

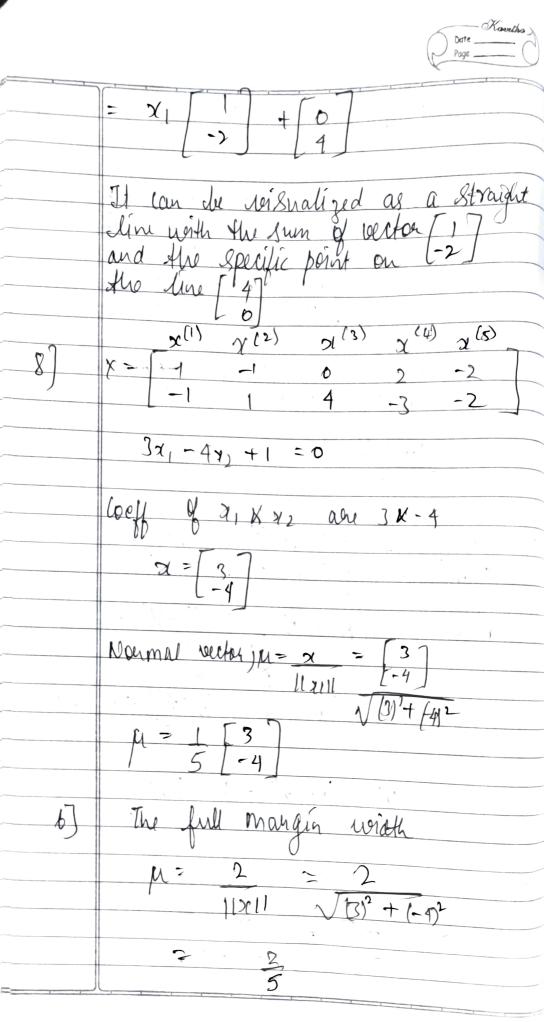
MLPA ASSIGNMENT - 01

1:
$$W = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$$
 $b = -4$, $\chi = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$
 $W^{T}2 + b = 0$

[1 23] $\begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$
 $\begin{bmatrix} x_1 \\ x_2$



| Scalar projection > wiz x (1) | |
|---|----|
| | |
| Distance of x(1) from the plane is magnified of scalar projection | |
| magnifude of scarcin polycorrow | |
| $-1\omega^{7}\chi^{(1)} = 1\omega^{7}\chi^{(1)}$ | |
| $Pristanu = \frac{1}{11} \frac{w^7 x^{(1)}}{11 w 11} = \frac{1}{11} \frac{w^7 x^{(1)}}{11 w 11}$ | - |
| | Fi |
| Distance of Sample x (1) from plane is W 7 x (1) + b = 0 | |
| W 7 x" + b = 0 | |
| => \w7x0761 | |
| 1100. | |
| $\alpha = \alpha $ | |
| Sampler > x(1), x(2) x(1) Odabel = y(1), y(2) (1) | |
| Otabel = y | |
| maximize (min of 1w7 x (1) +6/) = | |
| | |
| - (at (1) 77 (1) +b)] = V | |
| > maximize (minimize (with 1)) = 1 | 4 |
| | |
| 4(1) (W7x11) + 6) >/ | |
| | |
| 7174-44 | |
| $\chi_2 = -2\chi_1 + 4$ | |
| $X = \begin{bmatrix} \chi_1 \\ \chi_2 \end{bmatrix} = \begin{bmatrix} \chi \\ -2\chi + 4 \end{bmatrix}$ | |
| $X = \begin{bmatrix} \chi_1 \\ \chi_2 \end{bmatrix} = \begin{bmatrix} \chi_1 \\ -2\chi + 4 \end{bmatrix}$ | |



Dote Page

32, - 47,+ 1=0 Riselled distance, d= 3, 2; +b , b=1 $d_{1} = \frac{3\times1+7-4}{\sqrt{(3)^{2}+(-4)^{2}}} = \frac{8}{5}$ $\frac{d}{dx} = \frac{3(-1) + (-4) \times (1 + 1)}{\sqrt{2}} > -6$ $\frac{q_3}{3} = \frac{3 \times 0 + -4 \times 4 + 1}{5} = \frac{-15}{5} = -3$ $d_4 = \frac{3 \times 2 + (-4) \times (-3)}{5} + 1 = \frac{19}{5}$ $d_{5} = 3x-2+(-4)\times(-2)+1=\frac{3}{5}$ The Smallest distance margin is

7, dz = -]

The dangest margin 74 d4 = 19

5 3) The dot product of w X she relation on plane is always zero.

Kavitha