

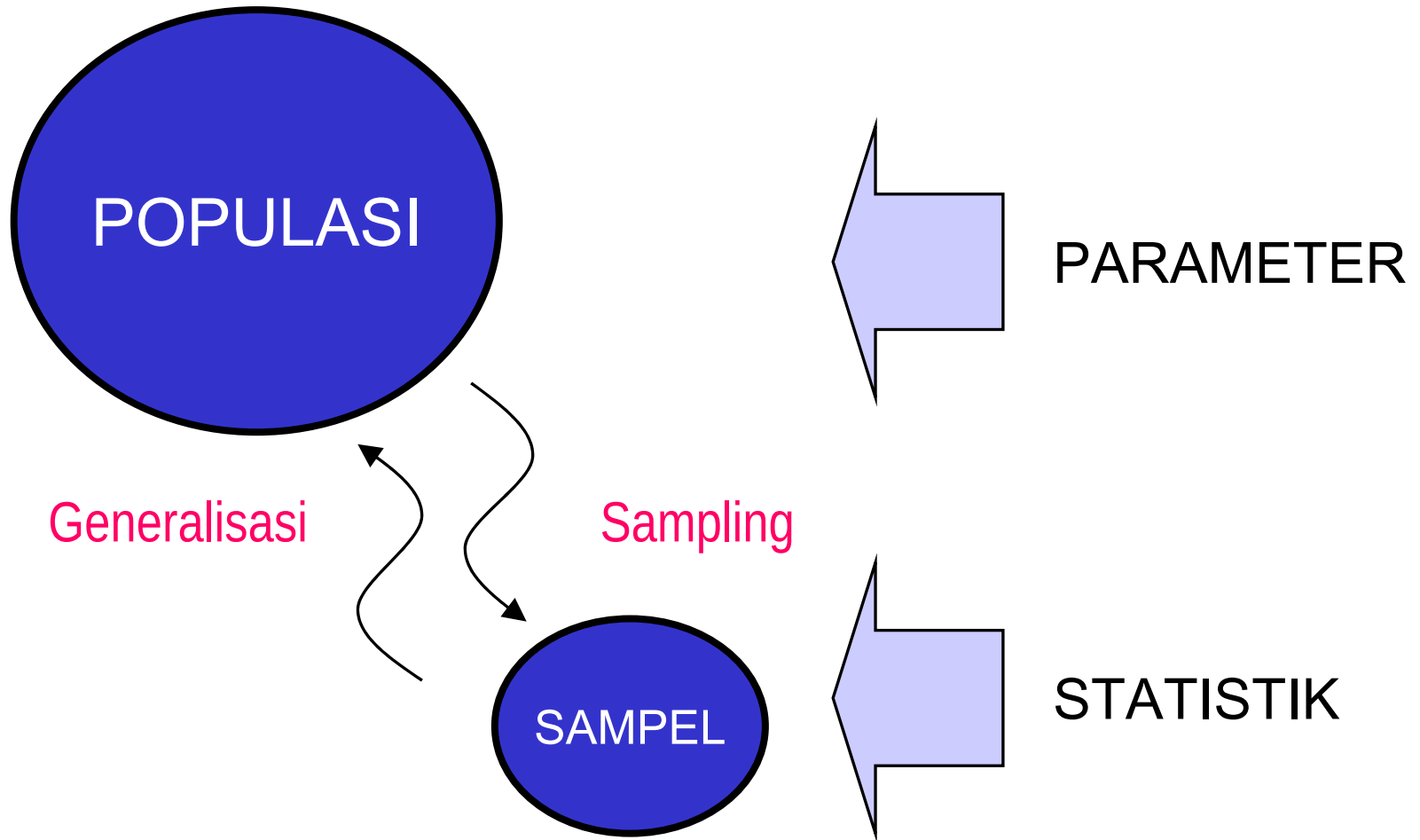
Review Statistika Dasar

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STATISTIKA



Statistik Deskriptif

- **Informasi mengenai pemusatan data**
 - Mode
 - Median
 - Mean
- **Informasi mengenai variabilitas**
 - Range
 - Mean Deviasi
 - Deviasi Standar

