BAB V
KESIMPULAN

Berdasarkan hasil pembahasan, kesimpulan yang dapat diambil adalah sebagai berikut:

1. Hasil optimal untuk porsi makanan bernutrisi untuk penderita obesitas adalah 240 gram bubur ayam, 45 gram kurma, dan 60 gram madu dikonsumsi saat sarapan. Waktu kedua adalah cemilan pagi, penderita mengonsumsi 100 gram kacang rebus, 100 gram ubi jalar rebus, 110 gram apel. Waktu ketiga adalah makan siang, penderita mengonsumsi 100 gram nasi merah, 85 gram ikan lele, 240 gram sayur sop. Waktu keempat adalah cemilan sore, penderita mengonsumsi 40 gram biskuit gandum, 125 gram pisang, 250 gram yogurt. Waktu kelima adalah makan malam, penderita mengonsumsi 200 gram kentang rebus, 120 gram sayur bayam, dan 50 gram jagung rebus.

2. Biaya yang dikeluarkan penderita obesitas dalam perencanaan menu diet mediterania menggunakan program linier tujuan ganda adalah Rp 43.000,00 per hari.

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LAMPIRAN

Lampiran 1 Hasil Perhitungan Perencanaan Menu Diet 1

No.	Waktu	Jenis Makanan	Penderita 1		Penderita 2		Penderita 3		Penderita 4	
			Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*
1	Sarapan	Roti Gandum	70	70	70	70	70	70	70	70
2		Madu	60	60	60	60	60	60	60	60
3		Keju	150	150	150	150	150	150	150	150
4	Cemilan Pagi	Jambu Biji	150	150	150	150	150	150	150	150
5		Stroberi	100	100	100	100	100	100	100	100
6		Jeruk	200	200	200	200	200	200	200	200
7	Makan Siang	Nasi Merah	200	200	200	200	200	200	200	200
8		Rumput Laut	200	200	200	200	200	200	200	200
9		Sayur Sop	240	240	240	240	240	240	240	240
10	Cemilan Sore	Pisang	100	100	100	100	100	100	100	100
11		Apel	250	250	250	250	250	250	250	250
12		Yogurt	60	60	60	60	60	60	60	60
13	Makan Malam	Kurma	120	120	120	120	120	120	120	120
14		Capcay Kuah	130	130	130	130	130	130	130	130
15		Wortel Rebus	100	100	100	100	100	100	100	100
Karbohidrat Minimal			331,25	336,023	318,75	335,648	281,25	335,648	268,75	335,648
Karbohidrat Maksimal			430,25		414,375		365,625		349,375	
Protein Minimal			66,25	37,5101	63,75	37,5101	56,25	37,5101	53,75	37,5101
Protein Maksimal			132,5		127,5		112,5		107,5	
Lemak Minimal			29,44	23,8725	28,33	23,8735	25	23,8735	23,889	23,8715
Lemak Maksimal			73,611		70,833		62,5		59,722	
Total Energi Harian			2650	1746,011	2550	1746,011	2250	1746,011	2150	2150
Biaya Makanan			Rp50.000	Rp48.900	Rp50.000	Rp48.900	Rp50.000	Rp48.900	Rp50.000	Rp48.300

Lampiran 2 Hasil Perhitungan Perencanaan Menu Diet 2

No.	Waktu	Jenis Makanan	Penderita 1		Penderita 2		Penderita 3		Penderita 4	
			Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*
1	Sarapan	Roti Gandum	70	70	70	70	70	70	70	70
2		Madu	60	60	60	60	60	60	60	60
3		Alpukat	150	150	150	150	150	150	150	150
4	Cemilan Pagi	Buah Pir	150	150	150	150	150	150	150	150
5		Anggur	100	100	100	100	100	100	100	100
6		Mangga	200	200	200	200	200	200	200	200
7	Makan Siang	Nasi Merah	200	200	200	200	200	200	200	200
8		Pepes Tahu	200	200	200	200	200	200	200	200
9		Sayur Asem	240	240	240	240	240	240	240	240
10	Cemilan Sore	Susu Kedelai	100	100	100	100	100	100	100	100
11		Pisang	250	250	250	250	250	250	250	250
12		Kacang Arab	60	60	60	60	60	60	60	60
13	Makan Malam	Sayur Bening Bayam	120	120	120	120	120	120	120	120
14		Kacang Panjang	130	130	130	130	130	130	130	130
15		Terong	100	100	100	100	100	100	100	100
Karbohidrat Minimal			331,25	338,601	318,75	338,596	281,25	338,601	268,75	338,601
Karbohidrat Maksimal			430,25		414,375		365,625		349,375	
Protein Minimal			66,25	65,3659	63,75	65,3659	56,25	65,3659	53,75	65,3659
Protein Maksimal			132,5		127,5		112,5		107,5	
Lemak Minimal			29,44	92,53995	28,33	92,54095	25	92,541	23,889	92,539
Lemak Maksimal			73,611		70,833		62,5		59,722	
Total Energi Harian			2650	2110,859	2550	2110,859	2250	2110,859	2150	2110,859
Biaya Makanan			Rp50.000	Rp47.850	Rp50.000	Rp47.850	Rp50.000	Rp47.850	Rp50.000	Rp47.850

Lampiran 3 Hasil Perhitungan Perencanaan Menu Diet 3

No.	Waktu	Jenis Makanan	Penderita 1		Penderita 2		Penderita 3		Penderita 4	
			Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*
1	Sarapan	Oatmeal	70	70	70	70	70	70	70	70
2		Yogurt	250	250	250	250	250	250	250	250
3		Madu	60	60	60	60	60	60	60	60
4	Cemilan Pagi	Kacang Panggang	50	50	50	50	50	50	50	50
5		Kentang Rebus	200	200	200	200	200	200	200	200
6		Anggur	100	100	100	100	100	100	100	100
7	Makan Siang	Nasi Merah	200	200	200	200	200	200	200	200
8		Rumput Laut	160	160	160	160	160	160	160	160
9		Sup Tahu	200	200	200	200	200	200	200	200
10	Cemilan Sore	Jeruk	170	170	170	170	170	170	170	170
11		Pisang	250	250	250	250	250	250	250	250
12		Buah Pir	150	150	150	150	150	150	150	150
13	Makan Malam	Telur Rebus	50	50	50	50	50	50	50	50
14		Sayur Sop	240	240	240	240	240	240	240	240
15		Jagung Rebus	50	50	50	50	50	50	50	50
Karbohidrat Minimal			331,25	382,3851	318,75	382,0101	281,25	382,0101	268,75	382,0101
Karbohidrat Maksimal			430,25		414,375		365,625		349,375	
Protein Minimal			66,25	63,47698	63,75	63,47698	56,25	63,47698	53,75	63,47698
Protein Maksimal			132,5		127,5		112,5		107,5	
Lemak Minimal			29,44	30,32379	28,33	30,32479	25	30,3248	23,889	30,3228
Lemak Maksimal			73,611		70,833		62,5		59,722	
Total Energi Harian			2650	2067	2550	2067	2250	2067	2150	2067
Biaya Makanan			Rp50.000	Rp49.400	Rp50.000	Rp49.400	Rp50.000	Rp49.400	Rp50.000	Rp49.400

Lampiran 4 Hasil Perhitungan Perencanaan Menu Diet 4

No.	Waktu	Jenis Makanan	Penderita 1		Penderita 2		Penderita 3		Penderita 4	
			Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*
1	Sarapan	Bubur Kacang Ijo	240	240	240	240	240	240	240	240
2		Susu Kedelai	100	100	100	100	100	100	100	100
3		Madu	60	60	60	60	60	60	60	60
4	Cemilan Pagi	Mangga	200	200	200	200	200	200	200	200
5		Buah Pir	150	150	150	150	150	150	150	150
6		Anggur	100	100	100	100	100	100	100	100
7	Makan Siang	Nasi Merah	100	100	100	100	100	100	100	100
8		Pepes Tahu	200	200	200	200	200	200	200	200
9		Sayur asem	240	240	240	240	240	240	240	240
10	Cemilan Sore	Pisang	250	250	250	250	250	250	250	250
11		kacang arab	60	60	60	60	60	60	60	60
12		pepaya	120	120	120	120	120	120	120	120
13	Makan Malam	Sayur Bening Bayam	120	120	120	120	120	120	120	120
14		kacang panjang	130	130	130	130	130	130	130	130
15		Jagung Rebus	50	50	50	50	50	50	50	50
Karbohidrat Minimal			331,25	351,597	318,75	351,22	281,25	351,22	268,75	351,22
Karbohidrat Maksimal			430,25		414,375		365,625		349,375	
Protein Minimal			66,25	65,699	63,75	65,699	56,25	65,699	53,75	65,699
Protein Maksimal			132,5		127,5		112,5		107,5	
Lemak Minimal			29,44	37,861	28,33	37,861	25	37,861	23,889	37,859
Lemak Maksimal			73,611		70,833		62,5		59,722	
Total Energi Harian			2650	1995,848	2550	1995,848	2250	1995,848	2150	1995,848
Biaya Makanan			Rp50.000	Rp46.380	Rp50.000	Rp46.380	Rp50.000	Rp46.380	Rp50.000	Rp46.380

Lampiran 5 Hasil Perhitungan Perencanaan Menu Diet 5

No.	Waktu	Jenis Makanan	Penderita 1		Penderita 2		Penderita 3		Penderita 4	
			Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*
1	Sarapan	Oatmeal	35	35	35	35	35	35	35	35
2		Yogurt	250	250	250	250	250	250	250	250
3		Kacang Almond	54	54	54	54	54	54	54	53,732
4	Cemilan Pagi	Jagung Rebus	100	100	100	100	100	100	100	100
5		Ubi Jalar Rebus	150	150	150	150	150	150	150	150
6		Pepaya	120	120	120	120	120	120	120	120
7	Makan Siang	Nasi Merah	200	200	200	200	200	200	200	200
8		Ikan Kakap	150	150	150	150	150	150	150	150
9		Sayur Labu Siam	160	160	160	160	160	160	160	160
10	Cemilan Sore	Stroberi	50	50	50	50	50	50	50	50
11		Semangka	286	286	286	286	286	286	286	286
12		Mangga	200	200	200	200	200	200	200	200
13	Makan Malam	Kentang Rebus	200	200	200	200	200	200	200	200
14		Kacang Rebus	100	100	100	100	100	100	100	100
15		Buncis	100	100	100	100	100	100	100	100
Karbohidrat Minimal			331,25	311,785	318,75	311,405	281,25	311,41	268,75	311,4097
Karbohidrat Maksimal			430,25		414,375		365,625		349,375	
Protein Minimal			66,25	89,78504	63,75	89,78504	56,25	89,78504	53,75	89,78425
Protein Maksimal			132,5		127,5		112,5		107,5	
Lemak Minimal			29,44	55,38901	28,33	55,38901	25	55,38901	23,889	55,3865
Lemak Maksimal			73,611		70,833		62,5		59,722	
Total Energi Harian			2650	2150	2550	2150	2250	2150	2150	2150
Biaya Makanan			Rp50.000	Rp48.300	Rp50.000	Rp48.300	Rp50.000	Rp48.300	Rp50.000	Rp48.300

Lampiran 6 Hasil Perhitungan Perencanaan Menu Diet 6

No.	Waktu	Jenis Makanan	Penderita 1		Penderita 2		Penderita 3		Penderita 4	
			Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*
1	Sarapan	Kentang Rebus	200	200	200	200	200	200	200	200
2		Jagung Rebus	100	100	100	100	100	100	100	100
3		Telur Rebus	50	50	50	50	50	50	50	50
4	Cemilan Pagi	Kacang Rebus	100	100	100	100	100	100	100	100
5		Madu	60	60	60	60	60	60	60	60
6		Apel	110	110	110	110	110	110	110	110
7	Makan Siang	Nasi Merah	200	200	200	200	200	200	200	200
8		Udang Rebus	85	85	85	85	85	85	85	85
9		Capcay Kuah	90	90	90	90	90	90	90	90
10	Cemilan Sore	Mangga	200	200	200	200	200	200	200	200
11		Pisang	250	250	250	250	250	250	250	250
12		Biskuit Gandum	60	60	60	60	60	60	60	60
13	Makan Malam	Roti Gandum	70	70	70	70	70	70	70	70
14		Keju	17	17	17	17	17	17	17	17
15		Susu Kedelai	100	100	100	100	100	100	100	100
Karbohidrat Minimal			331,25	349,375	318,75	349,375	281,25	349,3748	268,75	349,375
Karbohidrat Maksimal			430,25		414,375		365,625		349,375	
Protein Minimal			66,25	71,93924	63,75	71,93924	56,25	71,93924	53,75	71,93924
Protein Maksimal			132,5		127,5		112,5		107,5	
Lemak Minimal			29,44	35,7681	28,33	35,7681	25	35,7681	23,889	35,7681
Lemak Maksimal			73,611		70,833		62,5		59,722	
Total Energi Harian			2650	2149,83	2550	2149,83	2250	2149,83	2150	2149,83
Biaya Makanan			Rp50.000	Rp49.000	Rp50.000	Rp49.000	Rp50.000	Rp49.000	Rp50.000	Rp49.000

Lampiran 7 Hasil Perhitungan Perencanaan Menu Diet 7

No.	Waktu	Jenis Makanan	Penderita 1		Penderita 2		Penderita 3		Penderita 4	
			Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*	Target Awal	Hasil *Goal Programming*
1	Sarapan	Bubur Ayam	240	240	240	240	240	240	240	240
2		Kurma	45	45	45	45	45	45	45	45
3		Madu	60	60	60	60	60	60	60	60
4	Cemilan Pagi	Kacang Rebus	100	100	100	100	100	100	100	100
5		Ubi Jalar Rebus	100	100	100	100	100	100	100	100
6		Apel	110	110	110	110	110	110	110	110
7	Makan Siang	Nasi Merah	100	100	100	100	100	100	100	100
8		Ikan Lele	85	85	85	85	85	85	85	85
9		Sayur Sop	240	240	240	240	240	240	240	240
10	Cemilan Sore	Biskuit Gandum	40	40	40	40	40	40	40	40
11		Pisang	125	125	125	125	125	125	125	125
12		Yogurt	250	250	250	250	250	250	250	250
13	Makan Malam	Kentang Rebus	200	200	200	200	200	200	200	200
14		Sayur Bayam Bening	120	120	120	120	120	120	120	120
15		Jagung Rebus	50	50	50	50	50	50	50	50
Karbohidrat Minimal			331,25	338,9449	318,75	338,5699	281,25	338,5699	268,75	338,5699
Karbohidrat Maksimal			430,25		414,375		365,625		349,375	
Protein Minimal			66,25	75,61427	63,75	75,6143	56,25	75,61427	53,75	75,61427
Protein Maksimal			132,5		127,5		112,5		107,5	
Lemak Minimal			29,44	47,6393	28,33	47,6373	25	47,6403	23,889	47,6383
Lemak Maksimal			73,611		70,833		62,5		59,722	
Total Energi Harian			2650	2118,997	2550	2118,997	2250	2118,997	2150	2118,997
Biaya Makanan			Rp50.000	Rp43.000	Rp50.000	Rp43.000	Rp50.000	Rp43.000	Rp50.000	Rp43.000

Lampiran 8 *Script* Lingo Menu Diet 1 Penderita Obesitas 1

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=60
X3+DN3-DP3=17
X4+DN4-DP4=150
X5+DN5-DP5=100
X6+DN6-DP6=150
X7+DN7-DP7=200
X8+DN8-DP8=160
X9+DN9-DP9=240
X10+DN10-DP10=250
X11+DN11-DP11=110
X12+DN12-DP12=250
X13+DN13-DP13=45
X14+DN14-DP14=180
X15+DN15-DP15=76

0.4429X1+0.41X2+0.0588X3+0.1432X4+0.0768X5+0.1334X6+0.235X7+0.0843
X8+0.0496X9+0.216X10+0.1273X11+0.128X12+0.7556X13+0.0967X14+0.0799
X15+DN16-DP16= 430.25
0.0857X1+0.0002X2+0.1765X3+0.025X4+0.0067X5+0.0081X6+0.0232X7+0.02
3865X8+0.0083X9+0.0104X10+0.0027X11+0.024X12+0.00244X13+0.0158X14+
0.0074X15+DN17-DP17= 132.5
0.0571X1+0X2+0.2059X3+0.0095X4+0.003X5+0.0031X6+0.0083X7+0.0026X8+
0.0083X9+0.0032X10+0.0009X11+0.01X12+0.004X13+0.0259X14+0.0247X15+
DN18-DP18= 73.611

0.4429X1+0.41X2+0.0588X3+0.1432X4+0.0768X5+0.1334X6+0.235X7+0.0843
X8+0.0496X9+0.216X10+0.1273X11+0.128X12+0.7556X13+0.0967X14+0.0799
X15+DN19-DP19= 331.25
0.0857X1+0.0002X2+0.1765X3+0.025X4+0.0067X5+0.0081X6+0.0232X7+0.02
3865X8+0.0083X9+0.0104X10+0.0027X11+0.024X12+0.00244X13+0.0158X14+
0.0074X15+DN20-DP20= 66.25
0.0571X1+0X2+0.2059X3+0.0095X4+0.003X5+0.0031X6+0.0083X7+0.0026X8+
0.0083X9+0.0032X10+0.0009X11+0.01X12+0.004X13+0.0259X14+0.0247X15+
DN21-DP21= 29.44

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
64.2857X1+16.667X2+117.6471X3+13.333X4+25X5+22.667X6+25X7+25X8+8.3
33X9+4X10+27.2727X11+32X12+22.2222X13+47.222X14+13.1579X15+DN22-
DP22=50000

