PERTEMUAN 5

STATISTIKA DAN PROBABILITAS

DATA KELOMPOK

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BEKASI

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LATIHAN SOAL

- Nilai Ujian Statistika dari 120 orang mahasiswa dapat dilihat pada tabel di bawah.
- Hitunglah mean, median, modus, kuartil 3, desil 7 dan persentil 75.

Nilai Ujian	Banyaknya Mahasiswa
30 – 39	9
40 – 49	32
50 – 59	43
60 – 69	21
70 – 79	11
80 – 89	3
90 – 100	1

JAWABAN

Nilai Ujian	f_i	F_k	x_i	$x_i \cdot f_i$	*LCL*	*UCL*	*LCB*	*UCB*
30 – 39	9	9	34,5	310.5	30	39	29,5	39,5
40 – 49	32	41	44,5	1.424	40	49	39,5	49,5
50 – 59	43	84	54,5	2.343,5	50	59	49,5	59,5
60 – 69	21	105	64,5	1.354,5	60	69	59,5	69,5
70 – 79	11	106	74,5	819,5	70	79	69,5	79,5
80 – 89	3	119	84,5	253,5	80	89	79,5	89,5
90 – 100	1	120	95	95	90	100	89,5	100,5
Jumlah	120		452	6.600,5				

- **Mean**

$$Me = \frac{\sum f_i . x_i}{\sum f_i}$$

$$Me = \frac{6.600,5}{120}$$

$$\boldsymbol{Me = 55}$$

- **Median**

$$Med = LCB_{med} + \left(\frac{\frac{1}{2}.N - f_{k\,med-1}}{f_{i\,med}}\right) CI$$

$$Med = 49,5 + \left(\frac{\frac{1}{2}.120 - 32}{120}\right) 10$$

$$Med = 49,5 + 2,3$$

$$\boldsymbol{Med = 51,8}$$

- **Modus**

$$f_{1\,mod} = f_{mod} - f_{mod-1} = 120 - 32 = 88$$

$$f_{2\,mod} = f_{mod} - f_{mod+1} = 120 - 21 = 99$$

$$Mod = LCB_{mod} + \left(\frac{f_{1\,mod}}{f_{1\,mod} + f_{2\,mod}}\right) CI$$

$$Mod = 49,5 + \left(\frac{88}{88 + 99}\right) 10$$

$$Mod = 49,5 + 4,7$$

$$\boldsymbol{Mod = 54,2}$$

- **Kuartil 3**

$$Letak\ Q\ = \frac{i\ \times\ N}{4}$$
$$Letak\ Q_3\ = \frac{3\ \times\ 120}{4}$$
$$Letak\ Q_3\ = 90$$

$$Q_i\ = LCB_Q\ + \left(\frac{\frac{i\ \times\ N}{4}\ -\ f_{k\ Q-1}}{f_Q}\right)CI$$
$$Q_3\ = 59{,}5\ + \left(\frac{90\ -\ 84}{21}\right)10$$
$$Q_3\ = 59{,}5\ + 2{,}8$$
$$\boldsymbol{Q_3\ = 62,3}$$

- **Desil 7**

$$\text{L}etak\ D\ = \frac{i\ \times\ N}{10}$$
$$Letak\ D_7\ = \frac{7\ \times\ 120}{10}$$
$$Letak\ D_7\ = 84$$

$$D_i\ = LCB_D\ + \left(\frac{\frac{i\ \times\ N}{10}\ -\ f_{k\ D-1}}{f_D}\right)CI$$
$$D_7\ = 59{,}5\ + \left(\frac{84\ -\ 84}{21}\right)10$$
$$\boldsymbol{D_7\ = 59,5}$$

- **Persentil 75**

$$Letak\ P \quad = \frac{i \times N}{100}$$

$$Letak\ P_{75} = \frac{75 \times 120}{100}$$

$$Letak\ P_{75} = 90$$

$$P_i \quad = LCB_P + \left(\frac{\frac{i \times N}{100} - f_{k\,P-1}}{f_P}\right) CI$$

$$P_{75} = 59{,}5 + \left(\frac{90 - 84}{21}\right) 10$$

$$P_{75} = 59{,}5 + 2{,}8$$

$$\boldsymbol{P_{75} = 62{,}3}$$