CSE 569: Fundamentals of Statistical Learning and Pattern Recognition

Project Part-1 Report

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Estimated parameters for the training data distribution:

Case-1: Threshold= 150

For Class '3':

$$\mu = [-0.3795 \quad 0.3585]^T \qquad \sum = \begin{bmatrix} 0.9878 & -1.0534 \\ -1.0534 & 1.2321 \end{bmatrix}$$

For Class '7':

$$\mu = [0.3715 \quad -0.3510]^T \qquad \sum = \begin{bmatrix} 1.0119 & -0.8502 \\ -0.8502 & 0.7727 \end{bmatrix}$$

Case-2: Threshold= 200

For Class '3':

$$\mu = [-0.3795 \quad 0.3067]^T \qquad \sum = \begin{bmatrix} 0.9878 & -1.0326 \\ -1.0326 & 1.2307 \end{bmatrix}$$

For Class '7':

$$\mu = [0.3715 \quad -0.3003]^T \qquad \sum = \begin{bmatrix} 1.0119 & -0.8411 \\ -0.8411 & 0.7741 \end{bmatrix}$$

Results:

Error Rates for Each Case

	THRESHOLD = 150		THRESHOLD = 200	
Assumed prior probabilities	P(3) = 0.5 P(7) = 0.5	P(3) = 0.3 P(7) = 0.7	P(3) = 0.5 P(7) = 0.5	P(3) = 0.3 P(7) = 0.7
TRAIN DATA	35.2701	37.3830	34.1877	36.4132
TEST DATA	37.5259	39.5010	36.1053	38.2189

Code outputs, plots, and other intermediate results are in the *execution.html* file