2.7143X1+2.0667X2+2.9412X3+0.68X4+0.32X5+0.533X6+1.12X7+0.3813X8+0
.3X9+1.2X10+0.4818X11+0.68X12+2.822X13+0.667X14+0.5395X15+DN23-
DP23=2650

end
```

output:

```
Global optimal solution found.
Objective value:                              34.30640
Infeasibilities:                              0.000000
Total solver iterations:                            21
Elapsed runtime seconds:                          0.11

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.142800
DN2	0.000000	1.000200
DN3	0.000000	1.382400
DN4	0.000000	1.034500
DN5	0.000000	1.009700
DN6	0.000000	1.011200
DN7	0.000000	1.031500
DN8	0.000000	1.026465
DN9	0.000000	1.016600
DN10	0.000000	1.013600
DN11	0.000000	1.003600
DN12	0.000000	1.034000
DN13	0.000000	1.006440
DN14	0.000000	1.041700
DN15	0.000000	1.032100
DN19	0.000000	1.000000
DN20	28.73990	0.000000
DN21	5.566500	0.000000
DP1	0.000000	0.8572000
DP2	0.000000	0.9998000
DP3	0.000000	0.6176000
DP4	0.000000	0.9655000
DP5	0.000000	0.9903000
DP6	0.000000	0.9888000
DP7	0.000000	0.9685000
DP8	0.000000	0.9735350
DP9	0.000000	0.9834000
DP10	0.000000	0.9864000
DP11	0.000000	0.9964000
DP12	0.000000	0.9660000
DP13	0.000000	0.9935600
DP14	0.000000	0.9583000
DP15	0.000000	0.9679000
DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	60.00000	0.000000
X3	17.00000	0.000000
X4	150.0000	0.000000

X5	100.0000	0.000000
X6	150.0000	0.000000
X7	200.0000	0.000000
X8	160.0000	0.000000
X9	240.0000	0.000000
X10	250.0000	0.000000
X11	110.0000	0.000000
X12	250.0000	0.000000
X13	45.00000	0.000000
X14	180.0000	0.000000
X15	76.00000	0.000000
DN16	94.60200	0.000000
DN17	94.98990	0.000000
DN18	49.73750	0.000000
DP19	4.398000	0.000000
DP20	0.000000	1.000000
DP21	0.000000	1.000000
DN22	1100.104	0.000000
DN23	903.9886	0.000000

Lampiran 9 *script* Lingo Menu Diet 1 Penderita Obesitas 2

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=60
X3+DN3-DP3=17
X4+DN4-DP4=150
X5+DN5-DP5=100
X6+DN6-DP6=150
X7+DN7-DP7=200
X8+DN8-DP8=160
X9+DN9-DP9=240
X10+DN10-DP10=250
X11+DN11-DP11=110
X12+DN12-DP12=250
X13+DN13-DP13=45
X14+DN14-DP14=180
X15+DN15-DP15=76

0.4429X1+0.41X2+0.0588X3+0.1432X4+0.0768X5+0.1334X6+0.235X7+0.0843
X8+0.0496X9+0.216X10+0.1273X11+0.128X12+0.7556X13+0.0967X14+0.0799
X15+DN16-DP16= 414.375
0.0857X1+0.0002X2+0.1765X3+0.025X4+0.0067X5+0.0081X6+0.0232X7+0.02
3865X8+0.0083X9+0.0104X10+0.0027X11+0.024X12+0.00244X13+0.0158X14+
0.0074X15+DN17-DP17= 127.5
0.0571X1+0X2+0.2059X3+0.0095X4+0.003X5+0.0031X6+0.0083X7+0.0026X8+
0.0083X9+0.0032X10+0.0009X11+0.01X12+0.004X13+0.0259X14+0.0247X15+
DN18-DP18= 70.833

0.4429X1+0.41X2+0.0588X3+0.1432X4+0.0768X5+0.1334X6+0.235X7+0.0843
X8+0.0496X9+0.216X10+0.1273X11+0.128X12+0.7556X13+0.0967X14+0.0799
X15+DN19-DP19= 318.75
0.0857X1+0.0002X2+0.1765X3+0.025X4+0.0067X5+0.0081X6+0.0232X7+0.02
3865X8+0.0083X9+0.0104X10+0.0027X11+0.024X12+0.00244X13+0.0158X14+
0.0074X15+DN20-DP20= 63.75
0.0571X1+0X2+0.2059X3+0.0095X4+0.003X5+0.0031X6+0.0083X7+0.0026X8+
0.0083X9+0.0032X10+0.0009X11+0.01X12+0.004X13+0.0259X14+0.0247X15+
DN21-DP21= 28.33

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
64.2857X1+16.667X2+117.6471X3+13.333X4+25X5+22.667X6+25X7+25X8+8.3
33X9+4X10+27.2727X11+32X12+22.2222X13+47.222X14+13.1579X15+DN22-
DP22=50000

2.7143X1+2.0667X2+2.9412X3+0.68X4+0.32X5+0.533X6+1.12X7+0.3813X8+0
.3X9+1.2X10+0.4818X11+0.68X12+2.822X13+0.667X14+0.5395X15+DN23-
DP23=2550

end
```

Output:

```
Global optimal solution found.
Objective value:                              30.69640
Infeasibilities:                              0.000000
Total solver iterations:                            21
Elapsed runtime seconds:                          0.09

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.142800
DN2	0.000000	1.000200
DN3	0.000000	1.382400
DN4	0.000000	1.034500
DN5	0.000000	1.009700
DN6	0.000000	1.011200
DN7	0.000000	1.031500
DN8	0.000000	1.026465
DN9	0.000000	1.016600
DN10	0.000000	1.013600
DN11	0.000000	1.003600
DN12	0.000000	1.034000
DN13	0.000000	1.006440
DN14	0.000000	1.041700
DN15	0.000000	1.032100
DN19	0.000000	1.000000
DN20	26.23990	0.000000
DN21	4.456500	0.000000
DP1	0.000000	0.8572000
DP2	0.000000	0.9998000
DP3	0.000000	0.6176000
DP4	0.000000	0.9655000
DP5	0.000000	0.9903000
DP6	0.000000	0.9888000
DP7	0.000000	0.9685000
DP8	0.000000	0.9735350
DP9	0.000000	0.9834000
DP10	0.000000	0.9864000
DP11	0.000000	0.9964000
DP12	0.000000	0.9660000
DP13	0.000000	0.9935600
DP14	0.000000	0.9583000
DP15	0.000000	0.9679000
DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	60.00000	0.000000
X3	17.00000	0.000000
X4	150.0000	0.000000

X5	100.0000	0.000000
X6	150.0000	0.000000
X7	200.0000	0.000000
X8	160.0000	0.000000
X9	240.0000	0.000000
X10	250.0000	0.000000
X11	110.0000	0.000000
X12	250.0000	0.000000
X13	45.00000	0.000000
X14	180.0000	0.000000
X15	76.00000	0.000000
DN16	78.72700	0.000000
DN17	89.98990	0.000000
DN18	46.95950	0.000000
DP19	16.89800	0.000000
DP20	0.000000	1.000000
DP21	0.000000	1.000000
DN22	1100.104	0.000000
DN23	803.9886	0.000000

Lampiran 10 *script* Lingo Menu Diet 1 Penderita Obesitas 3

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=60
X3+DN3-DP3=17
X4+DN4-DP4=150
X5+DN5-DP5=100
X6+DN6-DP6=150
X7+DN7-DP7=200
X8+DN8-DP8=160
X9+DN9-DP9=240
X10+DN10-DP10=250
X11+DN11-DP11=110
X12+DN12-DP12=250
X13+DN13-DP13=45
X14+DN14-DP14=180
X15+DN15-DP15=76
0.4429X1+0.41X2+0.0588X3+0.1432X4+0.0768X5+0.1334X6+0.235X7+0.0843
X8+0.0496X9+0.216X10+0.1273X11+0.128X12+0.7556X13+0.0967X14+0.0799
X15+DN16-DP16= 365.625
0.0857X1+0.0002X2+0.1765X3+0.025X4+0.0067X5+0.0081X6+0.0232X7+0.02
3865X8+0.0083X9+0.0104X10+0.0027X11+0.024X12+0.00244X13+0.0158X14+
0.0074X15+DN17-DP17= 112.5
0.0571X1+0X2+0.2059X3+0.0095X4+0.003X5+0.0031X6+0.0083X7+0.0026X8+
0.0083X9+0.0032X10+0.0009X11+0.01X12+0.004X13+0.0259X14+0.0247X15+
DN18-DP18= 62.5

0.4429X1+0.41X2+0.0588X3+0.1432X4+0.0768X5+0.1334X6+0.235X7+0.0843
X8+0.0496X9+0.216X10+0.1273X11+0.128X12+0.7556X13+0.0967X14+0.0799
X15+DN19-DP19= 281.25
0.0857X1+0.0002X2+0.1765X3+0.025X4+0.0067X5+0.0081X6+0.0232X7+0.02
3865X8+0.0083X9+0.0104X10+0.0027X11+0.024X12+0.00244X13+0.0158X14+
0.0074X15+DN20-DP20= 56.25
0.0571X1+0X2+0.2059X3+0.0095X4+0.003X5+0.0031X6+0.0083X7+0.0026X8+
0.0083X9+0.0032X10+0.0009X11+0.01X12+0.004X13+0.0259X14+0.0247X15+
DN21-DP21= 25

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
```

```
X11>=0
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
64.2857X1+16.667X2+117.6471X3+13.333X4+25X5+22.667X6+25X7+25X8+8.3
33X9+4X10+27.2727X11+32X12+22.2222X13+47.222X14+13.1579X15+DN22-
DP22=50000
2.7143X1+2.0667X2+2.9412X3+0.68X4+0.32X5+0.533X6+1.12X7+0.3813X8+0
.3X9+1.2X10+0.4818X11+0.68X12+2.822X13+0.667X14+0.5395X15+DN23-
DP23=2250

end
```

Output:

```
Global optimal solution found.
Objective value:                              19.86640
Infeasibilities:                              0.000000
Total solver iterations:                            21
Elapsed runtime seconds:                          0.11

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.142800
DN2	0.000000	1.000200
DN3	0.000000	1.382400
DN4	0.000000	1.034500
DN5	0.000000	1.009700
DN6	0.000000	1.011200
DN7	0.000000	1.031500
DN8	0.000000	1.026465
DN9	0.000000	1.016600
DN10	0.000000	1.013600
DN11	0.000000	1.003600
DN12	0.000000	1.034000
DN13	0.000000	1.006440
DN14	0.000000	1.041700
DN15	0.000000	1.032100
DN19	0.000000	1.000000
DN20	18.73990	0.000000
DN21	1.126500	0.000000
DP1	0.000000	0.8572000
DP2	0.000000	0.9998000
DP3	0.000000	0.6176000
DP4	0.000000	0.9655000
DP5	0.000000	0.9903000
DP6	0.000000	0.9888000
DP7	0.000000	0.9685000
DP8	0.000000	0.9735350
DP9	0.000000	0.9834000
DP10	0.000000	0.9864000
DP11	0.000000	0.9964000
DP12	0.000000	0.9660000
DP13	0.000000	0.9935600
DP14	0.000000	0.9583000
DP15	0.000000	0.9679000
DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	60.00000	0.000000
X3	17.00000	0.000000
X4	150.0000	0.000000

X5	100.0000	0.000000
X6	150.0000	0.000000
X7	200.0000	0.000000
X8	160.0000	0.000000
X9	240.0000	0.000000
X10	250.0000	0.000000
X11	110.0000	0.000000
X12	250.0000	0.000000
X13	45.00000	0.000000
X14	180.0000	0.000000
X15	76.00000	0.000000
DN16	29.97700	0.000000
DN17	74.98990	0.000000
DN18	38.62650	0.000000
DP19	54.39800	0.000000
DP20	0.000000	1.000000
DP21	0.000000	1.000000
DN22	1100.104	0.000000
DN23	503.9886	0.000000

Lampiran 11 *script* Lingo Menu Diet 1 Penderita Obesitas 4

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=60
X3+DN3-DP3=17
X4+DN4-DP4=150
X5+DN5-DP5=100
X6+DN6-DP6=150
X7+DN7-DP7=200
X8+DN8-DP8=160
X9+DN9-DP9=240
X10+DN10-DP10=250
X11+DN11-DP11=110
X12+DN12-DP12=250
X13+DN13-DP13=45
X14+DN14-DP14=180
X15+DN15-DP15=76
0.4429X1+0.41X2+0.0588X3+0.1432X4+0.0768X5+0.1334X6+0.235X7+0.0843
X8+0.0496X9+0.216X10+0.1273X11+0.128X12+0.7556X13+0.0967X14+0.0799
X15+DN16-DP16= 349.375
0.0857X1+0.0002X2+0.1765X3+0.025X4+0.0067X5+0.0081X6+0.0232X7+0.02
3865X8+0.0083X9+0.0104X10+0.0027X11+0.024X12+0.00244X13+0.0158X14+
0.0074X15+DN17-DP17= 107.5
0.0571X1+0X2+0.2059X3+0.0095X4+0.003X5+0.0031X6+0.0083X7+0.0026X8+
0.0083X9+0.0032X10+0.0009X11+0.01X12+0.004X13+0.0259X14+0.0247X15+
DN18-DP18= 59.722

0.4429X1+0.41X2+0.0588X3+0.1432X4+0.0768X5+0.1334X6+0.235X7+0.0843
X8+0.0496X9+0.216X10+0.1273X11+0.128X12+0.7556X13+0.0967X14+0.0799
X15+DN19-DP19= 268.75
0.0857X1+0.0002X2+0.1765X3+0.025X4+0.0067X5+0.0081X6+0.0232X7+0.02
3865X8+0.0083X9+0.0104X10+0.0027X11+0.024X12+0.00244X13+0.0158X14+
0.0074X15+DN20-DP20= 53.75
0.0571X1+0X2+0.2059X3+0.0095X4+0.003X5+0.0031X6+0.0083X7+0.0026X8+
0.0083X9+0.0032X10+0.0009X11+0.01X12+0.004X13+0.0259X14+0.0247X15+
DN21-DP21= 23.889

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
```

```
X11>=0
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
64.2857X1+16.667X2+117.6471X3+13.333X4+25X5+22.667X6+25X7+25X8+8.3
33X9+4X10+27.2727X11+32X12+22.2222X13+47.222X14+13.1579X15+DN22-
DP22=50000
2.7143X1+2.0667X2+2.9412X3+0.68X4+0.32X5+0.533X6+1.12X7+0.3813X8+0
.3X9+1.2X10+0.4818X11+0.68X12+2.822X13+0.667X14+0.5395X15+DN23-
DP23=2150

end
```

Output:

```
Global optimal solution found.
Objective value:                              16.25540
Infeasibilities:                              0.000000
Total solver iterations:                            21
Elapsed runtime seconds:                          0.11

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.142800
DN2	0.000000	1.000200
DN3	0.000000	1.382400
DN4	0.000000	1.034500
DN5	0.000000	1.009700
DN6	0.000000	1.011200
DN7	0.000000	1.031500
DN8	0.000000	1.026465
DN9	0.000000	1.016600
DN10	0.000000	1.013600
DN11	0.000000	1.003600
DN12	0.000000	1.034000
DN13	0.000000	1.006440
DN14	0.000000	1.041700
DN15	0.000000	1.032100
DN19	0.000000	1.000000
DN20	16.23990	0.000000
DN21	0.1550000E-01	0.000000
DP1	0.000000	0.8572000
DP2	0.000000	0.9998000
DP3	0.000000	0.6176000
DP4	0.000000	0.9655000
DP5	0.000000	0.9903000
DP6	0.000000	0.9888000
DP7	0.000000	0.9685000
DP8	0.000000	0.9735350
DP9	0.000000	0.9834000
DP10	0.000000	0.9864000
DP11	0.000000	0.9964000
DP12	0.000000	0.9660000
DP13	0.000000	0.9935600
DP14	0.000000	0.9583000
DP15	0.000000	0.9679000
DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	60.00000	0.000000
X3	17.00000	0.000000
X4	150.0000	0.000000

X5	100.0000	0.000000
X6	150.0000	0.000000
X7	200.0000	0.000000
X8	160.0000	0.000000
X9	240.0000	0.000000
X10	250.0000	0.000000
X11	110.0000	0.000000
X12	250.0000	0.000000
X13	45.00000	0.000000
X14	180.0000	0.000000
X15	76.00000	0.000000
DN16	13.72700	0.000000
DN17	69.98990	0.000000
DN18	35.84850	0.000000
DP19	66.89800	0.000000
DP20	0.000000	1.000000
DP21	0.000000	1.000000
DN22	1100.104	0.000000
DN23	403.9886	0.000000

Lampiran 12 *Script* Lingo Menu Diet 2 Penderita Obesitas 1

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=60
X3+DN3-DP3=150
X4+DN4-DP4=150
X5+DN5-DP5=100
X6+DN6-DP6=200
X7+DN7-DP7=200
X8+DN8-DP8=200
X9+DN9-DP9=240
X10+DN10-DP10=100
X11+DN11-DP11=250
X12+DN12-DP12=60
X13+DN13-DP13=120
X14+DN14-DP14=130
X15+DN15-DP15=50

