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Linear Regression Model

$$\hat{y} = w_1 x_1 + \cdots + w_N x_N$$
$$\hat{y} = w^T x$$

example) predict an apartment price

- x_1 : yards
- x_2 : floor
- x_3 : ocean view (If it is ocean view, $x_3 = 1$, if not, $x_3 = 0$
- $\hat{y}$: predicted apartment price

Let's assume that the model's equation is like below,

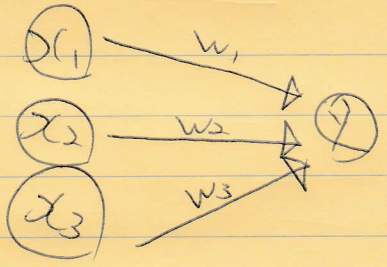
$$\hat{y} = 500x_1 + 200x_2 + 1000x_3$$

↳ we can interpret as

- if 1 yard increases, price increases 500.
- if floor increases by 1, price increases 200.
- if it has an ocean view, price increases 1000.

$$\hat{y} = [500, 200, 1000] \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = w^T x$$

↳ weight vector is $w^T = [500, 200, 1000]$



↳ Linear Regression's weakness

↳ real world data might be non-linear

↳ So, we use the "adjusted" linear model (will be explained in the other note)