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ECE 1395
Homework 6

0c.

```
Sizes of X_trains:
X_train_1 :   (37, 4)
X_train_2 :   (45, 4)
X_train_3 :   (43, 4)
```

1a.

```
X_train Mean Values:
[[4.97297297 5.96        6.6        ]
 [3.41891892 2.76888889 2.98372093]
 [1.47027027 4.30666667 5.5627907 ]
 [0.24594595 1.33555556 2.06976744]]
X_train Standard Deviations:
[[0.35916468 0.51785884 0.64483638]
 [0.40191288 0.31398671 0.33752191]
 [0.18579975 0.42708313 0.55949448]
 [0.11293288 0.1922447  0.23970416]]
```

1c.

```
[0.11293288 0.19
Accuracy:   0.92
```

2a.

```
S1 size:  (4, 4)
[[0.13258258 0.11358108 0.02111862 0.01072072]
 [0.11358108 0.16602102 0.0153003  0.00882883]
 [0.02111862 0.0153003  0.03548048 0.00779279]
 [0.01072072 0.00882883 0.00779279 0.01310811]]
S2 size:  (4, 4)
[[0.27427273 0.08440909 0.16890909 0.05304545]
 [0.08440909 0.10082828 0.07566667 0.03976768]
 [0.16890909 0.07566667 0.18654545 0.06498485]
 [0.05304545 0.03976768 0.06498485 0.03779798]]
S3 size:  (4, 4)
[[0.42571429 0.105      0.3197619  0.04857143]
 [0.105      0.11663344 0.08342746 0.04640089]
 [0.3197619  0.08342746 0.32048726 0.05170543]
 [0.04857143 0.04640089 0.05170543 0.05882614]]
```

2b.

```
Mean 1 size:    (4, 1)
 [[4.97297297]
  [3.41891892]
  [1.47027027]
  [0.24594595]]
Mean 2 size:    (4, 1)
 [[5.96       ]
  [2.76888889]
  [4.30666667]
  [1.33555556]]
Mean 3 size:    (4, 1)
 [[6.6        ]
  [2.98372093]
  [5.5627907 ]
  [2.06976744]]
```

2d.

```
  g3_X[1, 0] = (-1/2)
 MLF accuracy:   0.96
```

MLF consistently performed slightly better than the Naive classifier, but both were usually around 90-95% accurate.