0.4429X1+0.41X2+0.085X3+0.1433X4+0.181X5+0.2807X6+0.1175X7+0.04915
X8+0.05375X9+0.0493X10+0.216X11+0.6065X12+0.075X13+0.0761X14+0.281
4X15+DN16-DP16= 430.625
0.0857X1+0.0002X2+0.02X3+0.0035X4+0.0072X5+0.0084X6+0.0116X7+0.114
2X8+0.01325X9+0.0448X10+0.0104X11+0.193X12+0.0175X13+0.01823X14+0.
0392X15+DN17-DP17= 132.5
0.0571X1+0X2+0.1466X3+0.001133X4+0.0016X5+0.0045X6+0.00415X7+0.071
15X8+0.0115X9+0.0192X10+0.0032X11+0.0603X12+0.0033X13+0.31X14+0.00
94X15+DN18-DP18= 73.611

0.4429X1+0.41X2+0.085X3+0.1433X4+0.181X5+0.2807X6+0.1175X7+0.04915
X8+0.05375X9+0.0493X10+0.216X11+0.6065X12+0.075X13+0.0761X14+0.281
4X15+DN19-DP19= 331.25
0.0857X1+0.0002X2+0.02X3+0.0035X4+0.0072X5+0.0084X6+0.0116X7+0.114
2X8+0.01325X9+0.0448X10+0.0104X11+0.193X12+0.0175X13+0.01823X14+0.
0392X15+DN20-DP20= 66.25
0.0571X1+0X2+0.1466X3+0.001133X4+0.0016X5+0.0045X6+0.00415X7+0.071
15X8+0.0115X9+0.0192X10+0.0032X11+0.0603X12+0.0033X13+0.31X14+0.00
94X15+DN21-DP21= 29.44

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
64.2857X1+16.667X2+26.66667X3+50X4+40X5+13X6+25X7+30X8+13X9+40X10+
4X11+33.33X12+10X13+11X14+10X15+DN22-DP22=50000

2.7143X1+2.0667X2+1.6X3+0.54X4+0.69X5+1.07X6+0.56X7+1.26X8+0.333X9
+0.52X10+1.2X11+3.633X12+0.3583X13+0.592X14+1.18X15+DN23-DP23=2650

end
```

output:

```
Global optimal solution found.
Objective value:                              19.81405
Infeasibilities:                              0.000000
Total solver iterations:                            25
Elapsed runtime seconds:                          2.30

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.028600
DN2	0.000000	1.000200
DN3	0.000000	0.8734000
DN4	0.000000	1.002367
DN5	0.000000	1.005600
DN6	0.000000	1.003900
DN7	0.000000	1.007450
DN8	0.000000	1.043050
DN9	0.000000	1.001750
DN10	0.000000	1.025600
DN11	0.000000	1.007200
DN12	0.000000	1.132700
DN13	0.000000	1.014200
DN14	0.000000	0.7082300
DN15	0.000000	1.029800
DN19	0.000000	1.000000
DN20	0.8841000	0.000000
DN21	0.000000	1.000000
DP1	0.000000	0.9714000
DP2	0.000000	0.9998000
DP3	0.000000	1.126600
DP4	0.000000	0.9976330
DP5	0.000000	0.9944000
DP6	0.000000	0.9961000
DP7	0.000000	0.9925500
DP8	0.000000	0.9569500
DP9	0.000000	0.9982500
DP10	0.000000	0.9744000
DP11	0.000000	0.9928000
DP12	0.000000	0.8673000
DP13	0.000000	0.9858000
DP14	0.000000	1.291770
DP15	0.000000	0.9702000
DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	18.92995	0.000000

DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	60.00000	0.000000
X3	150.0000	0.000000
X4	150.0000	0.000000
X5	100.0000	0.000000
X6	200.0000	0.000000
X7	200.0000	0.000000
X8	200.0000	0.000000
X9	240.0000	0.000000
X10	100.0000	0.000000
X11	250.0000	0.000000
X12	60.00000	0.000000
X13	120.0000	0.000000
X14	130.0000	0.000000
X15	50.00000	0.000000
DN16	92.02400	0.000000
DN17	67.13410	0.000000
DN18	0.000000	1.000000
DP19	7.351000	0.000000
DP20	0.000000	1.000000
DP21	63.10095	0.000000
DN22	2150.180	0.000000
DN23	539.1410	0.000000

Lampiran 13 *Script* Lingo Menu Diet 2 Penderita Obesitas 2

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=60
X3+DN3-DP3=150
X4+DN4-DP4=150
X5+DN5-DP5=100
X6+DN6-DP6=200
X7+DN7-DP7=200
X8+DN8-DP8=200
X9+DN9-DP9=240
X10+DN10-DP10=100
X11+DN11-DP11=250
X12+DN12-DP12=60
X13+DN13-DP13=120
X14+DN14-DP14=130
X15+DN15-DP15=50

0.4429X1+0.41X2+0.085X3+0.1433X4+0.181X5+0.2807X6+0.1175X7+0.04915
X8+0.05375X9+0.0493X10+0.216X11+0.6065X12+0.075X13+0.0761X14+0.281
4X15+DN16-DP16= 414.38
0.0857X1+0.0002X2+0.02X3+0.0035X4+0.0072X5+0.0084X6+0.0116X7+0.114
2X8+0.01325X9+0.0448X10+0.0104X11+0.193X12+0.0175X13+0.01823X14+0.
0392X15+DN17-DP17= 127.5
0.0571X1+0X2+0.1466X3+0.001133X4+0.0016X5+0.0045X6+0.00415X7+0.071
15X8+0.0115X9+0.0192X10+0.0032X11+0.0603X12+0.0033X13+0.31X14+0.00
94X15+DN18-DP18= 70.833

0.4429X1+0.41X2+0.085X3+0.1433X4+0.181X5+0.2807X6+0.1175X7+0.04915
X8+0.05375X9+0.0493X10+0.216X11+0.6065X12+0.075X13+0.0761X14+0.281
4X15+DN19-DP19= 318.25
0.0857X1+0.0002X2+0.02X3+0.0035X4+0.0072X5+0.0084X6+0.0116X7+0.114
2X8+0.01325X9+0.0448X10+0.0104X11+0.193X12+0.0175X13+0.01823X14+0.
0392X15+DN20-DP20= 63.75
0.0571X1+0X2+0.1466X3+0.001133X4+0.0016X5+0.0045X6+0.00415X7+0.071
15X8+0.0115X9+0.0192X10+0.0032X11+0.0603X12+0.0033X13+0.31X14+0.00
94X15+DN21-DP21= 28.33

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
64.2857X1+16.667X2+26.66667X3+50X4+40X5+13X6+25X7+30X8+13X9+40X10+
4X11+33.33X12+10X13+11X14+10X15+DN22-DP22=50000

2.7143X1+2.0667X2+1.6X3+0.54X4+0.69X5+1.07X6+0.56X7+1.26X8+0.333X9
+0.52X10+1.2X11+3.633X12+0.3583X13+0.592X14+1.18X15+DN23-DP23=2550

end
```

output:

```
Global optimal solution found.
Objective value:                              21.70795
Infeasibilities:                              0.000000
Total solver iterations:                            26
Elapsed runtime seconds:                          0.11

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	0.9429000
DN2	0.000000	1.000000
DN3	0.000000	0.8534000
DN4	0.000000	0.9988670
DN5	0.000000	0.9984000
DN6	0.000000	0.9955000
DN7	0.000000	0.9958500
DN8	0.000000	0.9288500
DN9	0.000000	0.9885000
DN10	0.000000	0.9808000
DN11	0.000000	0.9968000
DN12	0.000000	0.9397000
DN13	0.000000	0.9967000
DN14	0.000000	0.6900000
DN15	0.000000	0.9906000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.057100
DP2	0.000000	1.000000
DP3	0.000000	1.146600
DP4	0.000000	1.001133
DP5	0.000000	1.001600
DP6	0.000000	1.004500
DP7	0.000000	1.004150
DP8	0.000000	1.071150
DP9	0.000000	1.011500
DP10	0.000000	1.019200
DP11	0.000000	1.003200
DP12	0.000000	1.060300
DP13	0.000000	1.003300
DP14	0.000000	1.310000
DP15	0.000000	1.009400
DP16	0.000000	1.000000
DP17	0.000000	1.000000

DP18	21.70795	0.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	60.00000	0.000000
X3	150.0000	0.000000
X4	150.0000	0.000000
X5	100.0000	0.000000
X6	200.0000	0.000000
X7	200.0000	0.000000
X8	200.0000	0.000000
X9	240.0000	0.000000
X10	100.0000	0.000000
X11	250.0000	0.000000
X12	60.00000	0.000000
X13	120.0000	0.000000
X14	130.0000	0.000000
X15	50.00000	0.000000
DN16	75.77900	0.000000
DN17	62.13410	0.000000
DN18	0.000000	1.000000
DP19	20.35100	0.000000
DP20	1.615900	0.000000
DP21	64.21095	0.000000
DN22	2150.180	0.000000
DN23	439.1410	0.000000

Lampiran 14 *Script* Lingo Menu Diet 2 Penderita Obesitas 3

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=60
X3+DN3-DP3=150
X4+DN4-DP4=150
X5+DN5-DP5=100
X6+DN6-DP6=200
X7+DN7-DP7=200
X8+DN8-DP8=200
X9+DN9-DP9=240
X10+DN10-DP10=100
X11+DN11-DP11=250
X12+DN12-DP12=60
X13+DN13-DP13=120
X14+DN14-DP14=130
X15+DN15-DP15=50

0.4429X1+0.41X2+0.085X3+0.1433X4+0.181X5+0.2807X6+0.1175X7+0.04915
X8+0.05375X9+0.0493X10+0.216X11+0.6065X12+0.075X13+0.0761X14+0.281
4X15+DN16-DP16= 365.625
0.0857X1+0.0002X2+0.02X3+0.0035X4+0.0072X5+0.0084X6+0.0116X7+0.114
2X8+0.01325X9+0.0448X10+0.0104X11+0.193X12+0.0175X13+0.01823X14+0.
0392X15+DN17-DP17= 112.5
0.0571X1+0X2+0.1466X3+0.001133X4+0.0016X5+0.0045X6+0.00415X7+0.071
15X8+0.0115X9+0.0192X10+0.0032X11+0.0603X12+0.0033X13+0.31X14+0.00
94X15+DN18-DP18= 62.5

0.4429X1+0.41X2+0.085X3+0.1433X4+0.181X5+0.2807X6+0.1175X7+0.04915
X8+0.05375X9+0.0493X10+0.216X11+0.6065X12+0.075X13+0.0761X14+0.281
4X15+DN19-DP19= 218.25
0.0857X1+0.0002X2+0.02X3+0.0035X4+0.0072X5+0.0084X6+0.0116X7+0.114
2X8+0.01325X9+0.0448X10+0.0104X11+0.193X12+0.0175X13+0.01823X14+0.
0392X15+DN20-DP20= 56.25
0.0571X1+0X2+0.1466X3+0.001133X4+0.0016X5+0.0045X6+0.00415X7+0.071
15X8+0.0115X9+0.0192X10+0.0032X11+0.0603X12+0.0033X13+0.31X14+0.00
94X15+DN21-DP21= 25

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
64.2857X1+16.667X2+26.66667X3+50X4+40X5+13X6+25X7+30X8+13X9+40X10+
4X11+33.33X12+10X13+11X14+10X15+DN22-DP22=50000

2.7143X1+2.0667X2+1.6X3+0.54X4+0.69X5+1.07X6+0.56X7+1.26X8+0.333X9
+0.52X10+1.2X11+3.633X12+0.3583X13+0.592X14+1.18X15+DN23-DP23=2250

end
```

output:

```
  Global optimal solution found.
  Objective value:                              30.04095
  Infeasibilities:                              0.000000
  Total solver iterations:                            28
  Elapsed runtime seconds:                          0.10

  Model Class:                                        LP

  Total variables:                    61
  Nonlinear variables:                 0
  Integer variables:                   0

  Total constraints:                  85
  Nonlinear constraints:               0

  Total nonzeros:                    278
  Nonlinear nonzeros:                  0


                                Variable           Value        Reduced Cost
                                     DN1        0.000000           0.9429000
                                     DN2        0.000000            1.000000
                                     DN3        0.000000           0.8534000
                                     DN4        0.000000           0.9988670
                                     DN5        0.000000           0.9984000
                                     DN6        0.000000           0.9955000
                                     DN7        0.000000           0.9958500
                                     DN8        0.000000           0.9288500
                                     DN9        0.000000           0.9885000
                                    DN10        0.000000           0.9808000
                                    DN11        0.000000           0.9968000
                                    DN12        0.000000           0.9397000
                                    DN13        0.000000           0.9967000
                                    DN14        0.000000           0.6900000
                                    DN15        0.000000           0.9906000
                                    DN19        0.000000            1.000000
                                    DN20        0.000000            1.000000
                                    DN21        0.000000            1.000000
                                     DP1        0.000000            1.057100
                                     DP2        0.000000            1.000000
                                     DP3        0.000000            1.146600
                                     DP4        0.000000            1.001133
                                     DP5        0.000000            1.001600
                                     DP6        0.000000            1.004500
                                     DP7        0.000000            1.004150
                                     DP8        0.000000            1.071150
                                     DP9        0.000000            1.011500
                                    DP10        0.000000            1.019200
                                    DP11        0.000000            1.003200
                                    DP12        0.000000            1.060300
                                    DP13        0.000000            1.003300
                                    DP14        0.000000            1.310000
                                    DP15        0.000000            1.009400
                                    DP16        0.000000            1.000000
```

DP17	0.000000	1.000000
DP18	30.04095	0.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	60.00000	0.000000
X3	150.0000	0.000000
X4	150.0000	0.000000
X5	100.0000	0.000000
X6	200.0000	0.000000
X7	200.0000	0.000000
X8	200.0000	0.000000
X9	240.0000	0.000000
X10	100.0000	0.000000
X11	250.0000	0.000000
X12	60.00000	0.000000
X13	120.0000	0.000000
X14	130.0000	0.000000
X15	50.00000	0.000000
DN16	27.02400	0.000000
DN17	47.13410	0.000000
DN18	0.000000	1.000000
DP19	120.3510	0.000000
DP20	9.115900	0.000000
DP21	67.54095	0.000000
DN22	2150.180	0.000000
DN23	139.1410	0.000000

Lampiran 15 *Script* Lingo Menu Diet 2 Penderita Obesitas 4

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=60
X3+DN3-DP3=150
X4+DN4-DP4=150
X5+DN5-DP5=100
X6+DN6-DP6=200
X7+DN7-DP7=200
X8+DN8-DP8=200
X9+DN9-DP9=240
X10+DN10-DP10=100
X11+DN11-DP11=250
X12+DN12-DP12=60
X13+DN13-DP13=120
X14+DN14-DP14=130
X15+DN15-DP15=50

0.4429X1+0.41X2+0.085X3+0.1433X4+0.181X5+0.2807X6+0.1175X7+0.04915
X8+0.05375X9+0.0493X10+0.216X11+0.6065X12+0.075X13+0.0761X14+0.281
4X15+DN16-DP16= 349.375
0.0857X1+0.0002X2+0.02X3+0.0035X4+0.0072X5+0.0084X6+0.0116X7+0.114
2X8+0.01325X9+0.0448X10+0.0104X11+0.193X12+0.0175X13+0.01823X14+0.
0392X15+DN17-DP17= 107.5
0.0571X1+0X2+0.1466X3+0.001133X4+0.0016X5+0.0045X6+0.00415X7+0.071
15X8+0.0115X9+0.0192X10+0.0032X11+0.0603X12+0.0033X13+0.31X14+0.00
94X15+DN18-DP18= 59.722

0.4429X1+0.41X2+0.085X3+0.1433X4+0.181X5+0.2807X6+0.1175X7+0.04915
X8+0.05375X9+0.0493X10+0.216X11+0.6065X12+0.075X13+0.0761X14+0.281
4X15+DN19-DP19= 268.75
0.0857X1+0.0002X2+0.02X3+0.0035X4+0.0072X5+0.0084X6+0.0116X7+0.114
2X8+0.01325X9+0.0448X10+0.0104X11+0.193X12+0.0175X13+0.01823X14+0.
0392X15+DN20-DP20= 53.75
0.0571X1+0X2+0.1466X3+0.001133X4+0.0016X5+0.0045X6+0.00415X7+0.071
15X8+0.0115X9+0.0192X10+0.0032X11+0.0603X12+0.0033X13+0.31X14+0.00
94X15+DN21-DP21= 23.889

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
64.2857X1+16.667X2+26.66667X3+50X4+40X5+13X6+25X7+30X8+13X9+40X10+
4X11+33.33X12+10X13+11X14+10X15+DN22-DP22=50000

2.7143X1+2.0667X2+1.6X3+0.54X4+0.69X5+1.07X6+0.56X7+1.26X8+0.333X9
+0.52X10+1.2X11+3.633X12+0.3583X13+0.592X14+1.18X15+DN23-DP23=2150

end
```

