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Kelas : 06TPLM002

Kecerdasan Buatan-UAS Semester Genap 2021/2022

YAYASAN SASMITA JAYA
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Semester	: 6	Kelas	: 06TPLM002
Program Studi	: Teknik Informatika	Nilai	:

LEMBAR JAWABAN

Data Produksi Manual

Data Payung
Size-R01

Tanggal	Permintaan	Persediaan	Produksi
01-Okt-20	3200	150	3197
02-Okt-20	2600	260	2792
03-Okt-20	2625	200	3177
04-Okt-20	2620	240	4213
05-Okt-20	2400	170	2643
06-Okt-20	2460	160	2491
07-Okt-20	2800	185	3173
08-Okt-20	2860	165	3219
09-Okt-20	3000	225	1552
10-Okt-20	3100	280	3300
	max 4000	max 300	max 5000
	min 2200	min 140	min 1000

Diketahui :
- Dalam aktifitas pada perusahaan terdapat 3 variabel, yaitu :
- 2 variabel input, variabel permintaan, variabel Persediaan
- Output terdapat 1 variabel, yaitu produksi
- Variabel permintaan memiliki 2 nilai linguistik. Yaitu naik dan turun
- Variabel persediaan memiliki 2 nilai linguistik, yaitu banyak dan sedikit
- Variabel produksi memiliki 2 nilai linguistik, yaitu bertambah dan berkurang

Permintaan Tertinggi : 4000
Persediaan Tertinggi : 300
Produksi Tertinggi : 5000
Permintaan Terendah : 2200
Persediaan Terendah : 150
Produksi Terendah : 1000

Berdasarkan Data : Hitunglah jumlah produksi perusahan dengan metode Tsukamoto
penyelesaian :

① Jika Permintaan 3200 dan persediaan 150

- Definisi variabel

◇ Variabel permintaan

* μ pmt TURUN [3200] $= \begin{cases} 1 & x \le 2200 \\ \frac{4000 - 3200}{4000 - 2200} & 2200 \le x \le 4000 \\ 0 & x \ge 4000 \end{cases}$

μ pmt TURUN [3200] = 800/1800
= 0,4444

* μ pmt NAIK [3200] $= \begin{cases} 0 & x \le 2200 \\ \frac{3200 - 2200}{4000 - 2200} & 2200 \le x \le 4000 \\ 1 & x \ge 4000 \end{cases}$

μ pmt NAIK [3200] : 1000/1800
= 0,5555

◇ Variabel Persediaan

* μ Psd SEDIKIT [150] $= \begin{cases} 1 & y \le 140 \\ \frac{300 - 150}{300 - 140} & 140 \le y \le 300 \\ 0 & y \ge 300 \end{cases}$

μ Psd SEDIKIT [150] = 150/160
= 0,9375

* μ Psd BANYAK [150] $= \begin{cases} 0 & y \le 140 \\ \frac{150 - 140}{300 - 140} & 140 \le y \le 300 \\ 1 & y \ge 300 \end{cases}$

μ Psd Banyak [150] = 10/160
= 0,0625

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LEMBAR JAWABAN

lanjutan

② .) Variabel Persediaan

* P Psd SEDIKIT [260] = $\begin{cases} 1 \\ \frac{300-260}{300-140} \\ 0 \end{cases}$; $\begin{matrix} Y \le 140 \\ 140 \le X \le 300 \\ Y \ge 300 \end{matrix}$

PPsd SEDIKIT [260] = 40/160 = 0,25

* P Psd BANYAK [260] = $\begin{cases} 0 \\ \frac{260-140}{300-140} \\ 1 \end{cases}$; $\begin{matrix} Y \le 140 \\ 140 \le x \le 300 \\ Y \ge 300 \end{matrix}$

PPsd BANYAK [260] = 120/160 = 0,75

.) Variabel Produksi C

* PPr BERKURANG [Z] = $\begin{cases} 1 \\ \frac{5000-Z}{5000-1000} \\ 0 \end{cases}$; $\begin{matrix} Z \le 1000 \\ 1000 \le Z \le 5000 \\ Z \ge 5000 \end{matrix}$

* PPr BERTAMBAH [Z] = $\begin{cases} 0 \\ \frac{Z-1000}{5000-1000} \\ 1 \end{cases}$; $\begin{matrix} Z \le 1000 \\ 1000 \le Z \le 5000 \\ Z \ge 5000 \end{matrix}$

• Inferensi

α_1 = PPmt TURUN [X] ∩ Psd BANYAK [Y]
= min([0,7777], [0,75]) :
= 0,75

$z_1 = z\,max - \alpha 1\,(z\,max - z\,min)$
$= 5000 - 0,75\,(5000 - 1000)$
$= 5000 - 3000 = 2000$

α_2 = PPmt TURUN [X] ∩ Psd SEDIKIT [Y]
= min ([0,7777], [0,25]
= 0,25

$z_2 = z\,max - \alpha 2\,(z\,max - z\,min)$
$= 5000 - 0,25\,(5000 - 1000)$
$= 5000 - 1000 = 4000$

