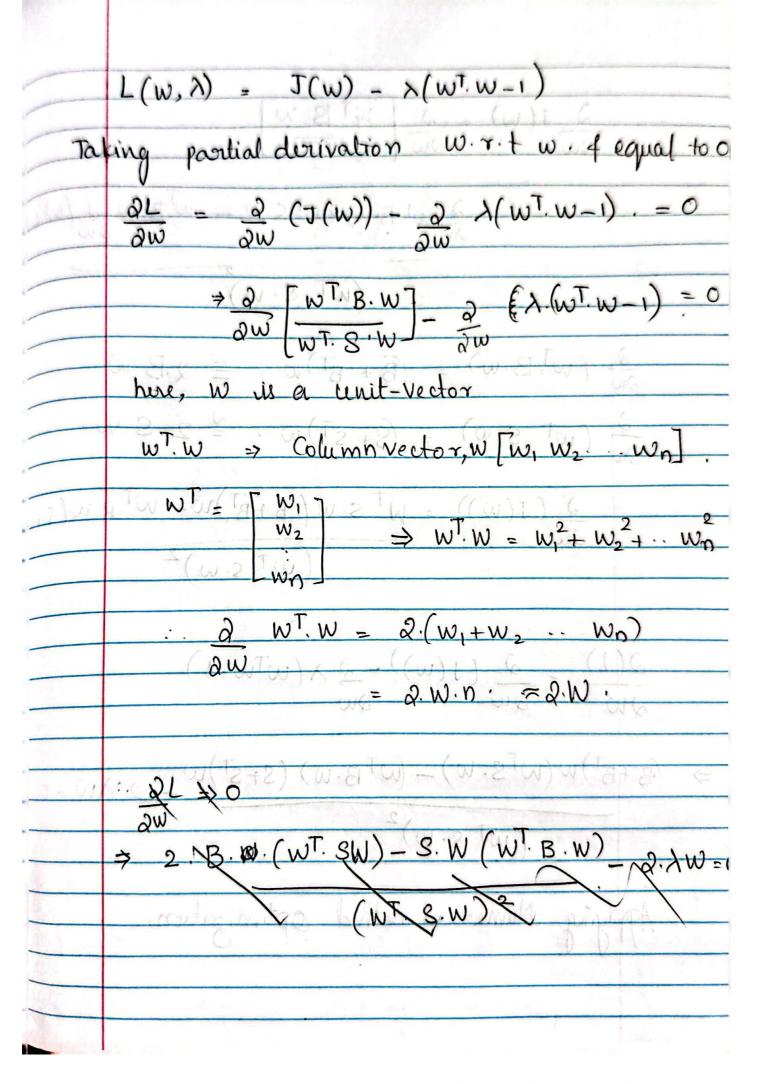
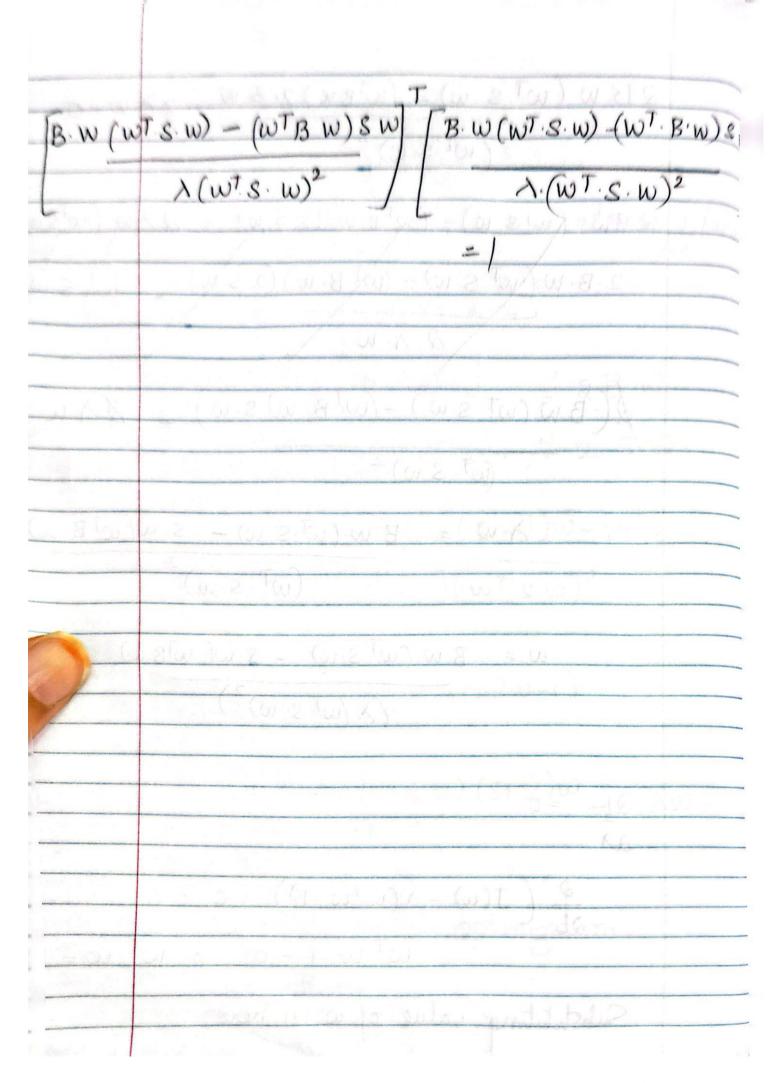
H/W 2 From the given information, we need to prove = point in the dataset ||aj-a||2- 5 ||aj-yi|

