Multiple Linear Regression -

in Linear Regression -

one input parameter & 1 output para.

but in multiple Linear Regression -

multiple input parameter & 1 output para

Equation -

$$\hat{y} = w_1 x_1 + w_2 x_2 + w_3 x_3 + b$$

where - w_1, w_2, w_3 — weights
b — bias

Steps involved in Multiple linear
Regression -

① Forward Propogation -

$$\hat{y} = w_1 x_1 + w_2 x_2 + w_3 x_3 + b$$

② Cost function –

$$\text{Cost } f^n = \frac{\sum (\hat{y}-y)^2}{2n}$$

③ Gradient Descent –

for i in no. of parameters:

$$w_i' = w_i - \alpha \frac{\partial \text{Cost}}{\partial w_i}$$

$$\therefore \quad dm = \frac{\partial \text{Cost}}{\partial f} \cdot \frac{\partial f}{\partial m}$$

$$= \frac{\hat{y}-y}{n} \cdot x$$

also same for w –

$$dw_1 = \frac{\hat{y}-y}{n} \cdot x_1$$

$$dw_2 = \frac{\hat{y}-y}{n} \cdot x_2$$