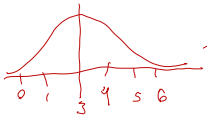
Z - score

$X = \{1, 2, 3, 4, 5\}$ $\mu = 3$ $\sigma = 1.414 \approx 1$



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

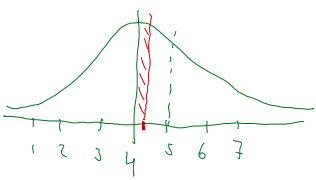
$\mu = 0, \sigma = 1$ → Values of standard distribution

$Z\text{-score} = \frac{x_i - \mu}{\sigma}$ $y = \{-2, -1, 0, 1, 2\}$

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

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

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



Question?

How many standard deviation 4.25 is away from mean?

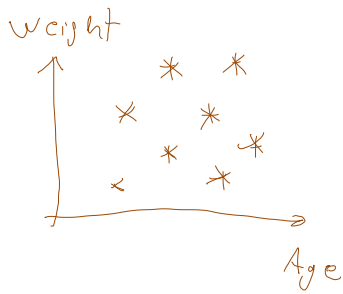
$x_i = 4.25$ $Z\text{-score} = \frac{4.25 - 4}{1} = 0.25$

$x_i = 2.5$

$Z\text{-score} = \frac{4.5 - 4}{1} = -1.5$

Example Dataset

Age	Weight	Height	Salary
24	70	175	40k
25	60	160	50k
26	55	180	60k
27	40	130	30k
30	30	175	20k
31	25	180	70k



Standerdization → ML Models

1) Clustering Algorithms
2) Linear regression
3) Logistic regression

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