α_3 = PPmt NAIK [X] ∩ Psd BANYAK [Y]
= min ([0,2222], [0,75])
= 0,2222

$z_3 = z\,max - \alpha 3\,(z\,max - z\,min)$
$= 5000 - 0,2222\,(5000 - 1000)$
$= 5000 - 888 = 4112$

α_4 = PPmt NAIK [X] ∩ Psd SEDIKIT [Y]
= min ([0,2222], [0,25]
= 0,2222

$z_4 = z\,max - \alpha 4\,(z\,max - z\,min)$
$= 5000 - 0,222\,(5000 - 1000)$
$= 5000 - 888 = 4112$

• Defuzifikasi

$$z = \frac{\alpha 1 \times z1 + \alpha 2 \times z2 + \alpha 3 \times z3 + \alpha 4 \times z4}{\alpha 1 + \alpha 2 + \alpha 3 + \alpha 4}$$

$$= \frac{0,75 \times 2000 + 0,25 \times 4000 + 0,2222 \times 4112 + 0,2222 \times 4112}{0,75 + 0,25 + 0,2222 + 0,2222}$$

$$= \frac{1500 + 1000 + 913,6864 + 913,6864}{1,4444} = \frac{4.033,3728}{1,4444} = 2.792,4209$$

Jadi Jumlah barang yang diproduksi adalah 2.792,4209

③ Jika Permintaan 2625 dan persediaan 200

- Definisi Variabel
  - Variabel Permintaan

$$\mu_{Pmt\ TURUN}[2625] = \begin{cases} 1, & x \le 2200 \\ \frac{4000-2625}{4000-2200}, & 2200 \le x \le 4000 \\ 0, & x \ge 4000 \end{cases}$$

$\mu_{Pmt\ TURUN}[2625] = 1375/1800 = 0,7638$

$$\mu_{Pmt\ NAIK}[2625] = \begin{cases} 0, & x \le 2200 \\ \frac{2625-2200}{4000-2200}, & 2200 \le x \le 4000 \\ 1, & x \ge 4000 \end{cases}$$

$\mu_{Pmt\ NAIK}[2625] = 625/1800 = 0,3472$

  - Variabel Persediaan

$$\mu_{Psd\ SEDIKIT}[200] = \begin{cases} 1, & y \le 140 \\ \frac{300-200}{300-140}, & 140 \le y \le 300 \\ 0, & y \ge 300 \end{cases}$$

$\mu_{Psd\ SEDIKIT}[200] = 100/160 = 0,625$

$$\mu_{Psd\ BANYAK}[200] = \begin{cases} 0, & y \le 140 \\ \frac{200-140}{300-140}, & 140 \le y \le 300 \\ 1, & y \ge 300 \end{cases}$$

$\mu_{Psd\ BANYAK}[200] = 60/160 = 0,375$

  - Variabel Produksi

$$\mu_{Pr\ Berkurang}[z] = \begin{cases} 1, & z \le 1000 \\ \frac{5000-z}{5000-1000}, & 1000 \le z \le 5000 \\ 0, & z \ge 5000 \end{cases}$$

$$\mu_{Pr\ Bertambah}[z] = \begin{cases} 0, & z \le 1000 \\ \frac{z-1000}{5000-1000}, & 1000 \le z \le 5000 \\ 1, & z \ge 5000 \end{cases}$$

- Inferensi

$\alpha_1 = \mu_{Pmt\ TURUN}[x] \cap \mu_{Psd\ BANYAK}[y]$
$= \min([0,7638], [0,375])$
$= 0,375$

$z_1 = z_{max} - \alpha_1 (z_{max} - z_{min})$
$= 5000 - 0,375\ (5000 - 1000)$
$= 5000 - 1500 = 3500$

$\alpha_2 = \mu_{Pmt\ TURUN}[x] \cap \mu_{Psd\ SEDIKIT}[y]$
$= \min([0,7638], [0,625])$
$= 0,625$

$z_2 = z_{max} - \alpha_2 (z_{max} - z_{min})$
$= 5000 - 0,625\ (5000 - 1000)$
$= 5000 - 2500 = 2500$

$\alpha_3 = \mu_{Pmt\ NAIK}[x] \cap \mu_{Psd\ BANYAK}[y]$
$= \min([0,3472], [0,375])$
$= 0,3472$

$z_3 = z_{max} - \alpha_3 (z_{max} - z_{min})$
$= 5000 - 0,3472\ (5000 - 1000)$
$= 5000 - 1388 = 3612$

$\alpha_4 = \mu_{Pmt\ NAIK}[x] \cap \mu_{Psd\ SEDIKIT}[y]$
$= \min([0,3472], [0, 0,625])$
$= 0,3472$

$z_4 = z_{max} - \alpha_4 (z_{max} - z_{min})$
$= 5000 - 0,3472\ (5000 - 1000$
$= 5000 - 1388 = 3612$

- Defuzifikasi

$$z = \frac{\alpha_1 z_1 + \alpha_2 z_2 + \alpha_3 z_3 + \alpha_4 z_4}{\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4}$$

$$= \frac{0,375 \times 3500 + 0,625 \times 2500 + 0,3472 \times 3612 + 0,3472 \times 3612}{0,375 + 0,625 + 0,3472 + 0,3472}$$

$$= \frac{1312,5 + 1562,5 + 1254,0864 + 1254,0864}{1,6944} = \frac{5.383,1728}{1,6944} = 3.177,0377$$