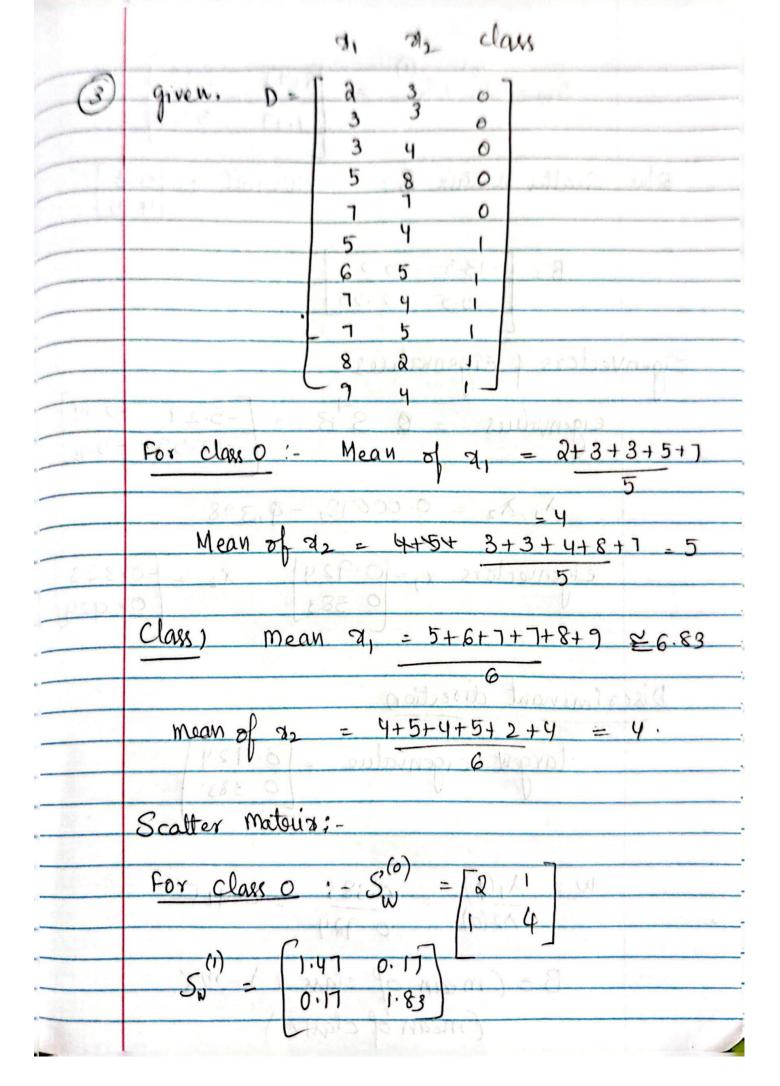
Data Mining



DWT.B.W 9 1(m) = aw (wt.B.w) xwts.w - wtb.w aw (wts (WT. g. w) (S+8T)w, = 2 S.W = WT. S. W (B+BT) W- WTB W (S+s (WIL) 6 wt. s.w)2 2 (J(w)) - 2 x (wTw-1) (8+BT) w (WTS. W) - (WTB.W) (S+ST) W\_ 2. NW = 0 (wT. s. w)2 Numerical method optimization,

```
2Bw (WT.S.W) - (WTBW) 2.S.W - 27 W=0
           (WT.S.W)2
2 Bw. (wTs.w) - (WTB.w)(2.5.W) = 2.1 m (WTSW)
  2. B.W (WT.S.W) - (WT.B.W) (2.S.W
              2. N. W
    BW (WT.SW) - (WTBW)SW)
          (WT. S. W) 2
        A.W = B.W. (wT.S.W) - S.W(wTB.W)
                        (w.s.Tw)
       w = B.w (wT.S.w) - S.w (wTBw)
                  1. (WT. S. W)
        J(w) - > (wTw-1))
                w.T.w-1=0 > w.T.w=
 Substituting value of w in here,
```





	$S_{W} = S_{W}^{(0)} + S_{W}^{(1)} = \begin{bmatrix} 8.47 & 1.17 \\ 1.17 & 5.83 \end{bmatrix}$
B/w	Scatter materia B: Overall - [5.5]
	B= [-13.5 -5.5] -5.5 -2.25
Eigen'	vectors of Eigenvalues
1188	eigenvalues = $83B = \begin{bmatrix} -5.29 & -2.19 \\ -12.59 & -5.10 \end{bmatrix}$
	1,, 1, = 0.00078, -9.398
	eigenvectors x, = (0.924) x, = [0.883] 0.924
Disc	riminant direction
	largest eigenvalue = [0.924]
	$W = \frac{\lambda_{1}(\phi)}{\lambda_{2}(0)} = \frac{0.383}{0.924} = 0.415$
	B = (mean of class 1) - mx (mean of classo)