19K41A0517

# ARTIFICIAL INTELLIGENCE

## ASSIGNMENT-4

$$E = \frac{1}{2}(y_i - mx_i - c)^2$$

$$\frac{\partial E}{\partial m} = -1 \times x_i (y_i - mx_i - c)$$

$$\frac{\partial E}{\partial c} = -1 \times (y_i - mx_i - c)$$

$m = 20,\ c = 20,\ \eta = 0.1,$ epochs $= 2$

**iter 1:**

**Sample 1:**

$\nabla m = -x_1(y_1 - mx_1 - c)$

$= 114.$

$\nabla c = -(y_1 - mx_1 - c)$

$= 15$

$m = 20 - 0.1 \times 114 = 8.6$

$c = 20 - 01 \times 15 = 18.5$

**Sample 2:**

$\Delta m = -670.524$

$\Delta c = -94.49$

$m = 75.65$

$c = 27.94$

**iter 2:**

**Sample 1:**

$\Delta m = -x_1(y_1 - mx_1 - c)$

$\doteq 3388.688$

$\Delta c = -(y_1 - mx_1 - c)$

$= -(157 - 75.65 \times 7.6 - 27.94)$

$= 445.88$

$m = -263.22.$

$c = -16.648.$

**Sample 2:**

$\Delta m = -14622.521$

$\Delta c = -2059.51$

$m = 1199.$

$c = 189.303.$