

PEMBAHASAN UTS STATISTIKA 2017/2018

① Skala pengukuran data:

1) Skala Nominal (untuk kategorisasi, tanpa menunjukkan adanya tingkatan)

- ex: • Jenis kelamin, misal laki diberi simbol 1, perempuan diberi simbol 2.
• Status pernikahan, misal 1 untuk belum menikah, 2 untuk menikah, 3 untuk duda/janda

2) Skala Ordinal (menyatakan peringkat, interval tidak harus sama)

- ex: • Nilai huruf di perkuliahan (A, B, C, D, E)
• Variabel sikap terhadap suatu pernyataan (setuju, tidak setuju, dsb.)

3) Skala Interval (menyatakan peringkat, interval sama)

- ex: • Suhu (0°C , 12°F , dsb.)

• Skor IQ

4) Skala Ratio (hasil pengukuran)

- ex: • Jarak (10 m, 120 km)
• Berat badan (40 kg, 50 kg)

② Data : 27, 30, 31, 34, 35, 36, 40, 41, 41, 44, 45, 45, 46, 48, 59, 67, 69, 72, 85

x_i	f_i	$(x_i - \bar{x})^2$
27	1	400
30	1	209
31	1	256
34	1	169
35	1	144
36	1	121
40	1	49
41	2	72
44	1	9
45	3	12
46	1	1
48	1	1
59	1	144
67	1	400
69	1	484
72	1	625
85	1	1444
940	20	4620

$$\sim \bar{x} = \frac{940}{20} = 47$$

$$\bullet \text{ modus} = 45$$

$$\bullet \text{ median} = \frac{x_{10} + x_{11}}{2} = \frac{44 + 45}{2} = \frac{89}{2} = 44,5$$

$$\bullet \text{ variansi} = ?$$

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

$$s^2 = \frac{4620}{19}$$

$$s^2 = 243,158$$

$$\bullet \text{ koefisien variansi} = ?$$

$$KV = \frac{s}{\bar{x}} \times 100\%$$

$$KV = \frac{\sqrt{243,158}}{47} \times 100\%$$

$$KV = \frac{15,593}{47} \times 100\%$$

$$KV = 0,33 \times 100\%$$

$$KV = 33\%$$

3

m_i	f_i	f_k	$m_i f_i$	$m_i - \bar{x}$	$(m_i - \bar{x})^2$	$f_i (m_i - \bar{x})^2$
153	5	5	765	-10,5	110,25	551,25
158	20	25	3160	-5,5	30,25	605
163	42	67	6846	-0,5	0,25	10,5
168	26	93	4368	4,5	20,25	526,5
173	7	100	1211	9,5	90,25	631,75
	100		16350			2325

→ Kelas :

$$160,5 - 165,5$$

$$\bar{x} = \frac{\sum m_i f_i}{\sum f_i} = \frac{16350}{100} = 163,5$$

$$\begin{aligned} M_0 &= b_{m_0} + \frac{d_1}{d_1 + d_2} p = 160 + \frac{22}{22 + 16} \cdot 6 \\ &= 160 + \frac{22}{38} \cdot 6 \\ &= 160 + \frac{66}{19} \\ &= 160 + 3,47 \\ &= 163,47 \end{aligned}$$

$$\begin{aligned} M_e &= b_{m_e} + \frac{n/2 - f_{k.m.p}}{f_{m_e}} = 160 + \frac{50 - 25}{42} \cdot 6 \\ &= 160 + \frac{25}{7} \\ &= 160 + 3,571 \\ &= 163,571 \end{aligned}$$

$$S^2 = \frac{\sum f_i (m_i - \bar{x})^2}{\sum f_i - 1} = \frac{2325}{99} = 2226$$

$$\begin{aligned} KV &= \frac{S}{\bar{x}} \times 100 \% = \frac{\sqrt{2226}}{163,5} \times 100 \% \\ &= \frac{47,18}{163,5} \times 100 \% \\ &= 0,29 \times 100 \% \\ &= 29 \% \end{aligned}$$

4) a) $x=3$
 $n=4$
 $p=0,5$

$$\Rightarrow b(3;4, 0.5) = \binom{4}{3} (0.5)^3 (0.5)$$

$$= 4 \cdot 0,0625$$

$$= \underline{\underline{0,25}}$$

b) $x=0$
 $n=4$
 $p=0,5$

$$\Rightarrow b(0;4, 0.5) = \binom{4}{0} (0.5)^0 (0.5)^4$$

$$= \underline{\underline{0,0625}}$$

5) Diketahui: $\mu = 78$
 $\sigma = 8$

Ditanya: a) $P(\bar{x} < 50) = \dots ?$ (dalam persen)

b) Nilai minimal yang mendapat nilai A jika yg mendapat ada 25%?

Jawab:

a) $P(\bar{x} < 50)$

$$z = \frac{\bar{x} - \mu}{\sigma}$$

$$z = \frac{50 - 78}{8} = \frac{-28}{8} = -3,5$$

$$P(\bar{x} < 50) = P(z < -3,5)$$

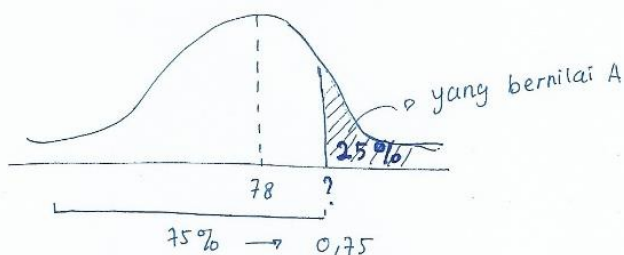
$$= 0,00023 \text{ (lihat di tabel)}$$

↳ dalam persen

$$= 0,00023 \times 100\%$$

$$= \underline{\underline{0,023\%}}$$

b)



$$P(z < z) = 0,75$$

↓

$$z = 0,675 \text{ (lihat di tabel)}$$

$$z = \frac{\bar{x} - \mu}{\sigma}$$

$$0,675 = \frac{\bar{x} - 78}{8}$$

$$5,4 = \bar{x} - 78$$

$$\bar{x} = 78 + 5,4$$

$$\bar{x} = \underline{\underline{83,4}}$$

∴ nilai minimal yang mendapat nilai A adalah 83,4

6) Terdapat 9 kemeja, 7 celana, 8 sepatu. Banyak cara berpakaian?

Jawab:

$$\text{Banyak cara} = 9 \times 7 \times 8$$

$$= \underline{\underline{504 \text{ cara}}}$$