

UTS Kecerdasan Buatan

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Jawaban

Permintaan(1000, 3000, x) = 2300

Persediaan(200, 800, y) = 400

Permintaan

$$\begin{aligned}\mu_{\text{turun}} &= 3000 - x / 3000 - 1000 \\ &= 3000 - 2300 / 2000 \\ &= 0.35\end{aligned}$$

$$\begin{aligned}\mu_{\text{naik}} &= x - 1000 / 3000 - 1000 \\ &= 2300 - 1000 / 2000 \\ &= 0.65\end{aligned}$$

Persediaan

$$\begin{aligned}\mu_{\text{sedikit}} &= 800 - 400 / 800 - 200 \\ &= 400 / 600 \\ &= 0.67\end{aligned}$$

$$\mu_{\text{sedang}} = 1$$

$$\begin{aligned}\mu_{\text{banyak}} &= 400 - 200 / 800 - 200 \\ &= 200 / 600 \\ &= 0.33\end{aligned}$$

Rule

Rule	Kondisi	Output	a
R1	TURUN \wedge BANYAK	BERKURANG	$\min(0.35, 0.33) = 0.33$
R2	TURUN \wedge SEDANG	BERKURANG	$\min(0.35, 1.00) = 0.35$
R3	TURUN \wedge SEDIKIT	BERTAMBAH	$\min(0.35, 0.67) = 0.35$
R4	NAIK \wedge BANYAK	BERKURANG	$\min(0.65, 0.33) = 0.33$
R5	NAIK \wedge SEDANG	BERTAMBAH	$\min(0.65, 1.00) = 0.65$
R6	NAIK \wedge SEDIKIT	BERTAMBAH	$\min(0.65, 0.67) = 0.65$

Fungsi Tsukamoto

Rule	Output	a	Rumus	Nilai z
R1	BERKURANG	0.33	$7000 - 5000(0.33)$	5350
R2	BERKURANG	0.35	$7000 - 5000(0.35)$	5250
R3	BERTAMBAH	0.35	$2000 + 5000(0.35)$	3750
R4	BERKURANG	0.33	$7000 - 5000(0.33)$	5350
R5	BERTAMBAH	0.65	$2000 + 5000(0.65)$	5250
R6	BERTAMBAH	0.65	$2000 + 5000(0.65)$	5250

Defuzzifikasi

$$\begin{aligned} Z &= (0.33 \times 5350) + (0.35 \times 5250) + (0.35 \times 3750) + (0.33 \times 5350) + (0.65 \times 5250) + (0.65 \times 5250) \\ &\quad / 0.33 + 0.35 + 0.35 + 0.33 + 0.65 + 0.65 \\ &= 1765.5 + 1837.5 + 1312.5 + 1765.5 + 3412.5 + 3412.5 / 2.66 \\ &= 13505 / 2.66 \\ &= 5073.9 \end{aligned}$$

Jumlah produksi optimal yang harus dibuat oleh perusahaan adalah = **5074 kemasan/hari**.