Jadi, Jumlah barang yang diproduksi adalah 3.177,037 pcs

④ Jika permintaan 2620 dan persediaan 240

- Definisi Variabel
  - Variabel Permintaan

$$\mu_{Pmt\ TURUN}[2620] = \begin{cases} 1, & x \le 2200 \\ \frac{4000-2620}{4000-2200}, & 2200 \le x \le 4000 \\ 0, & x \ge 4000 \end{cases}$$

$\mu_{Pmt\ TURUN}[2620] = 1380/1800 = 0,7666$

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LEMBAR JAWABAN

(4) lanjutan

*μPmt NAIK [2620] = $\begin{cases} 1, & x \le 2200 \\ \frac{2620-2200}{4000-2200}, & 2200 \le x \le 4000 \\ 0, & x \ge 4000 \end{cases}$

μPmt NAIK [2620] : 420/1800
= 0,2333

-> Variabel persediaan

*μPsd SEDIKIT [240] = $\begin{cases} 1, & x \le 140 \\ \frac{300-240}{300-140}, & 140 \le x \le 300 \\ 0, & x \ge 300 \end{cases}$

μPsd SEDIKIT [240] = 60/160
= 0,375

*μPsd BANYAK [240] = $\begin{cases} 0, & x \le 140 \\ \frac{240-140}{300-140}, & 140 \le y \le 300 \\ 1, & y \ge 300 \end{cases}$

μPsd BANYAK [240] : 100/160
= 0,625

-> Variabel Produksi

*μPr BERKURANG [z] = $\begin{cases} 1, & z \le 1000 \\ \frac{5000-z}{5000-1000}, & 1000 \le z \le 5000 \\ 0, & z \ge 5000 \end{cases}$

*μPr BERTAMBAH [z] = $\begin{cases} 0, & z \le 1000 \\ \frac{z-1000}{5000-1000}, & 1000 \le z \le 5000 \\ 1, & z \ge 5000 \end{cases}$

- Inferensi

α_1 = μPmt TURUN [x] ∩ μPsd BANYAK [y]
= min ([0,7666], [0,625])
= 0,625

$z_1 = z_{max} - \alpha_1 (z_{max} - z_{min})$
= 5000 − 0,625 (5000 − 1000)
= 5000 − 2500 = 4750

α_2 = μPmt TURUN [x] ∩ μPsd SEDIKIT [y]
= min ([0,7666], [0,375])
= 0,375

$z_2 = z_{max} - \alpha_2 (z_{max} - z_{min})$
= 5000 − 0,375 (5000 − 1000)
= 5000 − 1500 = 3500

α_3 = μPmt NAIK [x] ∩ μPsd BANYAK [y]
= min ([0,2333], [0,625])
= 0,2333

$z_3 = z_{max} - \alpha_3 (z_{max} - z_{min})$
= 5000 − 0,2333 (5000 − 1000)
= 5000 − 933 = 4.067

α_4 = μPmt NAIK [x] ∩ μPsd SEDIKIT [y]
= min ([0,2333], [0,375])
= 0,2333

$z_4 = z_{max} - \alpha_4 (z_{max} - z_{min})$
= 5000 − 0,2333 (5000 − 1000)
= 5000 − 933 = 4.067

- Defuzifikasi

$$z = \frac{\alpha_1 \times z_1 + \alpha_2 \times z_2 + \alpha_3 \times z_3 + \alpha_4 \times z_4}{\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4}$$

$$= \frac{0,625 \times 4750 + 0,375 \times 3500 + 0,2333 \times 4067 + 0,2333 \times 4067}{0,625 + 0,375 + 0,2333 + 0,2333}$$

$$= \frac{2968,75 + 1312,5 + 948,8311 + 948,8311}{1,4666} = \frac{6.178,9122}{1,4666} = 4.213,0861$$

Jadi, Jumlah barang yang diproduksi adalah 4.213,0861 pcs

⑤ Jika Permintaan 2400 dan Persediaan 170

• Definisi Variabel

·> Variabel Permintaan

* μPmt TURUN [2400] = $\begin{cases} 1, & x \le 2200 \\ \frac{4000-2400}{4000-2200}, & 2200 \le x \le 4000 \\ 0, & x \ge 4000 \end{cases}$

μPmt TURUN [2400] : 1600/1800 = 0,8888

* μPmt NAIK [2400] = $\begin{cases} 0, & x \le 2200 \\ \frac{2400-2200}{4000-2200}, & 2200 \le x \le 4000 \\ 1, & x \ge 4000 \end{cases}$

μPmt NAIK [2400] = 200/1800 = 0,1111

·> Variabel persediaan

* μPsd SEDIKIT [170] = $\begin{cases} 1, & y \le 140 \\ \frac{300-170}{300-140}, & 140 \le y \le 300 \\ 0, & y \ge 300 \end{cases}$