output:

```
Global optimal solution found.
Objective value:                              32.81895
Infeasibilities:                              0.000000
Total solver iterations:                            28
Elapsed runtime seconds:                          0.12

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	0.9429000
DN2	0.000000	1.000000
DN3	0.000000	0.8534000
DN4	0.000000	0.9988670
DN5	0.000000	0.9984000
DN6	0.000000	0.9955000
DN7	0.000000	0.9958500
DN8	0.000000	0.9288500
DN9	0.000000	0.9885000
DN10	0.000000	0.9808000
DN11	0.000000	0.9968000
DN12	0.000000	0.9397000
DN13	0.000000	0.9967000
DN14	0.000000	0.6900000
DN15	0.000000	0.9906000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.057100
DP2	0.000000	1.000000
DP3	0.000000	1.146600
DP4	0.000000	1.001133
DP5	0.000000	1.001600
DP6	0.000000	1.004500
DP7	0.000000	1.004150
DP8	0.000000	1.071150
DP9	0.000000	1.011500
DP10	0.000000	1.019200
DP11	0.000000	1.003200
DP12	0.000000	1.060300
DP13	0.000000	1.003300
DP14	0.000000	1.310000
DP15	0.000000	1.009400
DP16	0.000000	1.000000

DP17	0.000000	1.000000
DP18	32.81895	0.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	60.00000	0.000000
X3	150.0000	0.000000
X4	150.0000	0.000000
X5	100.0000	0.000000
X6	200.0000	0.000000
X7	200.0000	0.000000
X8	200.0000	0.000000
X9	240.0000	0.000000
X10	100.0000	0.000000
X11	250.0000	0.000000
X12	60.00000	0.000000
X13	120.0000	0.000000
X14	130.0000	0.000000
X15	50.00000	0.000000
DN16	10.77400	0.000000
DN17	42.13410	0.000000
DN18	0.000000	1.000000
DP19	69.85100	0.000000
DP20	11.61590	0.000000
DP21	68.65195	0.000000
DN22	2150.180	0.000000
DN23	39.14100	0.000000

Lampiran 16 *Script* Lingo Menu Diet 3 Penderita Obesitas 1

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=250
X3+DN3-DP3=60
X4+DN4-DP4=50
X5+DN5-DP5=200
X6+DN6-DP6=100
X7+DN7-DP7=200
X8+DN8-DP8=160
X9+DN9-DP9=200
X10+DN10-DP10=170
X11+DN11-DP11=250
X12+DN12-DP12=150
X13+DN13-DP13=50
X14+DN14-DP14=240
X15+DN15-DP15=50

0.685714X1+0.128X2+0.41X3+0.2114X4+0.2X5+0.181X6+0.235X7+0.084313X
8+0.1291X9+0.117471X10+0.216X11+0.143267X12+0.02X13+0.049583X14+0.
2814X15+DN16-DP16= 430.25
0.142857X1+0.024X2+0.0002X3+0.0475X4+0.0137X5+0.0072X6+0.0232X7+0.
023813X8+0.0593X9+0.009412X10+0.0108X11+0.003533X12+0.2506X13+0.00
8333X14+0.0392X15+DN17-DP17= 132.5
0.1X1+0.01X2+0X3+0.0039X4+0.001X5+0.0016X6+0.0083X7+0.002625X8+0.0
193X9+0.001176X10+0.00368X11+0.001133X12+0.2114X13+0.008333X14+0.0
094X15+DN18-DP18= 73.611

0.685714X1+0.128X2+0.41X3+0.2114X4+0.2X5+0.181X6+0.235X7+0.084313X
8+0.1291X9+0.117471X10+0.216X11+0.143267X12+0.02X13+0.049583X14+0.
2814X15+DN19-DP19= 331.25
0.142857X1+0.024X2+0.0002X3+0.0475X4+0.0137X5+0.0072X6+0.0232X7+0.
023813X8+0.0593X9+0.009412X10+0.0108X11+0.003533X12+0.2506X13+0.00
8333X14+0.0392X15+DN20-DP20= 66.25
0.1X1+0.01X2+0X3+0.0039X4+0.001X5+0.0016X6+0.0083X7+0.002625X8+0.0
193X9+0.001176X10+0.00368X11+0.001133X12+0.2114X13+0.008333X14+0.0
094X15+DN21-DP21= 29.44

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
50X1+32X2+16.66667X3+30X4+15X5+40X6+25X7+25X8+15X9+20X10+4X11+50X1
2+40X13+8.3333333X14+10X15+DN22-DP22=50000

4X1+0.68X2+2.06667X3+0.94X4+0.87X5+0.69X6+1.12X7+0.38125X8+0.86X9+
0.47059X10+1.2X11+0.54X12+3.08X13+0.3X14+1.18X15+DN23-DP23=2650

end
```

output:

```
Global optimal solution found.
Objective value:                              2.773020
Infeasibilities:                              0.000000
Total solver iterations:                            22
Elapsed runtime seconds:                          0.08

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.142857
DN2	0.000000	1.024000
DN3	0.000000	1.000200
DN4	0.000000	1.047500
DN5	0.000000	1.013700
DN6	0.000000	1.007200
DN7	0.000000	1.023200
DN8	0.000000	1.023813
DN9	0.000000	1.059300
DN10	0.000000	1.009412
DN11	0.000000	1.010800
DN12	0.000000	1.003533
DN13	0.000000	1.250600
DN14	0.000000	1.008333
DN15	0.000000	1.039200
DN19	0.000000	1.000000
DN20	2.773020	0.000000
DN21	0.000000	1.000000
DP1	0.000000	0.8571430
DP2	0.000000	0.9760000
DP3	0.000000	0.9998000
DP4	0.000000	0.9525000
DP5	0.000000	0.9863000
DP6	0.000000	0.9928000
DP7	0.000000	0.9768000
DP8	0.000000	0.9761870
DP9	0.000000	0.9407000
DP10	0.000000	0.9905880
DP11	0.000000	0.9892000
DP12	0.000000	0.9964670
DP13	0.000000	0.7494000
DP14	0.000000	0.9916670
DP15	0.000000	0.9608000

DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	250.0000	0.000000
X3	60.00000	0.000000
X4	50.00000	0.000000
X5	200.0000	0.000000
X6	100.0000	0.000000
X7	200.0000	0.000000
X8	160.0000	0.000000
X9	200.0000	0.000000
X10	170.0000	0.000000
X11	250.0000	0.000000
X12	150.0000	0.000000
X13	50.00000	0.000000
X14	240.0000	0.000000
X15	50.00000	0.000000
DN16	48.23990	0.000000
DN17	69.02302	0.000000
DN18	43.28621	0.000000
DP19	50.76010	0.000000
DP20	0.000000	1.000000
DP21	0.8847900	0.000000
DN22	599.9998	0.000000
DN23	582.9995	0.000000

Lampiran 17 *script* Lingo Menu Diet 3 Penderita Obesitas 2

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=250
X3+DN3-DP3=60
X4+DN4-DP4=50
X5+DN5-DP5=200
X6+DN6-DP6=100
X7+DN7-DP7=200
X8+DN8-DP8=160
X9+DN9-DP9=200
X10+DN10-DP10=170
X11+DN11-DP11=250
X12+DN12-DP12=150
X13+DN13-DP13=50
X14+DN14-DP14=240
X15+DN15-DP15=50

0.685714X1+0.128X2+0.41X3+0.2114X4+0.2X5+0.181X6+0.235X7+0.084313X
8+0.1291X9+0.117471X10+0.216X11+0.143267X12+0.02X13+0.049583X14+0.
2814X15+DN16-DP16= 414.375
0.142857X1+0.024X2+0.0002X3+0.0475X4+0.0137X5+0.0072X6+0.0232X7+0.
023813X8+0.0593X9+0.009412X10+0.0108X11+0.003533X12+0.2506X13+0.00
8333X14+0.0392X15+DN17-DP17= 127.5
0.1X1+0.01X2+0X3+0.0039X4+0.001X5+0.0016X6+0.0083X7+0.002625X8+0.0
193X9+0.001176X10+0.00368X11+0.001133X12+0.2114X13+0.008333X14+0.0
094X15+DN18-DP18= 70.833

0.685714X1+0.128X2+0.41X3+0.2114X4+0.2X5+0.181X6+0.235X7+0.084313X
8+0.1291X9+0.117471X10+0.216X11+0.143267X12+0.02X13+0.049583X14+0.
2814X15+DN19-DP19= 318.75
0.142857X1+0.024X2+0.0002X3+0.0475X4+0.0137X5+0.0072X6+0.0232X7+0.
023813X8+0.0593X9+0.009412X10+0.0108X11+0.003533X12+0.2506X13+0.00
8333X14+0.0392X15+DN20-DP20= 63.75
0.1X1+0.01X2+0X3+0.0039X4+0.001X5+0.0016X6+0.0083X7+0.002625X8+0.0
193X9+0.001176X10+0.00368X11+0.001133X12+0.2114X13+0.008333X14+0.0
094X15+DN21-DP21= 28.33

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
50X1+32X2+16.66667X3+30X4+15X5+40X6+25X7+25X8+15X9+20X10+4X11+50X1
2+40X13+8.3333333X14+10X15+DN22-DP22=50000

4X1+0.68X2+2.06667X3+0.94X4+0.87X5+0.69X6+1.12X7+0.38125X8+0.86X9+
0.47059X10+1.2X11+0.54X12+3.08X13+0.3X14+1.18X15+DN23-DP23=2550

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.2730200
Infeasibilities:                              0.000000
Total solver iterations:                            22
Elapsed runtime seconds:                          0.06

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.142857
DN2	0.000000	1.024000
DN3	0.000000	1.000200
DN4	0.000000	1.047500
DN5	0.000000	1.013700
DN6	0.000000	1.007200
DN7	0.000000	1.023200
DN8	0.000000	1.023813
DN9	0.000000	1.059300
DN10	0.000000	1.009412
DN11	0.000000	1.010800
DN12	0.000000	1.003533
DN13	0.000000	1.250600
DN14	0.000000	1.008333
DN15	0.000000	1.039200
DN19	0.000000	1.000000
DN20	0.2730200	0.000000
DN21	0.000000	1.000000
DP1	0.000000	0.8571430
DP2	0.000000	0.9760000
DP3	0.000000	0.9998000
DP4	0.000000	0.9525000
DP5	0.000000	0.9863000
DP6	0.000000	0.9928000
DP7	0.000000	0.9768000
DP8	0.000000	0.9761870
DP9	0.000000	0.9407000
DP10	0.000000	0.9905880
DP11	0.000000	0.9892000
DP12	0.000000	0.9964670
DP13	0.000000	0.7494000
DP14	0.000000	0.9916670
DP15	0.000000	0.9608000

DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	250.0000	0.000000
X3	60.00000	0.000000
X4	50.00000	0.000000
X5	200.0000	0.000000
X6	100.0000	0.000000
X7	200.0000	0.000000
X8	160.0000	0.000000
X9	200.0000	0.000000
X10	170.0000	0.000000
X11	250.0000	0.000000
X12	150.0000	0.000000
X13	50.00000	0.000000
X14	240.0000	0.000000
X15	50.00000	0.000000
DN16	32.36490	0.000000
DN17	64.02302	0.000000
DN18	40.50821	0.000000
DP19	63.26010	0.000000
DP20	0.000000	1.000000
DP21	1.994790	0.000000
DN22	599.9998	0.000000
DN23	482.9995	0.000000

Lampiran 18 *script* Lingo Menu Diet 3 Penderita Obesitas 3

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=250
X3+DN3-DP3=60
X4+DN4-DP4=50
X5+DN5-DP5=200
X6+DN6-DP6=100
X7+DN7-DP7=200
X8+DN8-DP8=160
X9+DN9-DP9=200
X10+DN10-DP10=170
X11+DN11-DP11=250
X12+DN12-DP12=150
X13+DN13-DP13=50
X14+DN14-DP14=240
X15+DN15-DP15=50

0.685714X1+0.128X2+0.41X3+0.2114X4+0.2X5+0.181X6+0.235X7+0.084313X
8+0.1291X9+0.117471X10+0.216X11+0.143267X12+0.02X13+0.049583X14+0.
2814X15+DN16-DP16= 365.625
0.142857X1+0.024X2+0.0002X3+0.0475X4+0.0137X5+0.0072X6+0.0232X7+0.
023813X8+0.0593X9+0.009412X10+0.0108X11+0.003533X12+0.2506X13+0.00
8333X14+0.0392X15+DN17-DP17= 112.5
0.1X1+0.01X2+0X3+0.0039X4+0.001X5+0.0016X6+0.0083X7+0.002625X8+0.0
193X9+0.001176X10+0.00368X11+0.001133X12+0.2114X13+0.008333X14+0.0
094X15+DN18-DP18= 62.5

0.685714X1+0.128X2+0.41X3+0.2114X4+0.2X5+0.181X6+0.235X7+0.084313X
8+0.1291X9+0.117471X10+0.216X11+0.143267X12+0.02X13+0.049583X14+0.
2814X15+DN19-DP19= 281.25
0.142857X1+0.024X2+0.0002X3+0.0475X4+0.0137X5+0.0072X6+0.0232X7+0.
023813X8+0.0593X9+0.009412X10+0.0108X11+0.003533X12+0.2506X13+0.00
8333X14+0.0392X15+DN20-DP20= 56.25
0.1X1+0.01X2+0X3+0.0039X4+0.001X5+0.0016X6+0.0083X7+0.002625X8+0.0
193X9+0.001176X10+0.00368X11+0.001133X12+0.2114X13+0.008333X14+0.0
094X15+DN21-DP21= 25

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
```

```
X10>=0
X11>=0
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
50X1+32X2+16.66667X3+30X4+15X5+40X6+25X7+25X8+15X9+20X10+4X11+50X1
2+40X13+8.3333333X14+10X15+DN22-DP22=50000

4X1+0.68X2+2.06667X3+0.94X4+0.87X5+0.69X6+1.12X7+0.38125X8+0.86X9+
0.47059X10+1.2X11+0.54X12+3.08X13+0.3X14+1.18X15+DN23-DP23=2250

end
```

Output:

```
Global optimal solution found.
Objective value:                              16.38510
Infeasibilities:                              0.000000
Total solver iterations:                            28
Elapsed runtime seconds:                          0.07

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	0.3142860
DN2	0.000000	0.8720000
DN3	0.000000	0.5900000
DN4	0.000000	0.7886000
DN5	0.000000	0.8000000
DN6	0.000000	0.8190000
DN7	0.000000	0.7650000
DN8	0.000000	0.9156870
DN9	0.000000	0.8709000
DN10	0.000000	0.8825290
DN11	0.000000	0.7840000
DN12	0.000000	0.8567330
DN13	0.000000	0.9800000
DN14	0.000000	0.9504170
DN15	0.000000	0.7186000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.685714
DP2	0.000000	1.128000
DP3	0.000000	1.410000
DP4	0.000000	1.211400
DP5	0.000000	1.200000
DP6	0.000000	1.181000
DP7	0.000000	1.235000
DP8	0.000000	1.084313
DP9	0.000000	1.129100
DP10	0.000000	1.117471
DP11	0.000000	1.216000
DP12	0.000000	1.143267
DP13	0.000000	1.020000
DP14	0.000000	1.049583
DP15	0.000000	1.281400

DP16	16.38510	0.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	250.0000	0.000000
X3	60.00000	0.000000
X4	50.00000	0.000000
X5	200.0000	0.000000
X6	100.0000	0.000000
X7	200.0000	0.000000
X8	160.0000	0.000000
X9	200.0000	0.000000
X10	170.0000	0.000000
X11	250.0000	0.000000
X12	150.0000	0.000000
X13	50.00000	0.000000
X14	240.0000	0.000000
X15	50.00000	0.000000
DN16	0.000000	1.000000
DN17	49.02302	0.000000
DN18	32.17521	0.000000
DP19	100.7601	0.000000
DP20	7.226980	0.000000
DP21	5.324790	0.000000
DN22	599.9998	0.000000
DN23	182.9995	0.000000

Lampiran 19 *script* Lingo Menu Diet 3 Penderita Obesitas 4

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=70
X2+DN2-DP2=250
X3+DN3-DP3=60
X4+DN4-DP4=50
X5+DN5-DP5=200
X6+DN6-DP6=100
X7+DN7-DP7=200
X8+DN8-DP8=160
X9+DN9-DP9=200
X10+DN10-DP10=170
X11+DN11-DP11=250
X12+DN12-DP12=150
X13+DN13-DP13=50
X14+DN14-DP14=240
X15+DN15-DP15=50

0.685714X1+0.128X2+0.41X3+0.2114X4+0.2X5+0.181X6+0.235X7+0.084313X
8+0.1291X9+0.117471X10+0.216X11+0.143267X12+0.02X13+0.049583X14+0.
2814X15+DN16-DP16= 349.375
0.142857X1+0.024X2+0.0002X3+0.0475X4+0.0137X5+0.0072X6+0.0232X7+0.
023813X8+0.0593X9+0.009412X10+0.0108X11+0.003533X12+0.2506X13+0.00
8333X14+0.0392X15+DN17-DP17= 107.5
0.1X1+0.01X2+0X3+0.0039X4+0.001X5+0.0016X6+0.0083X7+0.002625X8+0.0
193X9+0.001176X10+0.00368X11+0.001133X12+0.2114X13+0.008333X14+0.0
094X15+DN18-DP18= 59.722

0.685714X1+0.128X2+0.41X3+0.2114X4+0.2X5+0.181X6+0.235X7+0.084313X
8+0.1291X9+0.117471X10+0.216X11+0.143267X12+0.02X13+0.049583X14+0.
2814X15+DN19-DP19= 268.75
0.142857X1+0.024X2+0.0002X3+0.0475X4+0.0137X5+0.0072X6+0.0232X7+0.
023813X8+0.0593X9+0.009412X10+0.0108X11+0.003533X12+0.2506X13+0.00
8333X14+0.0392X15+DN20-DP20= 53.75
0.1X1+0.01X2+0X3+0.0039X4+0.001X5+0.0016X6+0.0083X7+0.002625X8+0.0
193X9+0.001176X10+0.00368X11+0.001133X12+0.2114X13+0.008333X14+0.0
094X15+DN21-DP21= 23.889

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
50X1+32X2+16.66667X3+30X4+15X5+40X6+25X7+25X8+15X9+20X10+4X11+50X1
2+40X13+8.3333333X14+10X15+DN22-DP22=50000

4X1+0.68X2+2.06667X3+0.94X4+0.87X5+0.69X6+1.12X7+0.38125X8+0.86X9+
0.47059X10+1.2X11+0.54X12+3.08X13+0.3X14+1.18X15+DN23-DP23=2150

end
```

