Distribution:

A function that shows/gives possible outcome/value for a variable and how often they occur.

Coin Tossed, (Head & Tail)

↳ also called as (Probability distribution)

TYPES:

① Normal (✓) ② Chi-Square

③ binomial ④ Poisson

(✓) → Main focus.

Normal or Z-score:

We make data looked symmetrical. So, it becomes easy for the machine to perform a better decision by data.

$$Z = x - \bar{x} / sd$$

: sd → standard deviation

$\bar{x}$ = mean of x.

ages: [23, 21, 24, 20, 21, 23, 25, 21, 20, 19, 26, 23, 19, 20]

$$\bar{x} = 327/15 = 21.8$$

ie dispersion → mean se kitna door hai → Std + mean.

Std & Zscore : find yourself

Q data = [1,2,3,4,5] + [6,7]

Find the dispersion of every data point

[1, 2, 3, 4, 5, 6, 7]

Mean = $\bar{x}$ = 4

SD = 2

$z_1 = 1-4/2 = -1.5$

$z_2 = 2-4/2 = -1$

$z_3 = 3-4/2 = -0.5$

$z_4 = 4-4/2 = 0$ → Mean 4 Value 4 Dispersion 0

$z_5 = 5-4/2 = 0.5$

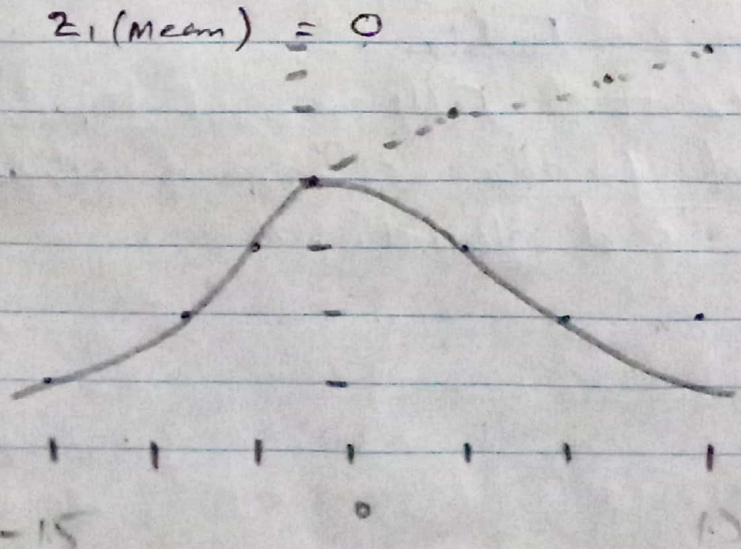
$z_6 = 6-4/2 = 1$

$z_7 = 7-4/2 = 3/2 = 1.5$

→ ND / Zscore

$z_1 = [-1.5, -1, -0.5, 0, 0.5, 1, 1.5]$

z_1(Mean) = 0



ODI Series 1 Performance:

Avg score >> 250

SD >> 10

final match score = 240

$$z = \frac{240 - 250}{10} = -1$$

ODI Series 2 Performance:

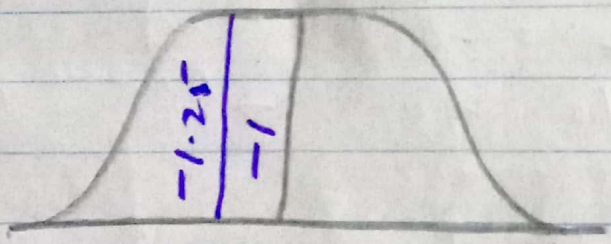
Avg score >> 260

SD >> 12

final match score = 245

$$z = \frac{245 - 260}{12} = -1.25$$

Which performance is good?



Series 1 is better than Series 2 b/c of STD.

Q What is z-Table:

Table that tells you what percentage of values fall below a certain z-score in a standard deviation.

Example:

mean = 60
Sd = 4
% of marks:

1) below 55
2) above 70
3) b/w 65 & 75

1)

$$z_1 = \frac{55-60}{4} = \frac{-5}{4} = -1.25$$

$z_1 = 10.56\%$

2)

$$z_{12} = \frac{70-60}{4} = \frac{10}{4} = 2.5$$

$z_{12} = 99.38\%$ or $.9938$

3)

z_{65}: $\frac{65-60}{4} = \frac{5}{4} = 1.25$

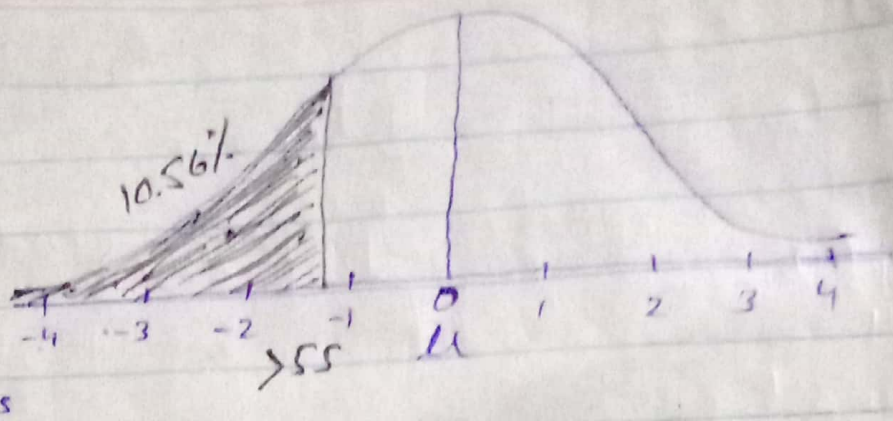
$z_{65} = 89.44\%$

$$z_{75} = \frac{75-60}{4} = \frac{15}{4} = 13.75$$

$99.99 - 89.44 = 10.55\%$

$z_{75} = 0.999$ or 99.99%

ii).



z-scores

Q **Hypothesis:**

Assumption (50% agg)

Q **Hypothesis Testing:**

Stats + Sampling + Test on hypothesis →

result applies on hypothesis →

Decision Making

A/B testing + Chunk Analysis.

Product → Beta testing (given to limited people) → Alpha (brought on market)

or

Funnel Analysis

Product Website → E-commerce page → Quit / purchase → Repeat