PW SKILLS

① Standard Normal Distribution

Z-score

$X = \{1,2,3,4,5\}$ $\mu = 3$

$\sigma = 1.414 \approx 1$

normal dis/

gaussian dis

I want to convert this distribution in a way that $\mu = 0$, $\sigma = 1$

standard normal distribution

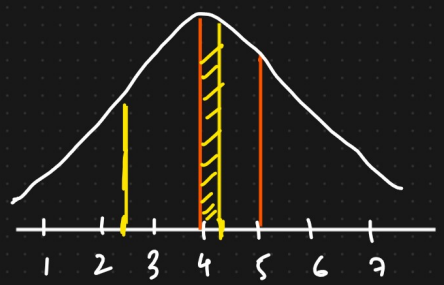
$X = \{1,2,3,4,5\}$ Z-score $= \frac{x_i - \mu}{\sigma}$ $Y = \{-2,-1,0,1,2\}$

Here $\mu = 0$, $\sigma = 1$

① $\frac{1-3}{1} = -2$ ③ $\frac{3-3}{1} = 0$

② $\frac{2-3}{1} = -1$ ④ $\frac{4-3}{1} = 1$

$X \sim SND(\mu = 0, \sigma = 1)$



$\mu = 4$

$\sigma = 1$

Q) How many standard deviation 4.25 is away from the mean?

$\mu = 4$

$x_i = 4.25$

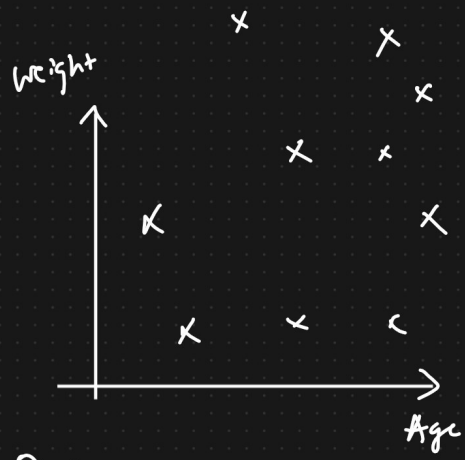
$$Z\text{-score} = \frac{4.25 - 4}{1} = 0.25$$

$x_i = 2.5$

$$Z\text{-score} = \frac{2.5 - 4}{1} = -1.5$$

Eg: Dataset

Age (years)	Weight (kg)	Height (cms)	Salary (INR)
24	70	175	40K
25	60	160	50K
25	55	180	60K
22	40	130	30K
30	30	175	20K
31	25	180	70K
⇓	⇓	⇓	⇓



① Clustering Algorithms
② Linear Regression
③ Logistic Regression

Standardization ⇒ ML Models

$$Z\text{-score} = \frac{x_i - \mu_{age}}{\sigma} \qquad \frac{x_i - \mu_{weight}}{\sigma}$$