μPsd SEDIKIT [170] : 130/160 = 0,8125

* μPsd BANYAK [170] = $\begin{cases} 0, & y \le 140 \\ \frac{170-140}{300-140}, & 140 \le y \le 300 \\ 1, & y \ge 300 \end{cases}$

μPsd BANYAK [170] : 30/160 = 0,1875

·> Variabel Produksi

* μPr BERKURANG [z] = $\begin{cases} 1, & z \le 1000 \\ \frac{5000-z}{5000-1000}, & 1000 \le z \le 5000 \\ 0, & z \ge 5000 \end{cases}$

* μPr BERTAMBAH [z] = $\begin{cases} 0, & z \le 1000 \\ \frac{z-1000}{5000-1000}, & 1000 \le z \le 5000 \\ 1, & z \ge 5000 \end{cases}$

• Inferensi

α_1 = μPmt TURUN [x] ∩ Psd BANYAK [y]
= min [[0,8888], [0,1875]]
= 0,1875

$z_1 = z_{max} - \alpha_1 (z_{max} - z_{min})$
= 5000 − 0,1875 (5000 − 1000)
= 5000 − 750 = 4250

α_2 = μPmt TURUN [x] ∩ Psd SEDIKIT [y]
= min [[0,8888], [0,8125]]
= 0,8125

$z_2 = z_{max} - \alpha_2 (z_{max} - z_{min})$
= 5000 − 0,8125 (5000 − 1000)
= 5000 − 3250 = 1750

α_3 = μPmt NAIK [x] ∩ Psd Banyak [y]
= min [[0,1111], [0,1875]]
= 0,1111

$z_3 = z_{max} - \alpha_3 (z_{max} - z_{min})$
= 5000 − 0,1111 (5000 − 1000)
= 5000 − 444 = 4556

α_4 = μPmt NAIK [x] ∩ Psd SEDIKIT [y]
= min [[0,1111], [0,8125]]
= 0,1111

$z_4 = z_{max} - \alpha_4 (z_{max} - z_{min})$
= 5000 − 0,1111 (5000 − 1000)
= 5000 − 444 = 4556

• Defuzifikasi

$$z = \frac{\alpha_1 \times z_1 + \alpha_2 \times z_2 + \alpha_3 \times z_3 + \alpha_4 \times z_4}{\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4}$$

$$= \frac{0,1875 \times 4250 + 0,8125 \times 1750 + 0,1111 \times 4556 + 0,1111 \times 4,556}{0,1875 + 0,8125 + 0,1111 + 0,1111}$$

$$= \frac{796,875 + 1421,875 + 506,1716 + 506,1716}{1,2222} = \frac{3.231,0932}{1,2222} = 2.643,6697$$

Jadi, jumlah barang yang diproduksi adalah 2.643,6697

⑥ Jika Permintaan 2460 dan Persediaan 160

• Definisi Variabel

·> Variabel Permintaan

* μPmt TURUN [2460] = $\begin{cases} 1, & x \le 2200 \\ \frac{4000-2460}{4000-2200}, & 2200 \le x \le 4000 \\ 0, & x \ge 4000 \end{cases}$

μPmt TURUN [2460] : 1540/1800 = 0,8555

* μPmt NAIK [2460] = $\begin{cases} 0, & x \le 2200 \\ \frac{2460-2200}{4000-2200}, & 2200 \le x \le 4000 \\ 1, & x \ge 4000 \end{cases}$

μPmt NAIK [2460] : 260/1800 = 0,1444

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LEMBAR JAWABAN

lanjutan

⑥ ·>Variabel Persediaan

$$*\mu Psd\ SEDIKIT[160] = \begin{cases} 1 & , Y \le 140 \\ \frac{300-160}{300-140} & , 140 \le Y \le 300 \\ 0 & , Y \ge 300 \end{cases}$$

μPsd SEDIKIT[160] : 140 /160
: 0,875

$$*\mu Psd\ BANYAK[160] = \begin{cases} 0 & , Y \le 140 \\ \frac{160-140}{300-140} & , 140 \le Y \le 300 \\ 1 & , Y \ge 300 \end{cases}$$

μPsd BANYAK [160] : 20/160
= 0,125

·>Variabel Produksi

$$*\mu Pr\ BERKURANG[z] = \begin{cases} 1 & , z \le 1000 \\ \frac{5000-z}{5000-1000} & , 1000 \le z \le 5000 \\ 0 & , z \ge 5000 \end{cases}$$

$$*\mu Pr\ BERTAMBAH[z] = \begin{cases} 0 & , z \le 1000 \\ \frac{z-1000}{5000-1000} & , 1000 \le z \le 5000 \\ 1 & , z \ge 5000 \end{cases}$$

·Inferensi

$\alpha_1 = \mu Pmt\ TURUN[x] \cap Psd\ BANYAK[Y]$
$= \min([0,8555], [0,125])$
$= 0,125$

$z_1 = z_{max} - \alpha_1 (z_{max} - z_{min})$
$= 5000 - 0,125\ (5000 - 1000)$
$= 5000 - 500 = 4500$

$\alpha_2 = \mu Pmt\ TURUN[x] \cap Psd\ SEDIKIT[Y]$
$= \min([0,8555], [0,875])$
$= 0,8555$

