

MLSP

Assignment 3

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$$h_0(n) = 0, x \qquad J(0) = 1 \qquad \sum_{i=1}^{n} \left(h_0(n^{(i)}) - y^{(i)}\right)^2$$

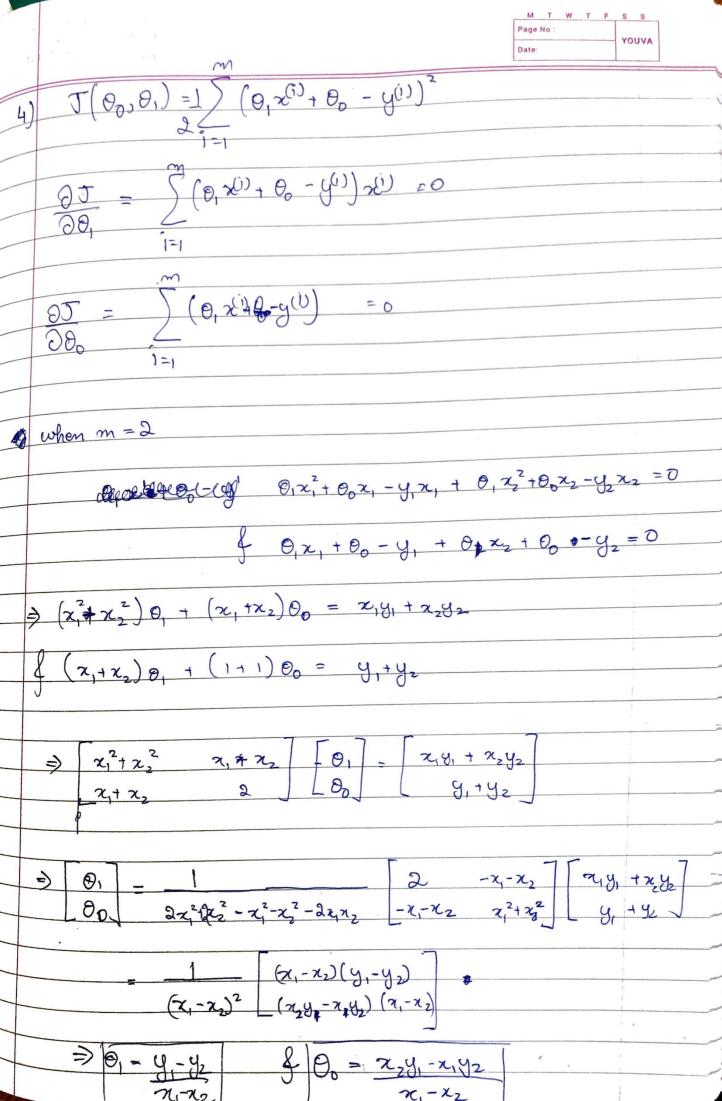
$$x = \begin{bmatrix} 1 & -1 & 2 \end{bmatrix}^T$$
 $y = \begin{bmatrix} 3 & -2 & 5 \end{bmatrix}^T$ 

$$\Rightarrow J(\theta_1) = \frac{1}{2} \left( (\theta_1 - 3)^2 + (-\theta_1 + 2)^2 + (2\theta_1 - 4)^2 \right)$$

eptimal J(0) o can be found be differentiated J(0,) WRT 0, of setting it to 0

$$\Rightarrow \partial J(\theta_1) = (\theta_1 - 3) + -(-\theta_1 + 2) + 2(2\theta_1 - 4) = 0$$

3) 
$$J(\theta_{1}) = \frac{1}{2} \sum_{j=1}^{\infty} (\theta_{1} x^{(j)} - y^{(j)})^{2}$$
 $0 J(\theta_{1}) = \sum_{j=1}^{\infty} (\theta_{1} x^{(j)} - y^{(j)}) x^{(j)} = 0$ 
 $0 = \sum_{j=1}^{\infty} (x^{(j)})^{2} = \sum_{j=1}^{\infty} x^{(j)} y^{(j)}$ 
 $J(\theta_{1}) = \sum_{j=1}^{\infty} (x^{(j)})^{2} = \sum_{j=1}^{\infty} x^{(j)} y^{(j)}$ 
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