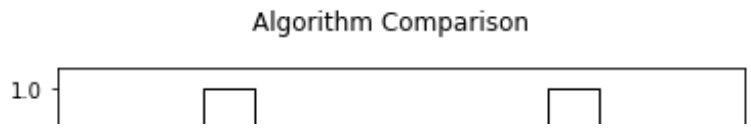
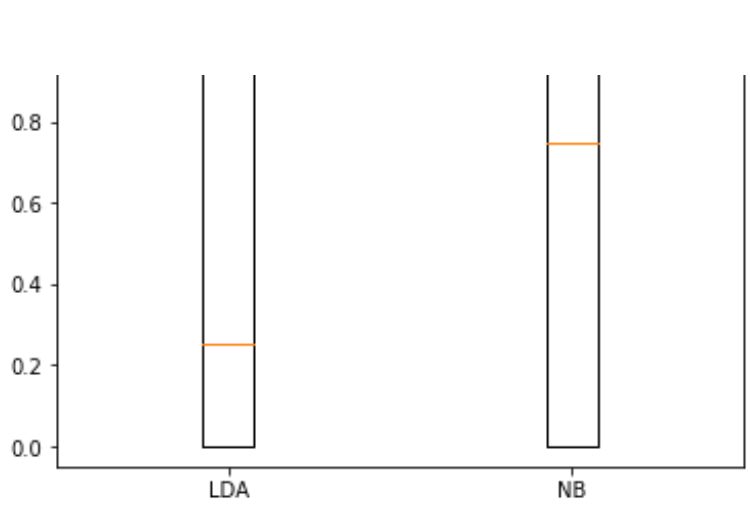
ASSIGNMENT :- NAIVE BAYES & LDA MODEL COMPARISON

In [4]:

```
#importing libraries

import numpy as np
import pandas
import matplotlib.pyplot as plt
from sklearn import model_selection
from sklearn.discriminant_analysis import LinearDiscriminantAnalysis
from sklearn.naive_bayes import GaussianNB

# load dataset
X= np.array([[-3,7],[1,5], [1,2], [-2,0], [2,3], [-4,0], [-1,1], [1,1], [-2,2
], [2,7], [-4,1], [-2,7]])
Y = np.array([3, 3, 3, 3, 4, 3, 3, 4, 3, 4, 4, 4])


# prepare configuration for cross validation test harness
seed = 7

# prepare models
models = []
models.append(('LDA', LinearDiscriminantAnalysis()))
models.append(('NB', GaussianNB()))

# evaluate each model in turn
results = []
names = []
scoring = 'accuracy'
for name, model in models:
 kfold = model_selection.KFold(n_splits=10, random_state=seed)
 cv_results = model_selection.cross_val_score(model, X, Y, cv=kfold,
scoring=scoring)
 results.append(cv_results)
 names.append(name)
 msg = "%s: %f (%f)" % (name, cv_results.mean(), cv_results.std())
 print(msg)

# boxplot algorithm comparison
fig = plt.figure()
fig.suptitle('Algorithm Comparison')
ax = fig.add_subplot(111)
plt.boxplot(results)
ax.set_xticklabels(names)
plt.show()
```

```
LDA: 0.450000 (0.471699)
NB: 0.550000 (0.471699)
```




0.8
0.6
0.4
0.2
0.0
LDA
NB