
# Statistika

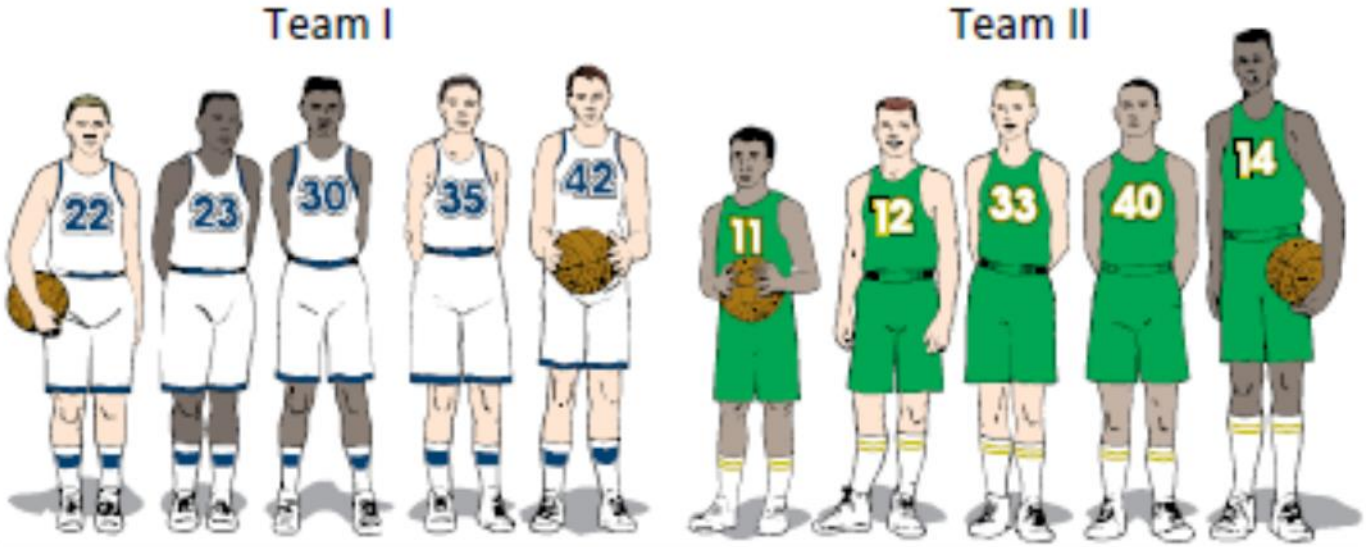
# Contoh 1: Nilai



| Student | English | Mathematics |
|---|---|---|
| A | 10 | 11 |
| B | 8 | 10 |
| C | 9 | 12 |
| D | 12 | 10 |
| E | 10 | 6 |
| F | 7 | 3 |
| G | 10 | 10 |
| H | 9 | 7 |
| I | 14 | 17 |
| J | 11 | 14 |

# Contoh 2: Tinggi Badan






| | Team I | | | | | Team II | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Feet and inches | 6' | 6'1" | 6'4" | 6'4" | 6'6" | 5'7" | 6' | 6'4" | 6'4" | 7' |
| Inches | 72 | 73 | 76 | 76 | 78 | 67 | 72 | 76 | 76 | 84 |

# Ukuran Penyebaran Data

- The goal is to obtain a measure of **how spread** out the scores are in a distribution.
- Central tendency describes the **central point** of the distribution, and variability describes how the scores are **scattered around that central point.**
- Together, central tendency and variability are the two primary values that are used to describe a distribution of scores.
- Computing a measure of **variability is important** because without it, a measure of central tendency provides an **incomplete description** of a distribution.
- Two distributions can have the same means, yet be extremely different.

# Rentang Data (Jangkauan)

$$R = x_t - x_r$$

$R$ = Rentang

$x_t$ = Data terbesar

$x_r$ = Data terkecil

# Contoh

$50, 50, 50, 60, 60, 70, 70, 80, 60, 70$

$$R = 80 - 50 = 30$$

$50, 20, 50, 60, 90, 70, 70, 80, 60, 30$

$$R = 90 - 20 = 70$$

$50, 50, 50, 60, 60, 60, 80, 50, 60, 60$

$$R = 80 - 50 = 30$$

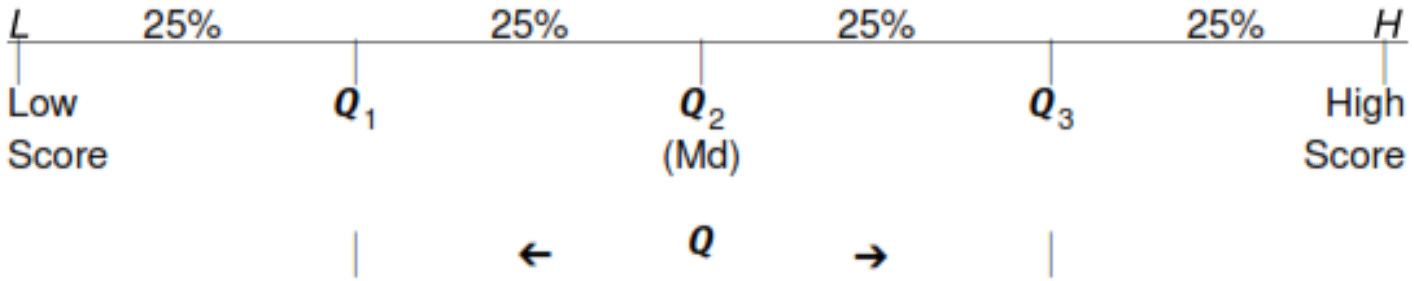
# Jangkauan Interquartil

$$Q = Q_3 - Q_1$$

$Q$ = Jangkauan Interkuartil

$Q_3$ = kuartil ke-3

$Q_1$ = kuartil pertama



# Varians dan Standar Deviasi



Varians populasi : $\sigma^2$

Standar deviasi : $\sigma$

Varians sampel : $s^2$

Standar deviasi : $s$

# Contoh

$$70, 80, 80, 90, 60, 100$$

$$\bar{x} = 80$$

Simpangan mahasiswa no.1 : $80 - 70 = 10$

Simpangan mahasiswa no.6 : $100 - 80 = 20$

**Simpangan : jarak data ke rata-rata**

# Rumus Populasi

*Varians populasi*

$$\sigma^2 = \frac{\sum(x_i - \bar{x})^2}{n}$$

*Standar deviasi*

$$\sigma = \sqrt{\frac{\sum(x_i - \bar{x})^2}{n}}$$

# Rumus Sampel

*Varians sampel*

$$s^2 = \frac{\sum(x_i - \bar{x})^2}{n-1}$$

*Standar deviasi*

$$s = \sqrt{\frac{\sum(x_i - \bar{x})^2}{n-1}}$$

# Data berkelompok

*Varians sampel*

$$s^2 = \frac{\sum f_i (x_i - \bar{x})^2}{n - 1}$$

*Standar deviasi*

$$s = \sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{n - 1}}$$

# Latihan

Di bawah ini merupakan data banyaknya kunjungan mahasiswa ke perpustakaan. Tentukan Rentang, Standar Deviasi, dan Varian dari data tersebut!

| Student | Number of Visits to the Library Last Week ($x_i$) |
|---|---|
| 1 | 0 |
| 2 | 2 |
| 3 | 5 |
| 4 | 5 |
| 5 | 7 |
| 6 | 10 |
| 7 | 14 |
| 8 | 14 |
| 9 | 20 |
| 10 | 30 |