Output:

```
Global optimal solution found.
Objective value:                              32.63510
Infeasibilities:                              0.000000
Total solver iterations:                            28
Elapsed runtime seconds:                          0.07

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	0.3142860
DN2	0.000000	0.8720000
DN3	0.000000	0.5900000
DN4	0.000000	0.7886000
DN5	0.000000	0.8000000
DN6	0.000000	0.8190000
DN7	0.000000	0.7650000
DN8	0.000000	0.9156870
DN9	0.000000	0.8709000
DN10	0.000000	0.8825290
DN11	0.000000	0.7840000
DN12	0.000000	0.8567330
DN13	0.000000	0.9800000
DN14	0.000000	0.9504170
DN15	0.000000	0.7186000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.685714
DP2	0.000000	1.128000
DP3	0.000000	1.410000
DP4	0.000000	1.211400
DP5	0.000000	1.200000
DP6	0.000000	1.181000
DP7	0.000000	1.235000
DP8	0.000000	1.084313
DP9	0.000000	1.129100
DP10	0.000000	1.117471
DP11	0.000000	1.216000
DP12	0.000000	1.143267
DP13	0.000000	1.020000
DP14	0.000000	1.049583
DP15	0.000000	1.281400

DP16	32.63510	0.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	70.00000	0.000000
X2	250.0000	0.000000
X3	60.00000	0.000000
X4	50.00000	0.000000
X5	200.0000	0.000000
X6	100.0000	0.000000
X7	200.0000	0.000000
X8	160.0000	0.000000
X9	200.0000	0.000000
X10	170.0000	0.000000
X11	250.0000	0.000000
X12	150.0000	0.000000
X13	50.00000	0.000000
X14	240.0000	0.000000
X15	50.00000	0.000000
DN16	0.000000	1.000000
DN17	44.02302	0.000000
DN18	29.39721	0.000000
DP19	113.2601	0.000000
DP20	9.726980	0.000000
DP21	6.435790	0.000000
DN22	599.9998	0.000000
DN23	82.99950	0.000000

Lampiran 20 *Script* Lingo Menu Diet 4 Penderita Obesitas 1

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=240
X2+DN2-DP2=100
X3+DN3-DP3=60
X4+DN4-DP4=200
X5+DN5-DP5=150
X6+DN6-DP6=100
X7+DN7-DP7=100
X8+DN8-DP8=200
X9+DN9-DP9=240
X10+DN10-DP10=250
X11+DN11-DP11=60
X12+DN12-DP12=120
X13+DN13-DP13=120
X14+DN14-DP14=130
X15+DN15-DP15=50

0.1776X1+0.0493X2+0.41X3+0.2807X4+0.1433X5+0.181X6+0.235X7+0.0492X
8+0.0538X9+0.216X10+0.6065X11+0.1144X12+0.075X13+0.0761X14+0.2814X
15+DN16-DP16= 430.25
0.0353X1+0.0448X2+0.0002X3+0.0084X4+0.0035X5+0.0072X6+0.0232X7+0.1
142X8+0.0133X9+0.0104X10+0.193X11+0.0071X12+0.0175X13+0.0182X14+0.
0392X15+DN17-DP17= 132.5
0.0307X1+0.0192X2+0X3+0.0045X4+0.0011X5+0.0016X6+0.0083X7+0.0712X8
+0.0115X9+0.0032X10+0.0603X11+0.0017X12+0.0033X13+0.031X14+0.0094X
15+DN18-DP18= 73.611

0.1776X1+0.0493X2+0.41X3+0.2807X4+0.1433X5+0.181X6+0.235X7+0.0492X
8+0.0538X9+0.216X10+0.6065X11+0.1144X12+0.075X13+0.0761X14+0.2814X
15+DN19-DP19= 331.25
0.0353X1+0.0448X2+0.0002X3+0.0084X4+0.0035X5+0.0072X6+0.0232X7+0.1
142X8+0.0133X9+0.0104X10+0.193X11+0.0071X12+0.0175X13+0.0182X14+0.
0392X15+DN20-DP20= 66.25
0.0307X1+0.0192X2+0X3+0.0045X4+0.0011X5+0.0016X6+0.0083X7+0.0712X8
+0.0115X9+0.0032X10+0.0603X11+0.0017X12+0.0033X13+0.031X14+0.0094X
15+DN21-DP21= 29.44

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
30.33X1+40X2+16.667X3+12.5X4+50X5+40X6+30X7+30X8+12.5X9+4X10+33.33
X11+16.667X12+10X13+10.77X14+10X15+DN22-DP22=50000

1.0833X1+0.52X2+2.06667X3+1.07X4+0.54X5+0.69X6+1.12X7+1.26X8+0.333
X9+1.2X10+3.633X11+0.45833X12+0.3583X13+0.592X14+1.18X15+DN23-
DP23=2650

end
```

output:

```
Global optimal solution found.
Objective value:                              0.5510000
Infeasibilities:                              0.000000
Total solver iterations:                            29
Elapsed runtime seconds:                          0.07

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.035300
DN2	0.000000	1.044800
DN3	0.000000	1.000200
DN4	0.000000	1.008400
DN5	0.000000	1.003500
DN6	0.000000	1.007200
DN7	0.000000	1.023200
DN8	0.000000	1.114200
DN9	0.000000	1.013300
DN10	0.000000	1.010400
DN11	0.000000	1.193000
DN12	0.000000	1.007100
DN13	0.000000	1.017500
DN14	0.000000	1.018200
DN15	0.000000	1.039200
DN19	0.000000	1.000000
DN20	0.5510000	0.000000
DN21	0.000000	1.000000
DP1	0.000000	0.9647000
DP2	0.000000	0.9552000
DP3	0.000000	0.9998000
DP4	0.000000	0.9916000
DP5	0.000000	0.9965000
DP6	0.000000	0.9928000
DP7	0.000000	0.9768000
DP8	0.000000	0.8858000
DP9	0.000000	0.9867000
DP10	0.000000	0.9896000
DP11	0.000000	0.8070000
DP12	0.000000	0.9929000
DP13	0.000000	0.9825000
DP14	0.000000	0.9818000
DP15	0.000000	0.9608000

DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	240.0000	0.000000
X2	100.0000	0.000000
X3	60.00000	0.000000
X4	200.0000	0.000000
X5	150.0000	0.000000
X6	100.0000	0.000000
X7	100.0000	0.000000
X8	200.0000	0.000000
X9	240.0000	0.000000
X10	250.0000	0.000000
X11	60.00000	0.000000
X12	120.0000	0.000000
X13	120.0000	0.000000
X14	130.0000	0.000000
X15	50.00000	0.000000
DN16	79.02800	0.000000
DN17	66.80100	0.000000
DN18	35.75000	0.000000
DP19	19.97200	0.000000
DP20	0.000000	1.000000
DP21	8.421000	0.000000
DN22	3620.840	0.000000
DN23	654.1522	0.000000

Lampiran 21 *script* Lingo Menu Diet 4 Penderita Obesitas 2

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=240
X2+DN2-DP2=100
X3+DN3-DP3=60
X4+DN4-DP4=200
X5+DN5-DP5=150
X6+DN6-DP6=100
X7+DN7-DP7=100
X8+DN8-DP8=200
X9+DN9-DP9=240
X10+DN10-DP10=250
X11+DN11-DP11=60
X12+DN12-DP12=120
X13+DN13-DP13=120
X14+DN14-DP14=130
X15+DN15-DP15=50

0.1776X1+0.0493X2+0.41X3+0.2807X4+0.1433X5+0.181X6+0.235X7+0.0492X
8+0.0538X9+0.216X10+0.6065X11+0.1144X12+0.075X13+0.0761X14+0.2814X
15+DN16-DP16= 414.375
0.0353X1+0.0448X2+0.0002X3+0.0084X4+0.0035X5+0.0072X6+0.0232X7+0.1
142X8+0.0133X9+0.0104X10+0.193X11+0.0071X12+0.0175X13+0.0182X14+0.
0392X15+DN17-DP17= 127.5
0.0307X1+0.0192X2+0X3+0.0045X4+0.0011X5+0.0016X6+0.0083X7+0.0712X8
+0.0115X9+0.0032X10+0.0603X11+0.0017X12+0.0033X13+0.031X14+0.0094X
15+DN18-DP18= 70.833

0.1776X1+0.0493X2+0.41X3+0.2807X4+0.1433X5+0.181X6+0.235X7+0.0492X
8+0.0538X9+0.216X10+0.6065X11+0.1144X12+0.075X13+0.0761X14+0.2814X
15+DN19-DP19= 318.75
0.0353X1+0.0448X2+0.0002X3+0.0084X4+0.0035X5+0.0072X6+0.0232X7+0.1
142X8+0.0133X9+0.0104X10+0.193X11+0.0071X12+0.0175X13+0.0182X14+0.
0392X15+DN20-DP20= 63.75
0.0307X1+0.0192X2+0X3+0.0045X4+0.0011X5+0.0016X6+0.0083X7+0.0712X8
+0.0115X9+0.0032X10+0.0603X11+0.0017X12+0.0033X13+0.031X14+0.0094X
15+DN21-DP21= 28.33

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
30.33X1+40X2+16.667X3+12.5X4+50X5+40X6+30X7+30X8+12.5X9+4X10+33.33
X11+16.667X12+10X13+10.77X14+10X15+DN22-DP22=50000

1.0833X1+0.52X2+2.06667X3+1.07X4+0.54X5+0.69X6+1.12X7+1.26X8+0.333
X9+1.2X10+3.633X11+0.45833X12+0.3583X13+0.592X14+1.18X15+DN23-
DP23=2550

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            30
Elapsed runtime seconds:                          0.07

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000

DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	240.0000	0.000000
X2	100.0000	0.000000
X3	60.00000	0.000000
X4	200.0000	0.000000
X5	150.0000	0.000000
X6	100.0000	0.000000
X7	100.0000	0.000000
X8	200.0000	0.000000
X9	240.0000	0.000000
X10	250.0000	0.000000
X11	60.00000	0.000000
X12	120.0000	0.000000
X13	120.0000	0.000000
X14	130.0000	0.000000
X15	50.00000	0.000000
DN16	63.15300	0.000000
DN17	61.80100	0.000000
DN18	32.97200	0.000000
DP19	32.47200	0.000000
DP20	1.949000	0.000000
DP21	9.531000	0.000000
DN22	3620.840	0.000000
DN23	554.1522	0.000000

Lampiran 22 *script* Lingo Menu Diet 4 Penderita Obesitas 3

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=240
X2+DN2-DP2=100
X3+DN3-DP3=60
X4+DN4-DP4=200
X5+DN5-DP5=150
X6+DN6-DP6=100
X7+DN7-DP7=100
X8+DN8-DP8=200
X9+DN9-DP9=240
X10+DN10-DP10=250
X11+DN11-DP11=60
X12+DN12-DP12=120
X13+DN13-DP13=120
X14+DN14-DP14=130
X15+DN15-DP15=50

0.1776X1+0.0493X2+0.41X3+0.2807X4+0.1433X5+0.181X6+0.235X7+0.0492X
8+0.0538X9+0.216X10+0.6065X11+0.1144X12+0.075X13+0.0761X14+0.2814X
15+DN16-DP16= 365.625
0.0353X1+0.0448X2+0.0002X3+0.0084X4+0.0035X5+0.0072X6+0.0232X7+0.1
142X8+0.0133X9+0.0104X10+0.193X11+0.0071X12+0.0175X13+0.0182X14+0.
0392X15+DN17-DP17= 112.5
0.0307X1+0.0192X2+0X3+0.0045X4+0.0011X5+0.0016X6+0.0083X7+0.0712X8
+0.0115X9+0.0032X10+0.0603X11+0.0017X12+0.0033X13+0.031X14+0.0094X
15+DN18-DP18= 62.5

0.1776X1+0.0493X2+0.41X3+0.2807X4+0.1433X5+0.181X6+0.235X7+0.0492X
8+0.0538X9+0.216X10+0.6065X11+0.1144X12+0.075X13+0.0761X14+0.2814X
15+DN19-DP19= 281.25
0.0353X1+0.0448X2+0.0002X3+0.0084X4+0.0035X5+0.0072X6+0.0232X7+0.1
142X8+0.0133X9+0.0104X10+0.193X11+0.0071X12+0.0175X13+0.0182X14+0.
0392X15+DN20-DP20= 56.25
0.0307X1+0.0192X2+0X3+0.0045X4+0.0011X5+0.0016X6+0.0083X7+0.0712X8
+0.0115X9+0.0032X10+0.0603X11+0.0017X12+0.0033X13+0.031X14+0.0094X
15+DN21-DP21= 25

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
```

```
X10>=0
X11>=0
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
30.33X1+40X2+16.667X3+12.5X4+50X5+40X6+30X7+30X8+12.5X9+4X10+33.33
X11+16.667X12+10X13+10.77X14+10X15+DN22-DP22=50000
1.0833X1+0.52X2+2.06667X3+1.07X4+0.54X5+0.69X6+1.12X7+1.26X8+0.333
X9+1.2X10+3.633X11+0.45833X12+0.3583X13+0.592X14+1.18X15+DN23-
DP23=2250

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            30
Elapsed runtime seconds:                          0.07

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000

DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	240.0000	0.000000
X2	100.0000	0.000000
X3	60.00000	0.000000
X4	200.0000	0.000000
X5	150.0000	0.000000
X6	100.0000	0.000000
X7	100.0000	0.000000
X8	200.0000	0.000000
X9	240.0000	0.000000
X10	250.0000	0.000000
X11	60.00000	0.000000
X12	120.0000	0.000000
X13	120.0000	0.000000
X14	130.0000	0.000000
X15	50.00000	0.000000
DN16	14.40300	0.000000
DN17	46.80100	0.000000
DN18	24.63900	0.000000
DP19	69.97200	0.000000
DP20	9.449000	0.000000
DP21	12.86100	0.000000
DN22	3620.840	0.000000
DN23	254.1522	0.000000

Lampiran 23 *script* Lingo Menu Diet 4 Penderita Obesitas 4

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=240
X2+DN2-DP2=100
X3+DN3-DP3=60
X4+DN4-DP4=200
X5+DN5-DP5=150
X6+DN6-DP6=100
X7+DN7-DP7=100
X8+DN8-DP8=200
X9+DN9-DP9=240
X10+DN10-DP10=250
X11+DN11-DP11=60
X12+DN12-DP12=120
X13+DN13-DP13=120
X14+DN14-DP14=130
X15+DN15-DP15=50

0.1776X1+0.0493X2+0.41X3+0.2807X4+0.1433X5+0.181X6+0.235X7+0.0492X
8+0.0538X9+0.216X10+0.6065X11+0.1144X12+0.075X13+0.0761X14+0.2814X
15+DN16-DP16= 349.375
0.0353X1+0.0448X2+0.0002X3+0.0084X4+0.0035X5+0.0072X6+0.0232X7+0.1
142X8+0.0133X9+0.0104X10+0.193X11+0.0071X12+0.0175X13+0.0182X14+0.
0392X15+DN17-DP17= 107.5
0.0307X1+0.0192X2+0X3+0.0045X4+0.0011X5+0.0016X6+0.0083X7+0.0712X8
+0.0115X9+0.0032X10+0.0603X11+0.0017X12+0.0033X13+0.031X14+0.0094X
15+DN18-DP18= 59.722

0.1776X1+0.0493X2+0.41X3+0.2807X4+0.1433X5+0.181X6+0.235X7+0.0492X
8+0.0538X9+0.216X10+0.6065X11+0.1144X12+0.075X13+0.0761X14+0.2814X
15+DN19-DP19= 268.75
0.0353X1+0.0448X2+0.0002X3+0.0084X4+0.0035X5+0.0072X6+0.0232X7+0.1
142X8+0.0133X9+0.0104X10+0.193X11+0.0071X12+0.0175X13+0.0182X14+0.
0392X15+DN20-DP20= 53.75
0.0307X1+0.0192X2+0X3+0.0045X4+0.0011X5+0.0016X6+0.0083X7+0.0712X8
+0.0115X9+0.0032X10+0.0603X11+0.0017X12+0.0033X13+0.031X14+0.0094X
15+DN21-DP21= 23.889

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
30.33X1+40X2+16.667X3+12.5X4+50X5+40X6+30X7+30X8+12.5X9+4X10+33.33
X11+16.667X12+10X13+10.77X14+10X15+DN22-DP22=50000
1.0833X1+0.52X2+2.06667X3+1.07X4+0.54X5+0.69X6+1.12X7+1.26X8+0.333
X9+1.2X10+3.633X11+0.45833X12+0.3583X13+0.592X14+1.18X15+DN23-
DP23=2150

end
```

