Date : Mo Tu We Th Fr Sa Su

Linear Regression:

$y = ax + b$.

for $A(x_1, y_1)$ for same value of x_1 in

$ax+b$ $\quad y < y_1$

$\therefore$ error $= y - y_1$ $\quad$ to remove +ve/-ve

$= (y - y_1)^2$

$= [(ax_1 + b) - y_1]^2$

aka cost function.

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$\therefore error(x) = \sum (ax_i + b - y_i)^2$

Gradient Descent

$\frac{de}{da} = \sum (2(ax_i + b - y_i)x_i$

if $\frac{de}{da} < 0$: a increase karo

$\frac{de}{da} > 0$: a decrease karo.

$\frac{de}{db} = \sum 2(ax_i + b - y_i)$

if $\frac{de}{db} < 0$: b increase.

$\frac{de}{db} > 0$: b decrease

take a small value say 0.01

$\therefore a = a - 0.01 \cdot \frac{de}{da}$

$b = b - 0.01 \cdot \frac{de}{db}$.