$z_2 = z_{max} - \alpha_2 (z_{max} - z_{min})$
$= 5000 - 0,8555\ (5000 - 1000)$
$= 5000 - 3422 = 1.578$

$\alpha_3 = \mu Pmt\ NAIK[X] \cap Psd\ BANYAK[Y]$
$= \min([0,1444], [0,125])$
$= 0,125$

$z_3 = z_{max} - \alpha_3 (z_{max} - z_{min})$
$= 5000 - 0,125\ (5000 - 1000)$
$= 5000 - 500 = 4500$

$\alpha_4 = \mu Pmt\ NAIK[X] \cap Psd\ SEDIKIT[Y]$
$= \min([0,1444], [0,875])$
$= 0,1444$

$z_4 = z_{max} - \alpha_4 (z_{max} - z_{min})$
$= 5000 - 0,1444\ (5000 - 1000)$
$= 5000 - 577 = 4423$

·Defuzifikasi

$$z = \frac{\alpha_1 \times z_1 + \alpha_2 \times z_2 + \alpha_3 \times z_3 + \alpha_4 \times z_4}{\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4}$$

$$= \frac{0,125 \times 4500 + 0,8555 \times 1578 + 0,125 \times 4500 + 0,1444 \times 4423}{0,125 + 0,8555 + 0,125 + 0,1444}$$

$$= \frac{562,5 + 1.349,979 + 562,5 + 638,6812}{1,2499} = \frac{3.113,6602}{1,2499} = 2.491,1274$$

Jadi, jumlah barang yang diproduksi adalah 2.491,1274 pcs

⑦ Jika Permintaan 2800 dan Persediaan 185

·Definisi variabel

·>Variabel Permintaan

$$*\mu Pmt\ TURUN[2800] = \begin{cases} 1 & , x \le 2200 \\ \frac{4000-2800}{4000-2200} & , 2200 \le x \le 4000 \\ 0 & , x \ge 2000 \end{cases}$$

μPmt TURUN [2800] = 1200/1800
= 0,6666

$$*\mu Pmt\ NAIK[2800] = \begin{cases} 0 & , x \le 2200 \\ \frac{2800-2200}{4000-2200} & , 2200 \le x \le 4000 \\ 1 & , x \ge 4000 \end{cases}$$

μPmt NAIK [2800] = 600 /1800
= 0,3333

·> Variabel persediaan

* μ Psd SEDIKIT [185] = $\frac{300 - 185}{300 - 140}$; $Y \leq 140$, $140 \leq Y \leq 300$, $Y \geq 300$

μPsd SEDIKIT [185] = 115 / 160 = 0,7187

* μ psd BANYAK [185] = $\frac{185 - 140}{300 - 140}$; $Y \leq 140$, $140 \leq Y \leq 300$, $Y \geq 300$

μPsd BANYAK [185] = 45 / 160 = 0,2812

·>Variabel Produksi

* μ Pr BERKURANG [z] = $\frac{5000 - z}{5000 - 1000}$; $z \leq 1000$, $1000 \leq z \leq 5000$, $z \geq 5000$

* μ Pr BERTAMBAH [z] = $\frac{z - 1000}{5000 - 1000}$; $z \leq 1000$, $1000 \leq z \leq 5000$, $z \geq 5000$

· Inferensi

α_1 = μPmt TURUN [X] ∩ Psd BANYAK [Y]
= min ([0,6666], [0,2812])
= 0,2812

$z_1 = z_{max} - \alpha_1 (z_{max} - z_{min})$
$= 5000 - 0,2812 (5000 - 1000)$
$= 5000 - 1124 = 3876$

α_2 = μPmt TURUN [X] ∩ Psd SEDIKIT [Y]
= min ([0,6666], [0,7187])
= 0,6666

$z_2 = z_{max} - \alpha_2 (z_{max} - z_{min})$
$= 5000 - 0,16666 (5000 - 1000)$
$= 5000 - 2666 = 2334$

α_3 = μPmt NAIK [X] ∩ Psd BANYAK [Y]
= min [0,3333], [0,2812])
= 0,2812

$z_3 = z_{max} - \alpha_3 (z_{max} - z_{min})$
$= 5000 - 0,2812 (5000 - 1000)$
$= 5000 - 1124 = 3876$

α_4 = μPmt NAIK [X] ∩ Psd JEDIKIT [Y]
= min ([0,3333], [0,7187])
= 0,3333

$z_4 = z_{max} - \alpha_4 (z_{max} - z_{min})$
$= 5000 - 0,3333 (5000 - 1000)$
$= 5000 - 1333 = 3667$

· Defuzifikasi

$$z = \frac{\alpha_1 \times z_1 + \alpha_2 \times z_2 + \alpha_3 \times z_3 + \alpha_4 \times z_4}{\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4}$$

$$= \frac{0,2812 \times 3876 + 0,6666 \times 2334 + 0,2812 \times 3876 + 0,3333 \times 3667}{0,2812 + 0,6666 + 0,2812 + 0,3333}$$

$$= \frac{1089,9312 + 1555,8444 + 1089,9312 + 1222,2111}{1,5623} = \frac{4.957,9179}{1,5623} = 3.173,4736$$

