**Assignment 1**

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# **Fisher’s Linear Discriminant Analysis**

## **Results – Dataset 1 (a1\_d1)**

Let,

tp = True Positives (Positive points classified as positive)

fp = False Positives (Negative points classified as positive)

tn = True Negatives (Negative points classified as negative)

fn = False Negatives (Positive points classified as negative)

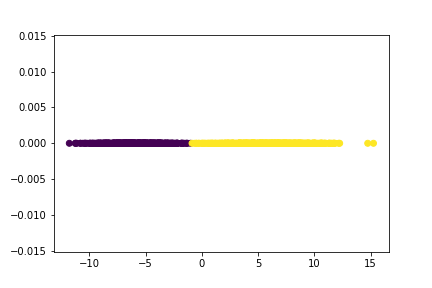
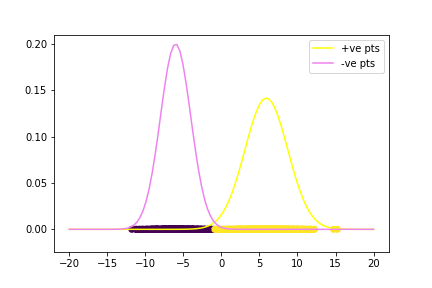
Precision = tp/(tp+fp)

Accuracy = (tp+tn)/(tp+tn+fp+fn)

Recall = tp/(tp+fn)

F-score = 2\*Precision\*Recall/(Precision+Recall)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| TP | FP | TN | FN | Accuracy | Precision | Recall | F-Score |
| 496 | 3 | 497 | 4 | 0.993 | 0.993988 | 0.992 | 0.992993 |

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From these plot we observed that the classification threshold is -0.915.

## **Results – Dataset 2 (a2\_d2)**

Let,

tp = True Positives (Positive points classified as positive)

fp = False Positives (Negative points classified as positive)

tn = True Negatives (Negative points classified as negative)

fn = False Negatives (Positive points classified as negative)

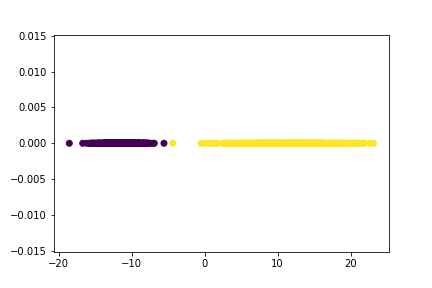
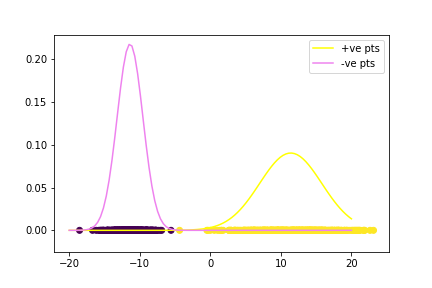
Precision = tp/(tp+fp)

Accuracy = (tp+tn)/(tp+tn+fp+fn)

Recall = tp/(tp+fn)

F-score = 2\*Precision\*Recall/(Precision+Recall)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| TP | FP | TN | FN | Accuracy | Precision | Recall | F-Score |
| 500 | 0 | 500 | 0 | 1 | 1 | 1 | 1 |

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From these plot we observed that the classification threshold is -4.4.