

# SML Assignment 3 Report

[LINK TO MODELS](#)

Question 4)

## PART 3

CIFAR DATASET

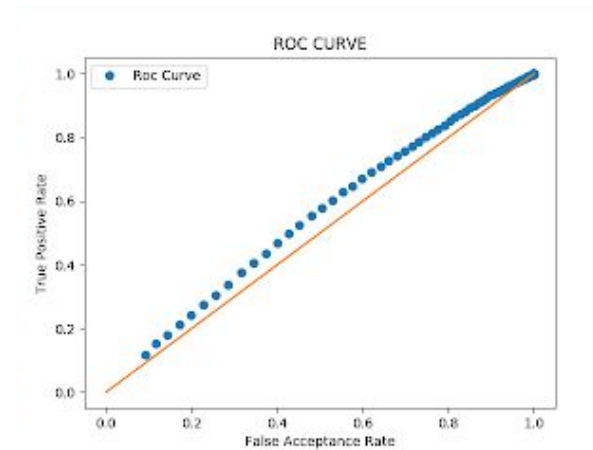
**Accuracy of 5 folds** = [14.594594594594595, 22.033898305084747, 15.544041450777202, 21.511627906976745, 20.35928143712575]

**Mean Accuracy :**

18.8086887389

**Std deviation Accuracy :**

3.11540385764



FACE\_DATA

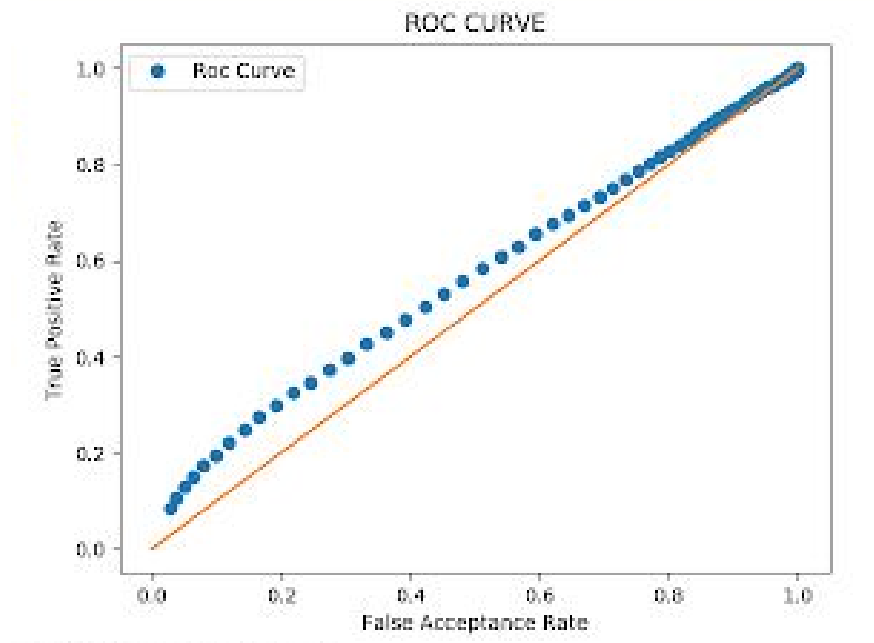
**Accuracy of 5 folds** =[50.467289719626166, 46.26168224299065, 46.728971962616825, 45.794392523364486, 43.45794392523364]

**Mean Accuracy :**

46.5420560748

**Std deviation Accuracy :**

2.26237727793



The mean accuracy of the face\_data dataset is a lot more than the mean accuracy of cifar dataset. That is because the datasets are different. One is of images and other is of objects.

PART 4)

PCA

CIFAR DATASET

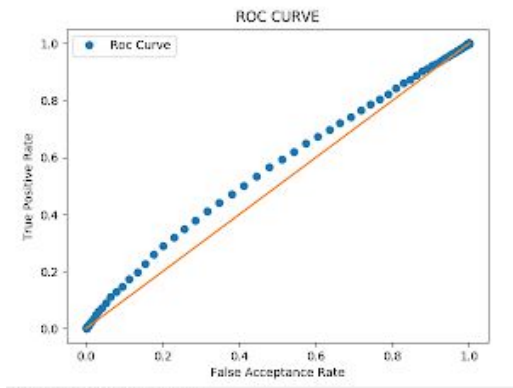
**Accuracy of 5 folds** =[23.428571428571427, 24.59016393442623, 30.813953488372093, 24.691358024691358, 32.947976878612714]

**Mean Accuracy :**

27.2944047509

**Standard Deviation of Accuracy:**

3.83101916067



## FACE DATA

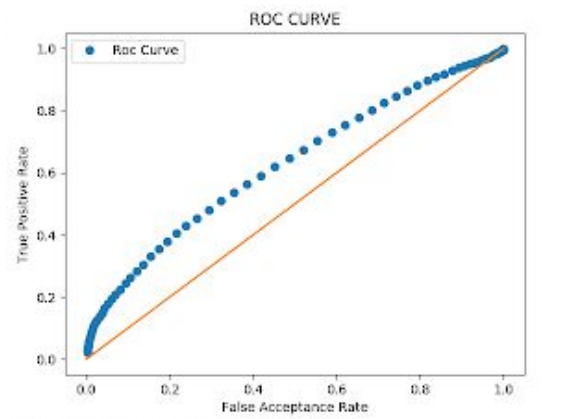
**Accuracy on 5 folds** = [60.74766355140187, 61.21495327102804, 56.54205607476636, 57.94392523364486, 57.47663551401869]

**Mean Accuracy :**

58.785046729

**Standard Deviation of Accuracy :**

1.85508721881



The accuracy obtained by applying PCA is more than LDA for both the datasets.