Jadi, Jumlah barang yang diproduksi adalah 3.173,4736 pcs

⑧. Jika Permintaan 2860 dan Persediaan 165

· Definisi Variabel

·> Variabel permintaan

* μPmt TURUN [2860] = $\frac{4000 - 2860}{4000 - 2200}$; $x \leq 2200$, $2200 \leq x \leq 4000$, $x \geq 4000$

μPmt TURUN [2860] = 1140 / 1800 = 0,6333

* μPmt NAIK [2860] = $\frac{2860 - 2200}{4000 - 2200}$; $x \leq 2200$, $2200 \leq x \leq 4000$, $x \geq 4000$

μPmt NAIK [2860] = 660 / 1800 = 0,3666

·> Variabel Persediaan

* μPsd SEDIKIT [165] = $\frac{300 - 165}{300 - 140}$; $Y \leq 140$, $140 \leq Y \leq 300$, $Y \geq 300$

μPsd SEDIKIT [165] = 135 / 160 = 0,8437

* μPsd BANYAK [165] = $\frac{165 - 140}{300 - 140}$; $Y \leq 140$, $140 \leq Y \leq 300$, $Y \geq 300$

μPsd BANYAK [165] = 25 / 160 = 0,1562

·> Variabel Produksi

* μPr Berkurang [z] = $\frac{5000 - z}{5000 - 1000}$; $z \leq 1000$, $1000 \leq z \leq 5000$, $z \geq 5000$

* μPr BERTAMBAH [z] = $\frac{z - 1000}{5000 - 1000}$; $z \leq 1000$, $1000 \leq z \leq 5000$, $z \geq 5000$

YAYASAN SASMITA JAYA
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Telp 021-7412566 Fax. 021-7412566

Nama Mahasiswa	: Rimba Shifa Kholbi	Mata Kuliah	: Kecerdasan Buatan
Nomor Induk Mahasiswa	: 19101140 1987	Nama Dosen	: Agung Perdananto S.kom, M.kom.
Semester	: 6	Kelas	: 06TPLM002
Program Studi	: Teknik Informatika	Nilai	:

LEMBAR JAWABAN

(8) lanjutan
• Inferensi

α_1 = NPmt TURUN [X] ∩ Psd BANYAK [Y]
= min ([0,6333], [0,1562])
= 0,1562

α_2 = NPmt TURUN [X] ∩ Psd SEDIKIT [Y]
= min [0,6333], [0,8437])
= 0,6333

α_3 = NPmt NAIK [X] ∩ Psd BANYAK [Y]
= min ([0,3666], [0,1562])
= 0,1562

α_4 = NPmt NAIK [X] ∩ Psd SEDIKIT [Y]
= min ([0,3666], [0,8437])
= 0,3666

$z_1 = z_{max} - \alpha_1 (z_{max} - z_{min})$
$= 5000 - 0,1562\ (5000 - 1000)$
$= 5000 - 624 = 4376$

$z_2 = z_{max} - \alpha_2 (z_{max} - z_{min})$
$= 5000 - 0,6333\ (5000 - 1000)$
$= 5000 - 2533 = 2467$

$z_3 = z_{max} - \alpha_3 (z_{max} - z_{min})$
$= 5000 - 0,1562\ (5000 - 1000)$
$= 5000 - 624 = 4376$

$z_4 = z_{max} - \alpha_4 (z_{max} - z_{min})$
$= 5000 - 0,3666\ (5000 - 1000)$
$= 5000 - 1466 = 3534$

• Defuzifikasi

$$z = \frac{\alpha_1 \times z_1 + \alpha_2 \times z_2 + \alpha_3 \times z_3 + \alpha_4 \times z_4}{\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4}$$

$$= \frac{0,1562 \times 4376 + 0,6333 \times 2467 + 0,1562 \times 4376 + 0,3666 \times 3534}{0,1562 + 0,6333 + 0,1562 + 0,3666}$$

$$= \frac{683,5312 + 1562,3511 + 683,5312 + 1295,5644}{1,3123} = \frac{4224,9779}{1,3123} = 3219,5213$$

Jadi, jumlah barang yang diproduksi adalah 3219,5213 pcs

(9) Jika Permintaan 3000 dan Persediaan 225

• Definisi Variabel

⁍ Variabel Permintaan

$$\text{NPmt TURUN}[3000] = \begin{cases} 1, & x \le 2200 \\ \frac{4000 - 3000}{4000 - 2200}, & 2200 \le x \le 4000 \\ 0, & x \ge 4000 \end{cases}$$

NPmt TURUN [3000] : 1000/1800
= 0,5555

$$\text{NPmt NAIK}[3000] = \begin{cases} 0, & x \le 2200 \\ \frac{3000 - 2200}{4000 - 2200}, & 2200 \le x \le 4000 \\ 1, & x \ge 4000 \end{cases}$$

NPmt NAIK [3000] : 800/1800
= 0,4444

⁍ Variabel Persediaan

$$\text{NPsd SEDIKIT}[225] = \begin{cases} 1, & y \le 140 \\ \frac{300 - 225}{300 - 140}, & 140 \le y \le 300 \\ 0, & y \ge 140 \end{cases}$$