Ukuran Dispersi

1 Range = Maks – Min

2 $MD = \frac{\sum |X_i - \bar{X}|}{N}$

3 $s = \sqrt{\frac{\sum_{i=1}^N (X_i - \bar{X})^2}{N - 1}}$

	Range	Mean deviasi	Deviasi standar
Semua X	☹	☺	☺
Nilai +/-	☹	☹	☺

STATISTIK DESKRIPTIF

Subjek	X	$X - \bar{X}$	$ X - \bar{X} $	$(X - \bar{X})^2$
1	5	-1.4	1.4	1.96
2	6	-0.4	0.4	0.16
3	6	-0.4	0.4	0.16
4	7	0.6	0.6	0.36
5	8	1.6	1.6	2.56
Σ	32	0	4.4	5.2

MODE = 6

MEDIAN = 6

MEAN = $32 : 5 = 6.40$

RANGE = $8 - 5 = 3$

MEAN DEV. = $4.4 : 5 = 0.88$

DEV. STD = $(5.2 : 4)^{1/2} = 1.14$

JUMLAH DEVIASI KUADRAT (JK)

$$\begin{aligned} JK_x &= \sum (X - \bar{X})^2 \\ &= \sum X^2 - \frac{(\sum X)^2}{N} \end{aligned}$$

$$\begin{aligned} JK_{xy} &= \sum [(X - \bar{X})(Y - \bar{Y})] \\ &= \sum XY - \frac{(\sum XY)^2}{N} \end{aligned}$$

CROSS PRODUCT

DEVIASI STANDAR DAN VARIAN

DEVIASI STANDAR

$$S_x = \sqrt{\frac{\sum (X - \bar{X})^2}{n - 1}}$$

VARIAN

$$S_x^2 = \frac{\sum (X - \bar{X})^2}{n - 1}$$

Similarities Between the Variance and Standard Deviation Formulas

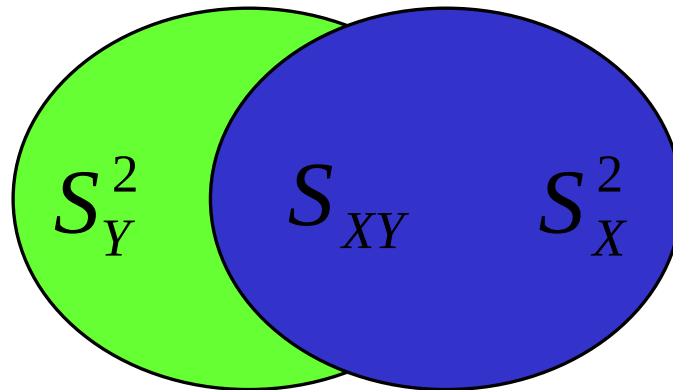
Table 2.1 Variance and Standard Deviation Formulas				
	Population		Estimate Based on Sample	
Variance	Σ sum X a score in the distribution μ the population mean $\bar{X}$ N the number of cases in the population		Σ sum X a score in the distribution $\bar{X}$ the sample mean n the number of cases in the sample	
	$\sigma^2 = \frac{\Sigma(X - \mu)^2}{N}$		$s^2 = \frac{\Sigma(X - \bar{X})^2}{n-1}$	
Standard Deviation	Σ to sum X a score in the distribution μ the population mean $\bar{X}$ N the number of cases in the population		Σ sum X a score in the distribution $\bar{X}$ the sample mean n the number of cases in the sample	
	$\sigma = \sqrt{\frac{\Sigma(X - \mu)^2}{N}}$		$s = \sqrt{\frac{\Sigma(X - \bar{X})^2}{n-1}}$	

- Formulas for calculating the variance and the standard deviation are virtually identical. Square root in standard deviation formula is only difference.
- Calculating the variance is the same for both sample and population data except the denominator for the sample formula, which is $n-1$
- Formula for calculating the variance is known as deviation score formula

Varian dan Kovarian

$$\text{Var}_{\text{xt}} (S_x^2) = \frac{\Sigma(X - \bar{X})^2}{n} = \Sigma X^2 - \frac{(\Sigma X)^2}{n}$$

$$\text{Cov}_{\text{xy}} (S_{xy}) = \frac{\Sigma(X - \bar{X})(Y - \bar{Y})}{n} = \Sigma XY - \frac{(\Sigma X)(\Sigma Y)}{n}$$



KOVARIAN

$$S_{XY} = \sqrt{\frac{\sum (X - \bar{X})(Y - \bar{Y})}{n-1}}$$

KORELASI

$$r_{XY} = \frac{S_{XY}}{S_X S_Y}$$

KORELASI

$$r_{XY} = \frac{Cov_{XY}}{Dev.Std._X Dev.Std._Y} = \frac{S_{XY}}{S_X S_Y}$$

$$r_{XY} = \frac{S_{XY}}{S_X S_Y}$$