## PART 5)

### LDA on PCA

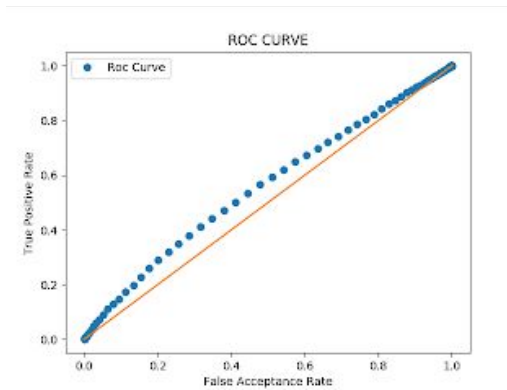
**Accuracy on 5 folds** =[26.74418604651163, 27.083333333333332, 27.84090909090909, 28.72340425531915, 29.842931937172775]

**Mean Accuracy :**

28.0469529326

**Standard Deviation of Accuracy :**

1.12706213965



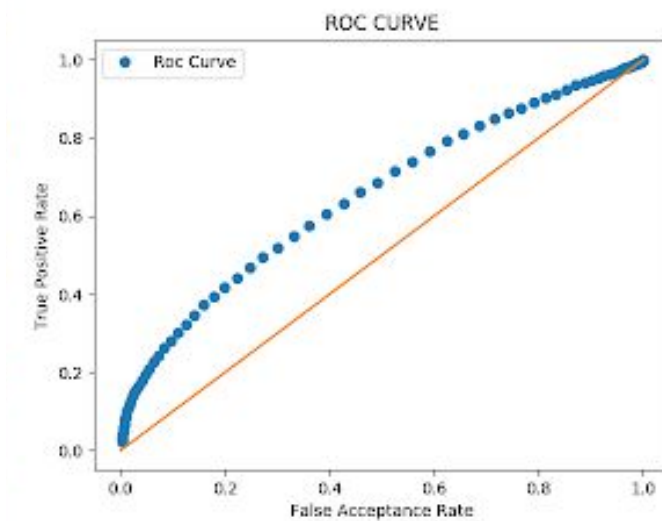
**Accuracy on 5 folds** = [64.48598130841121, 57.47663551401869, 59.81308411214953, 63.55140186915888, 59.81308411214953]

**Mean Accuracy :**

61.028037383

**Standard Deviation of Accuracy :**

2.60343706116



Applying LDA on PCA increases the mean accuracy for both the datasets

## PCA ON LDA

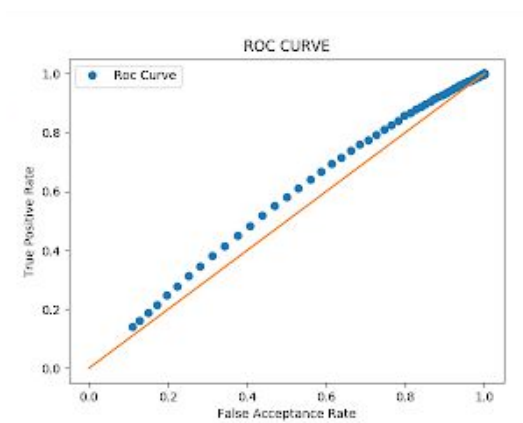
**Accuracy of 5 folds** =[32.98969072164948, 23.036649214659686, 31.666666666666668, 22.15568862275449, 29.166666666666668]

**Mean Accuracy :**

27.8030723785

**Standard Deviation of Accuracy :**

4.43394842336



## Face Data

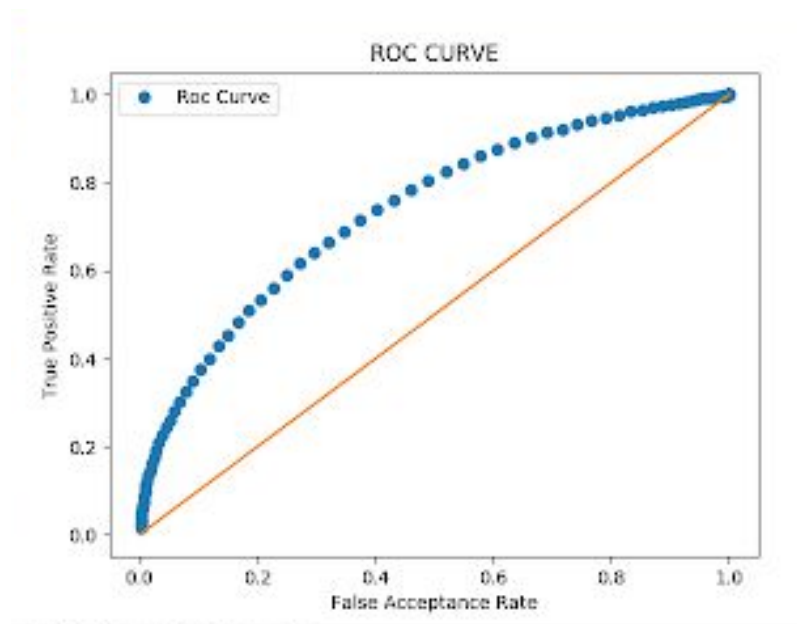
**Accuracy of 5 folds** = [70.5607476635514, 73.3644859813084, 75.23364485981308, 74.76635514018692, 73.83177570093459]

**Mean Accuracy :**

73.5514018692

**Standard Deviation of Accuracy :**

1.63484632566



Applying PCA on LDA improves it even further.