NPsd SEDIKIT [225] : 75/1800
= 0,0416

$$\text{NPsd BANYAK}[225] = \begin{cases} 0, & y \le 140 \\ \frac{225 - 140}{300 - 140}, & 140 \le y \le 300 \\ 1, & y \ge 140 \end{cases}$$

Psd BANYAK [225] : 85/1800
= 0,0472

⁍ Variabel Produksi

$$\text{NPr BERKURANG}[z] = \begin{cases} 1, & z \le 1000 \\ \frac{5000 - z}{5000 - 1000}, & 1000 \le z \le 5000 \\ 0, & z \ge 5000 \end{cases}$$

$$\text{NPr BERTAMBAH}[z] = \begin{cases} 0, & z \le 1000 \\ \frac{z - 1000}{5000 - 1000}, & 1000 \le z \le 5000 \\ 1, & z \ge 5000 \end{cases}$$

• Inferensi

α_1 = MPmt TURUN [x] ∩ Psd BANYAK [Y]
= min ([0,5555], [0,0472])
= 0,0472

α_2 = MPmt TURUN [x] ∩ Psd SEDIKIT [Y]
= min ([0,5555], [0,0416])
= 0,0416

α_3 = MPmt NAIK [x] ∩ Psd Banyak [Y]
= min ([0,4444], [0,0472])
= 0,0472

α_4 = MPmt NAIK [x] ∩ Psd SEDIKIT [Y]
= min ([0,4444], [0,0416])
= 0,0416

$z_1 = z_{max} - \alpha_1 (z_{max} - z_{min})$
$= 5000 - 0,0472 (5000 - 1000)$
$= 5000 - 188 = 4812$

$z_2 = z_{max} - \alpha_2 (z_{max} - z_{min})$
$= 5000 - 0,0416 (5000 - 1000)$
$= 5000 - 166 = 4834$

$z_3 = z_{max} - \alpha_3 (z_{max} - z_{min})$
$= 5000 - 0,0472 (5000 - 1000)$
$= 5000 - 188 = 4812$

$z_4 = z_{max} - \alpha_4 (z_{max} - z_{min})$
$= 5000 - 0,0416 (5000 - 1000)$
$= 5000 - 166 = 4843$

• Defuzifikasi

$$z = \frac{\alpha_1 \times z_1 + \alpha_2 \times z_2 + \alpha_3 \times z_3 + \alpha_4 \times z_4}{\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4}$$

$$= \frac{0,0472 \times 4812 + 0,0416 \times 4834 + 0,0472 \times 4812 + 0,0416 \times 4843}{0,0472 + 0,0416 + 0,0472 + 0,0416}$$

$$= \frac{227,1264 + 201,0944 + 227,1264 + 201,4688}{0,552} = \frac{856,816}{0,552} = 1552,2029$$

Jadi, jumlah barang yang diproduksi adalah 1552,2029 pcs

⑩ Jika Permintaan 3100 dan Persediaan 280

• Definisi Variabel

•> Variabel Permintaan

* MPmt TURUN [3100] = $\frac{4000 - 3100}{4000 - 2200}$; $x \leq 2200$; $2200 \leq x \leq 4000$; $x \geq 4000$

MPmt TURUN [3100] = 900/1800 = 0,5

* MPmt NAIK [3100] = $\frac{3100 - 2200}{4000 - 2200}$; $x \leq 2200$; $2200 \leq x \leq 4000$; $x \geq 4000$

MPmt NAIK [3100] = 900/1800 = 0,5

•> Variabel Persediaan

*MPsd SEDIKIT [280] = $\frac{300 - 280}{300 - 140}$; $y \leq 140$; $140 \leq y \leq 300$; $y \geq 300$

MPsd SEDIKIT [280] = 20/160 = 0,125

* MPsd BANYAK [280] = $\frac{280 - 140}{300 - 140}$; $y \leq 140$; $140 \leq y \leq 300$; $y \geq 300$

MPsd BANYAK [280] = 140/160 = 0,875

•> variabel Produksi

*MPr BERKURANG [z] = $\frac{5000 - z}{5000 - 1000}$; $z \leq 1000$; $1000 \leq z \leq 5000$; $z \geq 5000$

* MPr BERTAMBAH [z] = $\frac{z - 1000}{5000 - 1000}$; $z \leq 1000$; $1000 \leq z \leq 5000$; $z \geq 5000$

• Inferensi

α_1 = MPmt TURUN [x] ∩ Psd BANYAK [Y]
= min ([0,5], [0,875])
= 0,5

$z_1 = z_{max} - \alpha_1 (z_{max} - z_{min})$
$= 5000 - 0,5 (5000 - 1000)$
$= 5000 - 2000 = 3000$

α_2 = MPmt TURUN [x] ∩ Psd SEDIKIT [Y]
= min ([0,5], [0,125])
= 0,125

$z_2 = z_{max} - \alpha_2 (z_{max} - z_{min})$
$= 5000 - 0,125 (5000 - 1000)$
$= 5000 - 500 = 4500$