Output:

```
Global optimal solution found.
Objective value:                              1.847000
Infeasibilities:                              0.000000
Total solver iterations:                            31
Elapsed runtime seconds:                          0.07

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	0.8224000
DN2	0.000000	0.9507000
DN3	0.000000	0.5900000
DN4	0.000000	0.7193000
DN5	0.000000	0.8567000
DN6	0.000000	0.8190000
DN7	0.000000	0.7650000
DN8	0.000000	0.9508000
DN9	0.000000	0.9462000
DN10	0.000000	0.7840000
DN11	0.000000	0.3935000
DN12	0.000000	0.8856000
DN13	0.000000	0.9250000
DN14	0.000000	0.9239000
DN15	0.000000	0.7186000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.177600
DP2	0.000000	1.049300
DP3	0.000000	1.410000
DP4	0.000000	1.280700
DP5	0.000000	1.143300
DP6	0.000000	1.181000
DP7	0.000000	1.235000
DP8	0.000000	1.049200
DP9	0.000000	1.053800
DP10	0.000000	1.216000
DP11	0.000000	1.606500
DP12	0.000000	1.114400
DP13	0.000000	1.075000
DP14	0.000000	1.076100
DP15	0.000000	1.281400

DP16	1.847000	0.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	240.0000	0.000000
X2	100.0000	0.000000
X3	60.00000	0.000000
X4	200.0000	0.000000
X5	150.0000	0.000000
X6	100.0000	0.000000
X7	100.0000	0.000000
X8	200.0000	0.000000
X9	240.0000	0.000000
X10	250.0000	0.000000
X11	60.00000	0.000000
X12	120.0000	0.000000
X13	120.0000	0.000000
X14	130.0000	0.000000
X15	50.00000	0.000000
DN16	0.000000	1.000000
DN17	41.80100	0.000000
DN18	21.86100	0.000000
DP19	82.47200	0.000000
DP20	11.94900	0.000000
DP21	13.97200	0.000000
DN22	3620.840	0.000000
DN23	154.1522	0.000000

Lampiran 24 *Script* Lingo Menu Diet 5 Penderita Obesitas 1

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=35
X2+DN2-DP2=250
X3+DN3-DP3=54
X4+DN4-DP4=100
X5+DN5-DP5=150
X6+DN6-DP6=120
X7+DN7-DP7=200
X8+DN8-DP8=150
X9+DN9-DP9=160
X10+DN10-DP10=50
X11+DN11-DP11=286
X12+DN12-DP12=200
X13+DN13-DP13=200
X14+DN14-DP14=100
X15+DN15-DP15=100

0.6857143X1+0.0128X2+0.1111111X3+0.2814X4+0.31X5+0.1144167X6+0.235
X7+0X8+0.050875X9+0.0768X10+0.0754895X11+0.2807X12+0.2X13+0.06X14+
0.0713X15+DN16-DP16= 430.25
0.142857X1+0.024X2+0.296296X3+0.0392X4+0.06X5+0.007083X6+0.0232X7+
0.2086X8+0.006188X9+0.0067X10+0.006084X11+0.0084X12+0.0137X13+0.03
78X14+0.0182X15+DN17-DP17= 132.5
0.1X1+0.01X2+0.5555556X3+0.0094X4+0.04X5+0.0016667X6+0.0083X7+0.01
24X8+0.0048125X9+0.003X10+0.0015035X11+0.0045X12+0.001X13+0.0616X1
4+0.0012X15+DN18-DP18= 73.611

0.6857143X1+0.0128X2+0.1111111X3+0.2814X4+0.31X5+0.1144167X6+0.235
X7+0X8+0.050875X9+0.0768X10+0.0754895X11+0.2807X12+0.2X13+0.06X14+
0.0713X15+DN19-DP19= 331.25
0.142857X1+0.024X2+0.296296X3+0.0392X4+0.06X5+0.007083X6+0.0232X7+
0.2086X8+0.006188X9+0.0067X10+0.006084X11+0.0084X12+0.0137X13+0.03
78X14+0.0182X15+DN20-DP20= 66.25
0.1X1+0.01X2+0.5555556X3+0.0094X4+0.04X5+0.0016667X6+0.0083X7+0.01
24X8+0.0048125X9+0.003X10+0.0015035X11+0.0045X12+0.001X13+0.0616X1
4+0.0012X15+DN21-DP21= 29.44

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
57.14285714X1+32X2+83.3333X3+10X4+5.3333X5+16.667X6+25X7+53.333X8+
12.5X9+80X10+10.48951049X11+12.5X12+15X13+5X14+20X15+DN22-
DP22=50000

4X1+0.68X2+6.667X3+1.18X4+1.9X5+0.458333X6+1.12X7+1X8+0.2375X9+0.3
2X10+0.300699X11+1.07X12+0.87X13+0.89X14+0.31X15+DN23-DP23=2650

end
```

output:

```
  Global optimal solution found.
  Objective value:                              19.84000
  Infeasibilities:                              0.000000
  Total solver iterations:                            22
  Elapsed runtime seconds:                          0.11

  Model Class:                                        LP

  Total variables:                   61
  Nonlinear variables:                0
  Integer variables:                  0

  Total constraints:                 85
  Nonlinear constraints:              0

  Total nonzeros:                   278
  Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.685714
DN2	0.000000	1.012800
DN3	0.000000	1.111111
DN4	0.000000	1.281400
DN5	0.000000	1.310000
DN6	0.000000	1.114417
DN7	0.000000	1.235000
DN8	0.000000	1.000000
DN9	0.000000	1.050875
DN10	0.000000	1.076800
DN11	0.000000	1.075489
DN12	0.000000	1.280700
DN13	0.000000	1.200000
DN14	0.000000	1.060000
DN15	0.000000	1.071300
DN19	19.84000	0.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	0.3142857
DP2	0.000000	0.9872000
DP3	0.000000	0.8888889
DP4	0.000000	0.7186000
DP5	0.000000	0.6900000
DP6	0.000000	0.8855833
DP7	0.000000	0.7650000
DP8	0.000000	1.000000
DP9	0.000000	0.9491250
DP10	0.000000	0.9232000
DP11	0.000000	0.9245105
DP12	0.000000	0.7193000
DP13	0.000000	0.8000000
DP14	0.000000	0.9400000
DP15	0.000000	0.9287000
DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000

DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	35.00000	0.000000
X2	250.0000	0.000000
X3	54.00000	0.000000
X4	100.0000	0.000000
X5	150.0000	0.000000
X6	120.0000	0.000000
X7	200.0000	0.000000
X8	150.0000	0.000000
X9	160.0000	0.000000
X10	50.00000	0.000000
X11	286.0000	0.000000
X12	200.0000	0.000000
X13	200.0000	0.000000
X14	100.0000	0.000000
X15	100.0000	0.000000
DN16	118.8400	0.000000
DN17	42.71496	0.000000
DN18	18.22099	0.000000
DP19	0.000000	1.000000
DP20	23.53504	0.000000
DP21	25.95001	0.000000
DN22	1700.017	0.000000
DN23	499.9821	0.000000

Lampiran 25 *Script* Lingo Menu Diet 5 Penderita Obesitas 2

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=35
X2+DN2-DP2=250
X3+DN3-DP3=54
X4+DN4-DP4=100
X5+DN5-DP5=150
X6+DN6-DP6=120
X7+DN7-DP7=200
X8+DN8-DP8=150
X9+DN9-DP9=160
X10+DN10-DP10=50
X11+DN11-DP11=286
X12+DN12-DP12=200
X13+DN13-DP13=200
X14+DN14-DP14=100
X15+DN15-DP15=100

0.6857143X1+0.0128X2+0.1111111X3+0.2814X4+0.31X5+0.1144167X6+0.235
X7+0X8+0.050875X9+0.0768X10+0.0754895X11+0.2807X12+0.2X13+0.06X14+
0.0713X15+DN16-DP16= 414.38
0.142857X1+0.024X2+0.296296X3+0.0392X4+0.06X5+0.007083X6+0.0232X7+
0.2086X8+0.006188X9+0.0067X10+0.006084X11+0.0084X12+0.0137X13+0.03
78X14+0.0182X15+DN17-DP17= 127.5
0.1X1+0.01X2+0.5555556X3+0.0094X4+0.04X5+0.0016667X6+0.0083X7+0.01
24X8+0.0048125X9+0.003X10+0.0015035X11+0.0045X12+0.001X13+0.0616X1
4+0.0012X15+DN18-DP18= 70.833

0.6857143X1+0.0128X2+0.1111111X3+0.2814X4+0.31X5+0.1144167X6+0.235
X7+0X8+0.050875X9+0.0768X10+0.0754895X11+0.2807X12+0.2X13+0.06X14+
0.0713X15+DN19-DP19= 318.75
0.142857X1+0.024X2+0.296296X3+0.0392X4+0.06X5+0.007083X6+0.0232X7+
0.2086X8+0.006188X9+0.0067X10+0.006084X11+0.0084X12+0.0137X13+0.03
78X14+0.0182X15+DN20-DP20= 63.75
0.1X1+0.01X2+0.5555556X3+0.0094X4+0.04X5+0.0016667X6+0.0083X7+0.01
24X8+0.0048125X9+0.003X10+0.0015035X11+0.0045X12+0.001X13+0.0616X1
4+0.0012X15+DN21-DP21= 28.33

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
57.14285714X1+32X2+83.3333X3+10X4+5.3333X5+16.667X6+25X7+53.333X8+
12.5X9+80X10+10.48951049X11+12.5X12+15X13+5X14+20X15+DN22-
DP22=50000

4X1+0.68X2+6.667X3+1.18X4+1.9X5+0.458333X6+1.12X7+1X8+0.2375X9+0.3
2X10+0.300699X11+1.07X12+0.87X13+0.89X14+0.31X15+DN23-DP23=2550

end
```

Output:

```
Global optimal solution found.
Objective value:                              7.339999
Infeasibilities:                              0.000000
Total solver iterations:                            22
Elapsed runtime seconds:                          0.11

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.685714
DN2	0.000000	1.012800
DN3	0.000000	1.111111
DN4	0.000000	1.281400
DN5	0.000000	1.310000
DN6	0.000000	1.114417
DN7	0.000000	1.235000
DN8	0.000000	1.000000
DN9	0.000000	1.050875
DN10	0.000000	1.076800
DN11	0.000000	1.075489
DN12	0.000000	1.280700
DN13	0.000000	1.200000
DN14	0.000000	1.060000
DN15	0.000000	1.071300
DN19	7.339999	0.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	0.3142857
DP2	0.000000	0.9872000
DP3	0.000000	0.8888889
DP4	0.000000	0.7186000
DP5	0.000000	0.6900000
DP6	0.000000	0.8855833
DP7	0.000000	0.7650000
DP8	0.000000	1.000000
DP9	0.000000	0.9491250
DP10	0.000000	0.9232000
DP11	0.000000	0.9245105
DP12	0.000000	0.7193000
DP13	0.000000	0.8000000
DP14	0.000000	0.9400000
DP15	0.000000	0.9287000
DP16	0.000000	1.000000
DP17	0.000000	1.000000

DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	35.00000	0.000000
X2	250.0000	0.000000
X3	54.00000	0.000000
X4	100.0000	0.000000
X5	150.0000	0.000000
X6	120.0000	0.000000
X7	200.0000	0.000000
X8	150.0000	0.000000
X9	160.0000	0.000000
X10	50.00000	0.000000
X11	286.0000	0.000000
X12	200.0000	0.000000
X13	200.0000	0.000000
X14	100.0000	0.000000
X15	100.0000	0.000000
DN16	102.9700	0.000000
DN17	37.71496	0.000000
DN18	15.44299	0.000000
DP19	0.000000	1.000000
DP20	26.03504	0.000000
DP21	27.06001	0.000000
DN22	1700.017	0.000000
DN23	399.9821	0.000000

Lampiran 26 *Script* Lingo Menu Diet 5 Penderita Obesitas 3

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=35
X2+DN2-DP2=250
X3+DN3-DP3=54
X4+DN4-DP4=100
X5+DN5-DP5=150
X6+DN6-DP6=120
X7+DN7-DP7=200
X8+DN8-DP8=150
X9+DN9-DP9=160
X10+DN10-DP10=50
X11+DN11-DP11=286
X12+DN12-DP12=200
X13+DN13-DP13=200
X14+DN14-DP14=100
X15+DN15-DP15=100

0.6857143X1+0.0128X2+0.1111111X3+0.2814X4+0.31X5+0.1144167X6+0.235
X7+0X8+0.050875X9+0.0768X10+0.0754895X11+0.2807X12+0.2X13+0.06X14+
0.0713X15+DN16-DP16= 365.625
0.142857X1+0.024X2+0.296296X3+0.0392X4+0.06X5+0.007083X6+0.0232X7+
0.2086X8+0.006188X9+0.0067X10+0.006084X11+0.0084X12+0.0137X13+0.03
78X14+0.0182X15+DN17-DP17= 112.5
0.1X1+0.01X2+0.5555556X3+0.0094X4+0.04X5+0.0016667X6+0.0083X7+0.01
24X8+0.0048125X9+0.003X10+0.0015035X11+0.0045X12+0.001X13+0.0616X1
4+0.0012X15+DN18-DP18= 62.5

0.6857143X1+0.0128X2+0.1111111X3+0.2814X4+0.31X5+0.1144167X6+0.235
X7+0X8+0.050875X9+0.0768X10+0.0754895X11+0.2807X12+0.2X13+0.06X14+
0.0713X15+DN19-DP19= 281.25
0.142857X1+0.024X2+0.296296X3+0.0392X4+0.06X5+0.007083X6+0.0232X7+
0.2086X8+0.006188X9+0.0067X10+0.006084X11+0.0084X12+0.0137X13+0.03
78X14+0.0182X15+DN20-DP20= 56.25
0.1X1+0.01X2+0.5555556X3+0.0094X4+0.04X5+0.0016667X6+0.0083X7+0.01
24X8+0.0048125X9+0.003X10+0.0015035X11+0.0045X12+0.001X13+0.0616X1
4+0.0012X15+DN21-DP21= 25

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
57.14285714X1+32X2+83.3333X3+10X4+5.3333X5+16.667X6+25X7+53.333X8+
12.5X9+80X10+10.48951049X11+12.5X12+15X13+5X14+20X15+DN22-
DP22=50000

4X1+0.68X2+6.667X3+1.18X4+1.9X5+0.458333X6+1.12X7+1X8+0.2375X9+0.3
2X10+0.300699X11+1.07X12+0.87X13+0.89X14+0.31X15+DN23-DP23=2250

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            23
Elapsed runtime seconds:                          0.10

Model Class:                                       LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000
DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000

DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	35.00000	0.000000
X2	250.0000	0.000000
X3	54.00000	0.000000
X4	100.0000	0.000000
X5	150.0000	0.000000
X6	120.0000	0.000000
X7	200.0000	0.000000
X8	150.0000	0.000000
X9	160.0000	0.000000
X10	50.00000	0.000000
X11	286.0000	0.000000
X12	200.0000	0.000000
X13	200.0000	0.000000
X14	100.0000	0.000000
X15	100.0000	0.000000
DN16	54.21500	0.000000
DN17	22.71496	0.000000
DN18	7.109993	0.000000
DP19	30.16000	0.000000
DP20	33.53504	0.000000
DP21	30.39001	0.000000
DN22	1700.017	0.000000
DN23	99.98213	0.000000

Lampiran 27 *Script* Lingo Menu Diet 5 Penderita Obesitas 4

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=35
X2+DN2-DP2=250
X3+DN3-DP3=54
X4+DN4-DP4=100
X5+DN5-DP5=150
X6+DN6-DP6=120
X7+DN7-DP7=200
X8+DN8-DP8=150
X9+DN9-DP9=160
X10+DN10-DP10=50
X11+DN11-DP11=286
X12+DN12-DP12=200
X13+DN13-DP13=200
X14+DN14-DP14=100
X15+DN15-DP15=100

0.6857143X1+0.0128X2+0.1111111X3+0.2814X4+0.31X5+0.1144167X6+0.235
X7+0X8+0.050875X9+0.0768X10+0.0754895X11+0.2807X12+0.2X13+0.06X14+
0.0713X15+DN16-DP16= 349.375
0.142857X1+0.024X2+0.296296X3+0.0392X4+0.06X5+0.007083X6+0.0232X7+
0.2086X8+0.006188X9+0.0067X10+0.006084X11+0.0084X12+0.0137X13+0.03
78X14+0.0182X15+DN17-DP17= 107.5
0.1X1+0.01X2+0.5555556X3+0.0094X4+0.04X5+0.0016667X6+0.0083X7+0.01
24X8+0.0048125X9+0.003X10+0.0015035X11+0.0045X12+0.001X13+0.0616X1
4+0.0012X15+DN18-DP18= 59.722

0.6857143X1+0.0128X2+0.1111111X3+0.2814X4+0.31X5+0.1144167X6+0.235
X7+0X8+0.050875X9+0.0768X10+0.0754895X11+0.2807X12+0.2X13+0.06X14+
0.0713X15+DN19-DP19= 268.75
0.142857X1+0.024X2+0.296296X3+0.0392X4+0.06X5+0.007083X6+0.0232X7+
0.2086X8+0.006188X9+0.0067X10+0.006084X11+0.0084X12+0.0137X13+0.03
78X14+0.0182X15+DN20-DP20= 53.75
0.1X1+0.01X2+0.5555556X3+0.0094X4+0.04X5+0.0016667X6+0.0083X7+0.01
24X8+0.0048125X9+0.003X10+0.0015035X11+0.0045X12+0.001X13+0.0616X1
4+0.0012X15+DN21-DP21= 23.889

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
57.14285714X1+32X2+83.3333X3+10X4+5.3333X5+16.667X6+25X7+53.333X8+
12.5X9+80X10+10.48951049X11+12.5X12+15X13+5X14+20X15+DN22-
DP22=50000

4X1+0.68X2+6.667X3+1.18X4+1.9X5+0.458333X6+1.12X7+1X8+0.2375X9+0.3
2X10+0.300699X11+1.07X12+0.87X13+0.89X14+0.31X15+DN23-DP23=2150

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.2680966E-02
Infeasibilities:                              0.000000
Total solver iterations:                             24
Elapsed runtime seconds:                           2.78

Model Class:                                        LP

Total variables:                      61
Nonlinear variables:                   0
Integer variables:                     0

Total constraints:                    85
Nonlinear constraints:                 0

Total nonzeros:                      278
Nonlinear nonzeros:                    0


                         Variable           Value        Reduced Cost
                              DN1        0.000000            0.4000300
                              DN2        0.000000            0.8980051
                              DN3     0.2680966E-02          0.000000
                              DN4        0.000000            0.8230088
                              DN5        0.000000            0.7150142
                              DN6        0.000000            0.9312535
                              DN7        0.000000            0.8320084
                              DN8        0.000000            0.8500075
                              DN9        0.000000            0.9643768
                             DN10        0.000000            0.9520024
                             DN11        0.000000            0.9548974
                             DN12        0.000000            0.8395080
                             DN13        0.000000            0.8695065
                             DN14        0.000000            0.8665067
                             DN15        0.000000            0.9535023
                             DN19        0.000000            1.000000
                             DN20        0.000000            1.000000
                             DN21        0.000000            1.000000
                              DP1        0.000000            1.599970
                              DP2        0.000000            1.101995
                              DP3        0.000000            2.000000
                              DP4        0.000000            1.176991
                              DP5        0.000000            1.284986
                              DP6        0.000000            1.068747
                              DP7        0.000000            1.167992
                              DP8        0.000000            1.149993
                              DP9        0.000000            1.035623
                             DP10        0.000000            1.047998
                             DP11        0.000000            1.045103
                             DP12        0.000000            1.160492
                             DP13        0.000000            1.130493
                             DP14        0.000000            1.133493
                             DP15        0.000000            1.046498
                             DP16        0.000000            1.000000
```

DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	0.8500075
X1	35.00000	0.000000
X2	250.0000	0.000000
X3	53.99732	0.000000
X4	100.0000	0.000000
X5	150.0000	0.000000
X6	120.0000	0.000000
X7	200.0000	0.000000
X8	150.0000	0.000000
X9	160.0000	0.000000
X10	50.00000	0.000000
X11	286.0000	0.000000
X12	200.0000	0.000000
X13	200.0000	0.000000
X14	100.0000	0.000000
X15	100.0000	0.000000
DN16	37.96530	0.000000
DN17	17.71575	0.000000
DN18	4.333482	0.000000
DP19	42.65970	0.000000
DP20	36.03425	0.000000
DP21	31.49952	0.000000
DN22	1700.240	0.000000
DN23	0.000000	0.1499925

Lampiran 28 *Script* Lingo Menu Diet 6 Penderita Obesitas 1

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=200
X2+DN2-DP2=100
X3+DN3-DP3=50
X4+DN4-DP4=100
X5+DN5-DP5=60
X6+DN6-DP6=110
X7+DN7-DP7=200
X8+DN8-DP8=85
X9+DN9-DP9=90
X10+DN10-DP10=200
X11+DN11-DP11=250
X12+DN12-DP12=60
X13+DN13-DP13=70
X14+DN14-DP14=17
X15+DN15-DP15=100

0.2X1+0.2814X2+0.02X3+0.061X4+0.41X5+0.12727X6+0.235X7+0.011886X8+
0.09667X9+0.2807X10+0.216X11+0.7X12+0.44286X13+0.05882X14+0.0493X1
5+DN16-DP16= 430.625
0.0137X1+0.0392X2+0.2506X3+0.0378X4+0.0002X5+0.00273X6+0.0232X7+0.
26506X8+0.01578X9+0.0084X10+0.0104X11+0.075X12+0.08571X13+0.08571X
14+0.0448X15+DN17-DP17= 132.5
0.001X1+0.0094X2+0.2114X3+0.0616X4+0X5+0.00091X6+0.0083X7+0.02259X
8+0.02589X9+0.0045X10+0.0032X11+0.015X12+0.05714X13+0.20588X14+0.0
192X15+DN18-DP18= 73.611

0.2X1+0.2814X2+0.02X3+0.061X4+0.41X5+0.12727X6+0.235X7+0.011886X8+
0.09667X9+0.2807X10+0.216X11+0.7X12+0.44286X13+0.05882X14+0.0493X1
5+DN19-DP19= 331.25
0.0137X1+0.0392X2+0.2506X3+0.0378X4+0.0002X5+0.00273X6+0.0232X7+0.
26506X8+0.01578X9+0.0084X10+0.0104X11+0.075X12+0.08571X13+0.08571X
14+0.0448X15+DN20-DP20= 66.25
0.001X1+0.0094X2+0.2114X3+0.0616X4+0X5+0.00091X6+0.0083X7+0.02259X
8+0.02589X9+0.0045X10+0.0032X11+0.015X12+0.05714X13+0.20588X14+0.0
192X15+DN21-DP21= 29.44

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
15X1+10X2+40X3+5X4+16.667X5+27.2727X6+25X7+58.8235X8+94.44X9+12.5X
10+4X11+100X12+64.2857X13+117.647X14+40X15+DN22-DP22=50000

0.87X1+1.18X2+3.08X3+0.89X4+2.0667X5+0.48182X6+1.12X7+1.3765X8+0.6
667X9+1.07X10+1.2X11+4.5X12+2.71429X13+2.94118X14+0.52X15+DN23-
DP23=2650

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            23
Elapsed runtime seconds:                          0.08

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000
DP16	0.000000	1.000000
DP17	0.000000	1.000000

DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	200.0000	0.000000
X2	100.0000	0.000000
X3	50.00000	0.000000
X4	100.0000	0.000000
X5	60.00000	0.000000
X6	110.0000	0.000000
X7	200.0000	0.000000
X8	85.00000	0.000000
X9	90.00000	0.000000
X10	200.0000	0.000000
X11	250.0000	0.000000
X12	60.00000	0.000000
X13	70.00000	0.000000
X14	17.00000	0.000000
X15	100.0000	0.000000
DN16	81.25000	0.000000
DN17	60.56076	0.000000
DN18	37.84190	0.000000
DP19	18.12500	0.000000
DP20	5.689240	0.000000
DP21	6.368100	0.000000
DN22	1000.387	0.000000
DN23	500.1700	0.000000

Lampiran 29 *Script* Lingo Menu Diet 6 Penderita Obesitas 2

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=200
X2+DN2-DP2=100
X3+DN3-DP3=50
X4+DN4-DP4=100
X5+DN5-DP5=60
X6+DN6-DP6=110
X7+DN7-DP7=200
X8+DN8-DP8=85
X9+DN9-DP9=90
X10+DN10-DP10=200
X11+DN11-DP11=250
X12+DN12-DP12=60
X13+DN13-DP13=70
X14+DN14-DP14=17
X15+DN15-DP15=100

0.2X1+0.2814X2+0.02X3+0.061X4+0.41X5+0.12727X6+0.235X7+0.011886X8+
0.09667X9+0.2807X10+0.216X11+0.7X12+0.44286X13+0.05882X14+0.0493X1
5+DN16-DP16= 414.38
0.0137X1+0.0392X2+0.2506X3+0.0378X4+0.0002X5+0.00273X6+0.0232X7+0.
26506X8+0.01578X9+0.0084X10+0.0104X11+0.075X12+0.08571X13+0.08571X
14+0.0448X15+DN17-DP17= 127.5
0.001X1+0.0094X2+0.2114X3+0.0616X4+0X5+0.00091X6+0.0083X7+0.02259X
8+0.02589X9+0.0045X10+0.0032X11+0.015X12+0.05714X13+0.20588X14+0.0
192X15+DN18-DP18= 70.833

0.2X1+0.2814X2+0.02X3+0.061X4+0.41X5+0.12727X6+0.235X7+0.011886X8+
0.09667X9+0.2807X10+0.216X11+0.7X12+0.44286X13+0.05882X14+0.0493X1
5+DN19-DP19= 318.25
0.0137X1+0.0392X2+0.2506X3+0.0378X4+0.0002X5+0.00273X6+0.0232X7+0.
26506X8+0.01578X9+0.0084X10+0.0104X11+0.075X12+0.08571X13+0.08571X
14+0.0448X15+DN20-DP20= 63.75
0.001X1+0.0094X2+0.2114X3+0.0616X4+0X5+0.00091X6+0.0083X7+0.02259X
8+0.02589X9+0.0045X10+0.0032X11+0.015X12+0.05714X13+0.20588X14+0.0
192X15+DN21-DP21= 28.33

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
15X1+10X2+40X3+5X4+16.667X5+27.2727X6+25X7+58.8235X8+94.44X9+12.5X
10+4X11+100X12+64.2857X13+117.647X14+40X15+DN22-DP22=50000

0.87X1+1.18X2+3.08X3+0.89X4+2.0667X5+0.48182X6+1.12X7+1.3765X8+0.6
667X9+1.07X10+1.2X11+4.5X12+2.71429X13+2.94118X14+0.52X15+DN23-
DP23=2550

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            23
Elapsed runtime seconds:                          0.08

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000
DP16	0.000000	1.000000
DP17	0.000000	1.000000

DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	200.0000	0.000000
X2	100.0000	0.000000
X3	50.00000	0.000000
X4	100.0000	0.000000
X5	60.00000	0.000000
X6	110.0000	0.000000
X7	200.0000	0.000000
X8	85.00000	0.000000
X9	90.00000	0.000000
X10	200.0000	0.000000
X11	250.0000	0.000000
X12	60.00000	0.000000
X13	70.00000	0.000000
X14	17.00000	0.000000
X15	100.0000	0.000000
DN16	64.99000	0.000000
DN17	55.56080	0.000000
DN18	35.06500	0.000000
DP19	18.13500	0.000000
DP20	5.689200	0.000000
DP21	6.368000	0.000000
DN22	1000.387	0.000000
DN23	400.1700	0.000000

Lampiran 30 *Script* Lingo Menu Diet 6 Penderita Obesitas 3

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=200
X2+DN2-DP2=100
X3+DN3-DP3=50
X4+DN4-DP4=100
X5+DN5-DP5=60
X6+DN6-DP6=110
X7+DN7-DP7=200
X8+DN8-DP8=85
X9+DN9-DP9=90
X10+DN10-DP10=200
X11+DN11-DP11=250
X12+DN12-DP12=60
X13+DN13-DP13=70
X14+DN14-DP14=17
X15+DN15-DP15=100

0.2X1+0.2814X2+0.02X3+0.061X4+0.41X5+0.12727X6+0.235X7+0.011886X8+
0.09667X9+0.2807X10+0.216X11+0.7X12+0.44286X13+0.05882X14+0.0493X1
5+DN16-DP16= 365.625
0.0137X1+0.0392X2+0.2506X3+0.0378X4+0.0002X5+0.00273X6+0.0232X7+0.
26506X8+0.01578X9+0.0084X10+0.0104X11+0.075X12+0.08571X13+0.08571X
14+0.0448X15+DN17-DP17= 112.5
0.001X1+0.0094X2+0.2114X3+0.0616X4+0X5+0.00091X6+0.0083X7+0.02259X
8+0.02589X9+0.0045X10+0.0032X11+0.015X12+0.05714X13+0.20588X14+0.0
192X15+DN18-DP18= 62.5

0.2X1+0.2814X2+0.02X3+0.061X4+0.41X5+0.12727X6+0.235X7+0.011886X8+
0.09667X9+0.2807X10+0.216X11+0.7X12+0.44286X13+0.05882X14+0.0493X1
5+DN19-DP19= 218.25
0.0137X1+0.0392X2+0.2506X3+0.0378X4+0.0002X5+0.00273X6+0.0232X7+0.
26506X8+0.01578X9+0.0084X10+0.0104X11+0.075X12+0.08571X13+0.08571X
14+0.0448X15+DN20-DP20= 56.25
0.001X1+0.0094X2+0.2114X3+0.0616X4+0X5+0.00091X6+0.0083X7+0.02259X
8+0.02589X9+0.0045X10+0.0032X11+0.015X12+0.05714X13+0.20588X14+0.0
192X15+DN21-DP21= 25

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
15X1+10X2+40X3+5X4+16.667X5+27.2727X6+25X7+58.8235X8+94.44X9+12.5X
10+4X11+100X12+64.2857X13+117.647X14+40X15+DN22-DP22=50000

0.87X1+1.18X2+3.08X3+0.89X4+2.0667X5+0.48182X6+1.12X7+1.3765X8+0.6
667X9+1.07X10+1.2X11+4.5X12+2.71429X13+2.94118X14+0.52X15+DN23-
DP23=2250

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            23
Elapsed runtime seconds:                          0.07

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000
DP16	0.000000	1.000000

DP17	0.000000	1.000000
DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	200.0000	0.000000
X2	100.0000	0.000000
X3	50.00000	0.000000
X4	100.0000	0.000000
X5	60.00000	0.000000
X6	110.0000	0.000000
X7	200.0000	0.000000
X8	85.00000	0.000000
X9	90.00000	0.000000
X10	200.0000	0.000000
X11	250.0000	0.000000
X12	60.00000	0.000000
X13	70.00000	0.000000
X14	17.00000	0.000000
X15	100.0000	0.000000
DN16	16.25020	0.000000
DN17	40.56076	0.000000
DN18	26.73190	0.000000
DP19	68.12500	0.000000
DP20	15.68924	0.000000
DP21	10.76810	0.000000
DN22	1000.387	0.000000
DN23	100.1700	0.000000

Lampiran 31 *Script* Lingo Menu Diet 6 Penderita Obesitas 4

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=200
X2+DN2-DP2=100
X3+DN3-DP3=50
X4+DN4-DP4=100
X5+DN5-DP5=60
X6+DN6-DP6=110
X7+DN7-DP7=200
X8+DN8-DP8=85
X9+DN9-DP9=90
X10+DN10-DP10=200
X11+DN11-DP11=250
X12+DN12-DP12=60
X13+DN13-DP13=70
X14+DN14-DP14=17
X15+DN15-DP15=100

0.2X1+0.2814X2+0.02X3+0.061X4+0.41X5+0.12727X6+0.235X7+0.011886X8+
0.09667X9+0.2807X10+0.216X11+0.7X12+0.44286X13+0.05882X14+0.0493X1
5+DN16-DP16= 349.375
0.0137X1+0.0392X2+0.2506X3+0.0378X4+0.0002X5+0.00273X6+0.0232X7+0.
26506X8+0.01578X9+0.0084X10+0.0104X11+0.075X12+0.08571X13+0.08571X
14+0.0448X15+DN17-DP17= 107.5
0.001X1+0.0094X2+0.2114X3+0.0616X4+0X5+0.00091X6+0.0083X7+0.02259X
8+0.02589X9+0.0045X10+0.0032X11+0.015X12+0.05714X13+0.20588X14+0.0
192X15+DN18-DP18= 59.722

0.2X1+0.2814X2+0.02X3+0.061X4+0.41X5+0.12727X6+0.235X7+0.011886X8+
0.09667X9+0.2807X10+0.216X11+0.7X12+0.44286X13+0.05882X14+0.0493X1
5+DN19-DP19= 268.75
0.0137X1+0.0392X2+0.2506X3+0.0378X4+0.0002X5+0.00273X6+0.0232X7+0.
26506X8+0.01578X9+0.0084X10+0.0104X11+0.075X12+0.08571X13+0.08571X
14+0.0448X15+DN20-DP20= 53.75
0.001X1+0.0094X2+0.2114X3+0.0616X4+0X5+0.00091X6+0.0083X7+0.02259X
8+0.02589X9+0.0045X10+0.0032X11+0.015X12+0.05714X13+0.20588X14+0.0
192X15+DN21-DP21= 23.889

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
15X1+10X2+40X3+5X4+16.667X5+27.2727X6+25X7+58.8235X8+94.44X9+12.5X
10+4X11+100X12+64.2857X13+117.647X14+40X15+DN22-DP22=50000

0.87X1+1.18X2+3.08X3+0.89X4+2.0667X5+0.48182X6+1.12X7+1.3765X8+0.6
667X9+1.07X10+1.2X11+4.5X12+2.71429X13+2.94118X14+0.52X15+DN23-
DP23=2150

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            25
Elapsed runtime seconds:                          0.07

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	0.7420000
DN2	0.000000	0.6399333
DN3	0.000000	0.7746667
DN4	0.000000	0.8796667
DN5	0.000000	0.4522200
DN6	0.000000	0.8406087
DN7	0.000000	0.6903333
DN8	0.000000	0.8963473
DN9	0.000000	0.8588833
DN10	0.000000	0.6479667
DN11	0.000000	0.7040000
DN12	0.000000	0.6235480
DN13	0.000000	0.3761873
DN14	0.000000	0.7451013
DN15	0.000000	0.9160333
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.258000
DP2	0.000000	1.360067
DP3	0.000000	1.225333
DP4	0.000000	1.120333
DP5	0.000000	1.547780
DP6	0.000000	1.159391
DP7	0.000000	1.309667
DP8	0.000000	1.103653
DP9	0.000000	1.141117
DP10	0.000000	1.352033
DP11	0.000000	1.296000
DP12	0.000000	2.000000
DP13	0.000000	1.623813
DP14	0.000000	1.254899
DP15	0.000000	1.083967
DP16	0.000000	1.000000
DP17	0.000000	1.000000

DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	0.9333333
X1	200.0000	0.000000
X2	100.0000	0.000000
X3	50.00000	0.000000
X4	100.0000	0.000000
X5	60.00000	0.000000
X6	110.0000	0.000000
X7	200.0000	0.000000
X8	85.00000	0.000000
X9	90.00000	0.000000
X10	200.0000	0.000000
X11	250.0000	0.000000
X12	60.00000	0.000000
X13	70.00000	0.000000
X14	17.00000	0.000000
X15	100.0000	0.000000
DN16	0.000000	1.000000
DN17	35.56076	0.000000
DN18	23.95192	0.000000
DP19	84.62500	0.000000
DP20	18.18924	0.000000
DP21	11.88108	0.000000
DN22	1000.387	0.000000
DN23	0.170000	0.000000

