

Accuracy 3 : 0.8518518518518519
Classification Report:
              precision    recall  f1-score   support

           0       0.92      0.86      0.89        14
           1       0.86      0.92      0.89        13

    accuracy                           0.89        27
   macro avg       0.89      0.89      0.89        27
weighted avg       0.89      0.89      0.89        27

Accuracy 5 : 0.8888888888888888
Classification Report:
              precision    recall  f1-score   support

           0       0.93      0.93      0.93        14
           1       0.92      0.92      0.92        13

    accuracy                           0.93        27
   macro avg       0.93      0.93      0.93        27
weighted avg       0.93      0.93      0.93        27

Accuracy 7 : 0.9259259259259259
Classification Report:
              precision    recall  f1-score   support

           0       0.91      0.71      0.80        14
           1       0.75      0.92      0.83        13

    accuracy                           0.81        27
   macro avg       0.83      0.82      0.81        27
weighted avg       0.83      0.81      0.81        27

Accuracy 9 : 0.8148148148148148
```