α_3 = MPmt NAIK [x] ∩ Psd BANYAK [Y]
= [0,5], [0,875]
= 0,5

$z_3 = z_{max} - \alpha_3 (z_{max} - z_{min})$
$= 5000 - 0,5 (5000 - 1000)$
$= 5000 - 2000 = 3000$

α_4 = MPmt NAIK [x] ∩ Psd SEDIKIT [Y]
= min ([0,5], [0,125])
= 0,125

$z_4 = z_{max} - \alpha_4 (z_{max} - z_{min})$
$= 5000 - 0,125 (5000 - 1000)$
$= 5000 - 500 = 4500$

• Defuzifikasi

$$z = \frac{\alpha_1 \times z_1 + \alpha_2 \times z_2 + \alpha_3 \times z_3 + \alpha_4 \times z_3}{\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4}$$

$$= \frac{0,5 \times 3000 + 0,125 \times 4500 + 0,5 \times 3000 + 0,125 \times 4500}{0,5 + 0,125 + 0,5 + 0,125}$$

$$= \frac{1500 + 562,5 + 1500 + 562,5}{1,25} = \frac{4125}{1,25} = 3300$$

Jadi, jumlah barang yang diproduksi adalah 3300 pcs

UNIVERSITAS PAMULANG
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NOMOR UJIAN : 758814033474

FAKULTAS / PRODI : TEKNIK / TEKNIK INFORMATIKA S1

NAMA MAHASISWA : RIMBA SHIFA KHOLBI

NIM : 191011401987

SHIFT : REGULER B

No	Hari/ Tanggal	Waktu	Ruang	Kelas	Mata Kuliah	Paraf
1	-			06TPLM002	KOMPUTER GRAFIK I	1
2	-			06TPLM002	PEMROGRAMAN WEB 2	2
3	-			06TPLM002	REKAYASA PERANGKAT LUNAK	3
4	-			06TPLM002	SISTEM INFORMASI MANAJEMEN	4
5	-			06TPLM002	KECERDASAN BUATAN	5
6	-			06TPLM002	TEKNIK KOMPILASI	6
7	-			06TPLM002	KERJA PRAKTEK	7
8	-			06TPLM002	MOBILE PROGRAMMING	8

Peraturan dan Tata Tertib Peserta Ujian

1. Peserta ujian harus berpakaian rapi, sopan dan memakai jaket Almamater
2. Peserta ujian sudah berada di ruangan sepuluh menit sebelum ujian dimulai
3. Peserta ujian yang terlambat diperkenankan mengikuti ujian setelah mendapat ijin, tanpa perpanjangan waktu
4. Peserta ujian hanya diperkenankan membawa alat-alat yang ditentukan oleh panitia ujian
5. Peserta ujian dilarang membantu teman, mencontoh dari teman dan tindakan-tindakan lainnya yang mengganggu peserta ujian lain
6. Peserta ujian yang melanggar tata tertib ujian dikenakan sanksi akademik

Tangerang Selatan, 3 Juli 2022
Ketua Panitia Ujian

UBAID AL FARUQ, S.Pd., M. Pd
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DATA PEMBAYARAN SEMESTER GENAP 2021/2022

FAKULTAS / PRODI : TEKNIK / TEKNIK INFORMATIKA S1

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NIM : 191011401987

SHIFT : REGULER B

DATA PEMBAYARAN TAGIHAN UANG KULIAH

NO	NOMOR TAGIHAN	NO URUT	PEMBAYARAN	JML BAYAR	STATUS BAYAR	TGL BAYAR	CHANNEL	TEMPAT BAYAR
1	2120116690202201	1	REGISTRASI	400000	LUNAS	2022-01-31 16:35:01.056000	ATM	Bank MANDIRI
2	2120116690202301	2	ANGSURAN KE-2	200000	LUNAS	2022-01-31 16:37:44.036000	ATM	Bank MANDIRI
3	2120116690202401	3	ANGSURAN KE-3	200000	LUNAS	2022-04-02 13:49:04.115000	ATM	Bank MANDIRI
4	2120116690200501	4	UTS	250000	LUNAS	2022-04-02 13:50:05.825000	ATM	Bank MANDIRI
5	2120116690202501	5	ANGSURAN KE-4	200000	LUNAS	2022-04-02 13:51:03.668000	ATM	Bank MANDIRI
6	2120116690202601	6	ANGSURAN KE-5	200000	LUNAS	2022-06-27 17:54:13.000000	LOKET	UNPAM
7	2120116690202701	7	ANGSURAN KE-6	200000	LUNAS	2022-06-27 17:54:13.000000	LOKET	UNPAM
8	2120116690200401	8	PRAKTEK	100000	LUNAS	2022-06-27 17:54:13.000000	LOKET	UNPAM
9	2120116690200601	9	UAS	250000	LUNAS	2022-06-27 17:54:13.000000	LOKET	UNPAM

DATA PEMBAYARAN TAGIHAN LAINNYA

NO	NOMOR TAGIHAN	NO URUT	PEMBAYARAN	JML BAYAR	STATUS BAYAR	TGL BAYAR	CHANNEL	TEMPAT BAYAR