Lampiran 32 *Script* Lingo Menu Diet 7 Penderita Obesitas 1

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=240
X2+DN2-DP2=45
X3+DN3-DP3=60
X4+DN4-DP4=100
X5+DN5-DP5=100
X6+DN6-DP6=110
X7+DN7-DP7=100
X8+DN8-DP8=85
X9+DN9-DP9=240
X10+DN10-DP10=40
X11+DN11-DP11=125
X12+DN12-DP12=250
X13+DN13-DP13=200
X14+DN14-DP14=120
X15+DN15-DP15=50

0.15X1+0.75556X2+0.4X3+0.061X4+0.31X5+0.12727X6+0.235X7+0.0941176X
8+0.0495833X9+0.7X10+0.216X11+0.128X12+0.2X13+0.075X14+0.2814X15+D
N16-DP16= 430.25
0.11667X1+0.02444X2+0.0002X3+0.0378X4+0.06X5+0.002727X6+0.0232X7+0
.1765X8+0.00833X9+0.075X10+0.0104X11+0.024X12+0.0137X13+0.0175X14+
0.0392X15+DN17-DP17= 132.5
0.05X1+0.004X2+0X3+0.0616X4+0.04X5+0.00090911X6+0.0083X7+0.1459X8+
0.00833X9+0.15X10+0.0032X11+0.01X12+0.001X13+0.00333X14+0.0094X15+
DN18-DP18= 73.611

0.15X1+0.75556X2+0.4X3+0.061X4+0.31X5+0.12727X6+0.235X7+0.0941176X
8+0.0495833X9+0.7X10+0.216X11+0.128X12+0.2X13+0.075X14+0.2814X15+D
N19-DP19= 331.25
0.11667X1+0.02444X2+0.0002X3+0.0378X4+0.06X5+0.002727X6+0.0232X7+0
.1765X8+0.00833X9+0.075X10+0.0104X11+0.024X12+0.0137X13+0.0175X14+
0.0392X15+DN20-DP20= 66.25
0.05X1+0.004X2+0X3+0.0616X4+0.04X5+0.00090911X6+0.0083X7+0.1459X8+
0.00833X9+0.15X10+0.0032X11+0.01X12+0.001X13+0.00333X14+0.0094X15+
DN21-DP21= 29.44

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
41.667X1+22.22X2+16.667X3+5X4+3X5+27.2727X6+30X7+47.0588X8+8.333X9
+100X10+4X11+36X12+15X13+10X14+10X15+DN22-DP22=50000

1.55X1+2.8222X2+2.0667X3+0.89X4+1.9X5+0.481818X6+1.12X7+2.4X8+0.3X
9+4.5X10+1.2X11+0.68X12+0.87X13+0.3583X14+1.18X15+DN23-DP23=2650

end
```

output:

```
  Global optimal solution found.
  Objective value:                              0.000000
  Infeasibilities:                              0.000000
  Total solver iterations:                            24
  Elapsed runtime seconds:                          2.27

  Model Class:                                        LP

  Total variables:                    61
  Nonlinear variables:                 0
  Integer variables:                   0

  Total constraints:                  85
  Nonlinear constraints:               0

  Total nonzeros:                    278
  Nonlinear nonzeros:                  0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000
DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000

DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	240.0000	0.000000
X2	45.00000	0.000000
X3	60.00000	0.000000
X4	100.0000	0.000000
X5	100.0000	0.000000
X6	110.0000	0.000000
X7	100.0000	0.000000
X8	85.00000	0.000000
X9	240.0000	0.000000
X10	40.00000	0.000000
X11	125.0000	0.000000
X12	250.0000	0.000000
X13	200.0000	0.000000
X14	120.0000	0.000000
X15	50.00000	0.000000
DN16	91.68011	0.000000
DN17	56.88573	0.000000
DN18	25.97070	0.000000
DP19	7.319888	0.000000
DP20	9.364270	0.000000
DP21	18.20030	0.000000
DN22	7000.085	0.000000
DN23	531.0030	0.000000

Lampiran 33 *script* Lingo Menu Diet 7 Penderita Obesitas 2

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=240
X2+DN2-DP2=45
X3+DN3-DP3=60
X4+DN4-DP4=100
X5+DN5-DP5=100
X6+DN6-DP6=110
X7+DN7-DP7=100
X8+DN8-DP8=85
X9+DN9-DP9=240
X10+DN10-DP10=40
X11+DN11-DP11=125
X12+DN12-DP12=250
X13+DN13-DP13=200
X14+DN14-DP14=120
X15+DN15-DP15=50

0.15X1+0.75556X2+0.4X3+0.061X4+0.31X5+0.12727X6+0.235X7+0.0941176X
8+0.0495833X9+0.7X10+0.216X11+0.128X12+0.2X13+0.075X14+0.2814X15+D
N16-DP16= 414.375
0.11667X1+0.02444X2+0.0002X3+0.0378X4+0.06X5+0.002727X6+0.0232X7+0
.1765X8+0.00833X9+0.075X10+0.0104X11+0.024X12+0.0137X13+0.0175X14+
0.0392X15+DN17-DP17= 127.5
0.05X1+0.004X2+0X3+0.0616X4+0.04X5+0.00090911X6+0.0083X7+0.1459X8+
0.00833X9+0.15X10+0.0032X11+0.01X12+0.001X13+0.00333X14+0.0094X15+
DN18-DP18= 70.833

0.15X1+0.75556X2+0.4X3+0.061X4+0.31X5+0.12727X6+0.235X7+0.0941176X
8+0.0495833X9+0.7X10+0.216X11+0.128X12+0.2X13+0.075X14+0.2814X15+D
N19-DP19= 318.75
0.11667X1+0.02444X2+0.0002X3+0.0378X4+0.06X5+0.002727X6+0.0232X7+0
.1765X8+0.00833X9+0.075X10+0.0104X11+0.024X12+0.0137X13+0.0175X14+
0.0392X15+DN20-DP20= 63.75
0.05X1+0.004X2+0X3+0.0616X4+0.04X5+0.00090911X6+0.0083X7+0.1459X8+
0.00833X9+0.15X10+0.0032X11+0.01X12+0.001X13+0.00333X14+0.0094X15+
DN21-DP21= 28.33

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
X10>=0
X11>=0
```

```
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
41.667X1+22.22X2+16.667X3+5X4+3X5+27.2727X6+30X7+47.0588X8+8.333X9
+100X10+4X11+36X12+15X13+10X14+10X15+DN22-DP22=50000

1.55X1+2.8222X2+2.0667X3+0.89X4+1.9X5+0.481818X6+1.12X7+2.4X8+0.3X
9+4.5X10+1.2X11+0.68X12+0.87X13+0.3583X14+1.18X15+DN23-DP23=2550

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            24
Elapsed runtime seconds:                          0.10

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000
DP16	0.000000	1.000000
DP17	0.000000	1.000000

DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	240.0000	0.000000
X2	45.00000	0.000000
X3	60.00000	0.000000
X4	100.0000	0.000000
X5	100.0000	0.000000
X6	110.0000	0.000000
X7	100.0000	0.000000
X8	85.00000	0.000000
X9	240.0000	0.000000
X10	40.00000	0.000000
X11	125.0000	0.000000
X12	250.0000	0.000000
X13	200.0000	0.000000
X14	120.0000	0.000000
X15	50.00000	0.000000
DN16	75.80511	0.000000
DN17	51.88573	0.000000
DN18	23.19270	0.000000
DP19	19.81989	0.000000
DP20	11.86427	0.000000
DP21	19.31030	0.000000
DN22	7000.085	0.000000
DN23	431.0030	0.000000

Lampiran 34 *script* Lingo Menu Diet 7 Penderita Obesitas 3

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=240
X2+DN2-DP2=45
X3+DN3-DP3=60
X4+DN4-DP4=100
X5+DN5-DP5=100
X6+DN6-DP6=110
X7+DN7-DP7=100
X8+DN8-DP8=85
X9+DN9-DP9=240
X10+DN10-DP10=40
X11+DN11-DP11=125
X12+DN12-DP12=250
X13+DN13-DP13=200
X14+DN14-DP14=120
X15+DN15-DP15=50

0.15X1+0.75556X2+0.4X3+0.061X4+0.31X5+0.12727X6+0.235X7+0.0941176X
8+0.0495833X9+0.7X10+0.216X11+0.128X12+0.2X13+0.075X14+0.2814X15+D
N16-DP16= 365.625
0.11667X1+0.02444X2+0.0002X3+0.0378X4+0.06X5+0.002727X6+0.0232X7+0
.1765X8+0.00833X9+0.075X10+0.0104X11+0.024X12+0.0137X13+0.0175X14+
0.0392X15+DN17-DP17= 112.5
0.05X1+0.004X2+0X3+0.0616X4+0.04X5+0.00090911X6+0.0083X7+0.1459X8+
0.00833X9+0.15X10+0.0032X11+0.01X12+0.001X13+0.00333X14+0.0094X15+
DN18-DP18= 62.5

0.15X1+0.75556X2+0.4X3+0.061X4+0.31X5+0.12727X6+0.235X7+0.0941176X
8+0.0495833X9+0.7X10+0.216X11+0.128X12+0.2X13+0.075X14+0.2814X15+D
N19-DP19= 281.25
0.11667X1+0.02444X2+0.0002X3+0.0378X4+0.06X5+0.002727X6+0.0232X7+0
.1765X8+0.00833X9+0.075X10+0.0104X11+0.024X12+0.0137X13+0.0175X14+
0.0392X15+DN20-DP20= 56.25
0.05X1+0.004X2+0X3+0.0616X4+0.04X5+0.00090911X6+0.0083X7+0.1459X8+
0.00833X9+0.15X10+0.0032X11+0.01X12+0.001X13+0.00333X14+0.0094X15+
DN21-DP21= 25

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
```

```
X10>=0
X11>=0
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
41.667X1+22.22X2+16.667X3+5X4+3X5+27.2727X6+30X7+47.0588X8+8.333X9
+100X10+4X11+36X12+15X13+10X14+10X15+DN22-DP22=50000

1.55X1+2.8222X2+2.0667X3+0.89X4+1.9X5+0.481818X6+1.12X7+2.4X8+0.3X
9+4.5X10+1.2X11+0.68X12+0.87X13+0.3583X14+1.18X15+DN23-DP23=2250

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            24
Elapsed runtime seconds:                          0.07

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000
DP16	0.000000	1.000000
DP17	0.000000	1.000000
DP18	0.000000	1.000000

DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	240.0000	0.000000
X2	45.00000	0.000000
X3	60.00000	0.000000
X4	100.0000	0.000000
X5	100.0000	0.000000
X6	110.0000	0.000000
X7	100.0000	0.000000
X8	85.00000	0.000000
X9	240.0000	0.000000
X10	40.00000	0.000000
X11	125.0000	0.000000
X12	250.0000	0.000000
X13	200.0000	0.000000
X14	120.0000	0.000000
X15	50.00000	0.000000
DN16	27.05511	0.000000
DN17	36.88573	0.000000
DN18	14.85970	0.000000
DP19	57.31989	0.000000
DP20	19.36427	0.000000
DP21	22.64030	0.000000
DN22	7000.085	0.000000
DN23	131.0030	0.000000

Lampiran 35 *script* Lingo Menu Diet 7 Penderita Obesitas 4

Input:

```
MIN
DN1+DN2+DN3+DN4+DN5+DN6+DN7+DN8+DN9+DN10+DN11+DN12+DN13+DN14+DN15+
DN19+DN20+DN21+DP1+DP2+DP3+DP4+DP5+DP6+DP7+DP8+DP9+DP10+DP11+DP12+
DP13+DP14+DP15+DP16+DP17+DP18+DP22+DP23

Subject to
X1+DN1-DP1=240
X2+DN2-DP2=45
X3+DN3-DP3=60
X4+DN4-DP4=100
X5+DN5-DP5=100
X6+DN6-DP6=110
X7+DN7-DP7=100
X8+DN8-DP8=85
X9+DN9-DP9=240
X10+DN10-DP10=40
X11+DN11-DP11=125
X12+DN12-DP12=250
X13+DN13-DP13=200
X14+DN14-DP14=120
X15+DN15-DP15=50

0.15X1+0.75556X2+0.4X3+0.061X4+0.31X5+0.12727X6+0.235X7+0.0941176X
8+0.0495833X9+0.7X10+0.216X11+0.128X12+0.2X13+0.075X14+0.2814X15+D
N16-DP16= 349.375
0.11667X1+0.02444X2+0.0002X3+0.0378X4+0.06X5+0.002727X6+0.0232X7+0
.1765X8+0.00833X9+0.075X10+0.0104X11+0.024X12+0.0137X13+0.0175X14+
0.0392X15+DN17-DP17= 107.5
0.05X1+0.004X2+0X3+0.0616X4+0.04X5+0.00090911X6+0.0083X7+0.1459X8+
0.00833X9+0.15X10+0.0032X11+0.01X12+0.001X13+0.00333X14+0.0094X15+
DN18-DP18= 59.722

0.15X1+0.75556X2+0.4X3+0.061X4+0.31X5+0.12727X6+0.235X7+0.0941176X
8+0.0495833X9+0.7X10+0.216X11+0.128X12+0.2X13+0.075X14+0.2814X15+D
N19-DP19= 268.75
0.11667X1+0.02444X2+0.0002X3+0.0378X4+0.06X5+0.002727X6+0.0232X7+0
.1765X8+0.00833X9+0.075X10+0.0104X11+0.024X12+0.0137X13+0.0175X14+
0.0392X15+DN20-DP20= 53.75
0.05X1+0.004X2+0X3+0.0616X4+0.04X5+0.00090911X6+0.0083X7+0.1459X8+
0.00833X9+0.15X10+0.0032X11+0.01X12+0.001X13+0.00333X14+0.0094X15+
DN21-DP21= 23.889

X1>=0
X2>=0
X3>=0
X4>=0
X5>=0
X6>=0
X7>=0
X8>=0
X9>=0
```

```
X10>=0
X11>=0
X12>=0
X13>=0
X14>=0
X15>=0
DN1>=0
DN2>=0
DN3>=0
DN4>=0
DN5>=0
DN6>=0
DN7>=0
DN8>=0
DN9>=0
DN10>=0
DN11>=0
DN12>=0
DN13>=0
DN14>=0
DN15>=0
DN16>=0
DN17>=0
DN18>=0
DN19>=0
DN20>=0
DN21>=0
DN22>=0
DN23>=0
DP1>=0
DP2>=0
DP3>=0
DP4>=0
DP5>=0
DP6>=0
DP7>=0
DP8>=0
DP9>=0
DP10>=0
DP11>=0
DP12>=0
DP13>=0
DP14>=0
DP15>=0
DP16>=0
DP17>=0
DP18>=0
DP19>=0
DP20>=0
DP21>=0
DP22>=0
DP23>=0
41.667X1+22.22X2+16.667X3+5X4+3X5+27.2727X6+30X7+47.0588X8+8.333X9
+100X10+4X11+36X12+15X13+10X14+10X15+DN22-DP22=50000

1.55X1+2.8222X2+2.0667X3+0.89X4+1.9X5+0.481818X6+1.12X7+2.4X8+0.3X
9+4.5X10+1.2X11+0.68X12+0.87X13+0.3583X14+1.18X15+DN23-DP23=2150

end
```

Output:

```
Global optimal solution found.
Objective value:                              0.000000
Infeasibilities:                              0.000000
Total solver iterations:                            25
Elapsed runtime seconds:                          2.39

Model Class:                                        LP

Total variables:                   61
Nonlinear variables:                0
Integer variables:                  0

Total constraints:                 85
Nonlinear constraints:              0

Total nonzeros:                   278
Nonlinear nonzeros:                 0
```

Variable	Value	Reduced Cost
DN1	0.000000	1.000000
DN2	0.000000	1.000000
DN3	0.000000	1.000000
DN4	0.000000	1.000000
DN5	0.000000	1.000000
DN6	0.000000	1.000000
DN7	0.000000	1.000000
DN8	0.000000	1.000000
DN9	0.000000	1.000000
DN10	0.000000	1.000000
DN11	0.000000	1.000000
DN12	0.000000	1.000000
DN13	0.000000	1.000000
DN14	0.000000	1.000000
DN15	0.000000	1.000000
DN19	0.000000	1.000000
DN20	0.000000	1.000000
DN21	0.000000	1.000000
DP1	0.000000	1.000000
DP2	0.000000	1.000000
DP3	0.000000	1.000000
DP4	0.000000	1.000000
DP5	0.000000	1.000000
DP6	0.000000	1.000000
DP7	0.000000	1.000000
DP8	0.000000	1.000000
DP9	0.000000	1.000000
DP10	0.000000	1.000000
DP11	0.000000	1.000000
DP12	0.000000	1.000000
DP13	0.000000	1.000000
DP14	0.000000	1.000000
DP15	0.000000	1.000000
DP16	0.000000	1.000000
DP17	0.000000	1.000000

DP18	0.000000	1.000000
DP22	0.000000	1.000000
DP23	0.000000	1.000000
X1	240.0000	0.000000
X2	45.00000	0.000000
X3	60.00000	0.000000
X4	100.0000	0.000000
X5	100.0000	0.000000
X6	110.0000	0.000000
X7	100.0000	0.000000
X8	85.00000	0.000000
X9	240.0000	0.000000
X10	40.00000	0.000000
X11	125.0000	0.000000
X12	250.0000	0.000000
X13	200.0000	0.000000
X14	120.0000	0.000000
X15	50.00000	0.000000
DN16	10.80511	0.000000
DN17	31.88573	0.000000
DN18	12.08170	0.000000
DP19	69.81989	0.000000
DP20	21.86427	0.000000
DP21	23.75130	0.000000
DN22	7000.085	0.000000
DN23	31.00302	0.000000