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LAMPIRAN

Lampiran 1

```
Script Lingo model Goal Programming tanpa prioritas sasaran sebelum Covid-19
MIN=n1+n2+n3+n4+n5+n6+n7+n8+n9+n10+n11+n12+n13+n14+n15+n16+n17+n18+n19+n20+p21+n22+p22
;
x1+n1=60000;
x2+n2=4800;
x3+n3=24000;
x4+n4=7200;
x5+n5=3600;
x6+n6=30000;
x7+n7=1800;
x8+n8=3600;
x9+n9=3600;
x10+n10=720;
x11+n11=1800;
x12+n12=3600;
x13+n13=4800;
x14+n14=1440;
x15+n15=600;
x16+n16=1200;
x17+n17=1800;
x18+n18=1800;
x19+n19=18000;
39000*x1+66000*x2+45000*x3+45000*x4+47000*x5+47000*x6+47000*x7+47000*x8+42000*x9+36000
*x10+30000*x11+50000*x12+50000*x13+50000*x14+50000*x15+50000*x16+50000*x17+50000*x18+5
0000*x19+n20-p20=Q;
30714*x1+46221*x2+41692*x3+33651*x4+33430*x5+38746*x6+47925*x7+37247*x8+39268*x9+33133
*x10+38579*x11+32553*x12+39050*x13+40635*x14+41358*x15+42324*x16+40901*x17+41732*x18+2
4840*x19+n21-p21=D;
x1+x2+x3+x4+x5+x6+x7+x8+x9+x10+x11+x12+x13+x14+x15+x16+x17+x18+x19+n22-p22=32236;
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;x16>=0;x17>=0;x18>=0;x19>=0;n1>=0;n2>=0;n3>=0;n4>=0;n5>=0;n6>=0;n7>=0;n8>=0;
n9>=0;n10>=0;n11>=0;n12>=0;n13>=0;n14>=0;n15>=0;n16>=0;n17>=0;n18>=0;n19>=0;n20>=0;n21
>=0;n22>=0;p20>=0;p21>=0;p22>=0;
END
```

Output:

Global optimal solution found.

| | |
|--------------------------|----------|
| Objective value: | 142124.0 |
| Infeasibilities: | 0.000000 |
| Total solver iterations: | 0 |
| Elapsed runtime seconds: | 0.32 |

| | |
|--------------|----|
| Model Class: | LP |
|--------------|----|

| | |
|------------------------|-----|
| Total variables: | 46 |
| Nonlinear variables: | 0 |
| Integer variables: | 0 |
| Total constraints: | 67 |
| Nonlinear constraints: | 0 |
| Total nonzeros: | 170 |
| Nonlinear nonzeros: | 0 |

| Variable | Value | Reduced Cost |
|----------|----------|--------------|
| N1 | 27764.00 | 0.000000 |
| N2 | 4800.000 | 0.000000 |

| | | |
|-----|---------------|----------|
| N3 | 24000.00 | 0.000000 |
| N4 | 7200.000 | 0.000000 |
| N5 | 3600.000 | 0.000000 |
| N6 | 30000.00 | 0.000000 |
| N7 | 1800.000 | 0.000000 |
| N8 | 3600.000 | 0.000000 |
| N9 | 3600.000 | 0.000000 |
| N10 | 720.0000 | 0.000000 |
| N11 | 1800.000 | 0.000000 |
| N12 | 3600.000 | 0.000000 |
| N13 | 4800.000 | 0.000000 |
| N14 | 1440.000 | 0.000000 |
| N15 | 600.0000 | 0.000000 |
| N16 | 1200.000 | 0.000000 |
| N17 | 1800.000 | 0.000000 |
| N18 | 1800.000 | 0.000000 |
| N19 | 18000.00 | 0.000000 |
| N20 | 0.000000 | 1.000000 |
| P21 | 0.000000 | 1.000000 |
| N22 | 0.000000 | 2.000000 |
| P22 | 0.000000 | 0.000000 |
| X1 | 32236.00 | 0.000000 |
| X2 | 0.000000 | 0.000000 |
| X3 | 0.000000 | 0.000000 |
| X4 | 0.000000 | 0.000000 |
| X5 | 0.000000 | 0.000000 |
| X6 | 0.000000 | 0.000000 |
| X7 | 0.000000 | 0.000000 |
| X8 | 0.000000 | 0.000000 |
| X9 | 0.000000 | 0.000000 |
| X10 | 0.000000 | 0.000000 |
| X11 | 0.000000 | 0.000000 |
| X12 | 0.000000 | 0.000000 |
| X13 | 0.000000 | 0.000000 |
| X14 | 0.000000 | 0.000000 |
| X15 | 0.000000 | 0.000000 |
| X16 | 0.000000 | 0.000000 |
| X17 | 0.000000 | 0.000000 |
| X18 | 0.000000 | 0.000000 |
| X19 | 0.000000 | 0.000000 |
| P20 | 0.000000 | 0.000000 |
| Q | 0.1257204E+10 | 0.000000 |
| N21 | 0.000000 | 0.000000 |
| D | 0.9900965E+09 | 0.000000 |

Output analisis sensitivitas:

Righthand Side Ranges:

| Row | Current RHS | Allowable Increase | Allowable Decrease |
|-----|----------------|-----------------------|-----------------------|
| 2 | 60000.00 | INFINITY | 27764.00 |
| 3 | 4800.000 | INFINITY | 4800.000 |
| 4 | 24000.00 | INFINITY | 24000.00 |
| 5 | 7200.000 | INFINITY | 7200.000 |
| 6 | 3600.000 | INFINITY | 3600.000 |
| 7 | 30000.00 | INFINITY | 30000.00 |
| 8 | 1800.000 | INFINITY | 1800.000 |
| 9 | 3600.000 | INFINITY | 3600.000 |
| 10 | 3600.000 | INFINITY | 3600.000 |
| 11 | 720.0000 | INFINITY | 720.0000 |
| 12 | 1800.000 | INFINITY | 1800.000 |
| 13 | 3600.000 | INFINITY | 3600.000 |

| | | | |
|----|----------|---------------|----------|
| 14 | 4800.000 | INFINITY | 4800.000 |
| 15 | 1440.000 | INFINITY | 1440.000 |
| 16 | 600.0000 | INFINITY | 600.0000 |
| 17 | 1200.000 | INFINITY | 1200.000 |
| 18 | 1800.000 | INFINITY | 1800.000 |
| 19 | 1800.000 | INFINITY | 1800.000 |
| 20 | 18000.00 | INFINITY | 18000.00 |
| 21 | 0.000000 | 0.1257204E+10 | INFINITY |
| 22 | 0.000000 | 0.9900965E+09 | INFINITY |
| 23 | 32236.00 | 27764.00 | 32236.00 |

Objective Coefficient Ranges:

| Variable | Current Coefficient | Allowable Increase | Allowable Decrease |
|----------|---------------------|--------------------|--------------------|
| N1 | 1.000000 | 0.000000 | 0.000000 |
| N2 | 1.000000 | 0.000000 | INFINITY |
| N3 | 1.000000 | 0.000000 | INFINITY |
| N4 | 1.000000 | 0.000000 | INFINITY |
| N5 | 1.000000 | 0.000000 | INFINITY |
| N6 | 1.000000 | 0.000000 | INFINITY |
| N7 | 1.000000 | 0.000000 | INFINITY |
| N8 | 1.000000 | 0.000000 | INFINITY |
| N9 | 1.000000 | 0.000000 | INFINITY |
| N10 | 1.000000 | 0.9595428 | 0.000000 |
| N11 | 1.000000 | 0.000000 | INFINITY |
| N12 | 1.000000 | 0.000000 | INFINITY |
| N13 | 1.000000 | 0.000000 | INFINITY |
| N14 | 1.000000 | 0.000000 | INFINITY |
| N15 | 1.000000 | 0.000000 | INFINITY |
| N16 | 1.000000 | 0.000000 | INFINITY |
| N17 | 1.000000 | 0.000000 | INFINITY |
| N18 | 1.000000 | 0.000000 | INFINITY |
| N19 | 1.000000 | 0.000000 | 0.000000 |

Lampiran 2

```

Script Lingo model Goal Programming tanpa prioritas sasaran pada masa Covid-19
MIN=n1+n2+n3+n4+n5+n6+n7+n8+n9+n10+n11+n12+n13+n14+n15+n16+n17+n18+n19+n20+p21+n22+p22
;
x1+n1=32400;
x2+n2=3000;
x3+n3=18000;
x4+n4=3600;
x5+n5=1800;
x6+n6=15000;
x7+n7=960;
x8+n8=1800;
x9+n9=1800;
x10+n10=360;
x11+n11=900;
x12+n12=1800;
x13+n13=2400;
x14+n14=840;
x15+n15=300;
x16+n16=600;
x17+n17=840;
x18+n18=840;
x19+n19=9000;
39000*x1+66000*x2+45000*x3+45000*x4+47000*x5+47000*x6+47000*x7+47000*x8+42000*x9+36000
*x10+30000*x11+50000*x12+50000*x13+50000*x14+50000*x15+50000*x16+50000*x17+50000*x18+5
0000*x19+n20-p20=Q;
30714*x1+46221*x2+41692*x3+33651*x4+33430*x5+38746*x6+47925*x7+37247*x8+39268*x9+33133
*x10+38579*x11+32553*x12+39050*x13+40635*x14+41358*x15+42324*x16+40901*x17+41732*x18+2
4840*x19+n21-p21=D;
x1+x2+x3+x4+x5+x6+x7+x8+x9+x10+x11+x12+x13+x14+x15+x16+x17+x18+x19+n22-p22=16128;
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;x16>=0;x17>=0;x18>=0;x19>=0;n1>=0;n2>=0;n3>=0;n4>=0;n5>=0;n6>=0;n7>=0;n8>=0;
n9>=0;n10>=0;n11>=0;n12>=0;n13>=0;n14>=0;n15>=0;n16>=0;n17>=0;n18>=0;n19>=0;n20>=0;n21
>=0;n22>=0;p20>=0;p21>=0;p22>=0;
END

```

Output:

```

Global optimal solution found.
Objective value:                80112.00
Infeasibilities:                0.000000
Total solver iterations:        0
Elapsed runtime seconds:        0.18

```

```

Model Class:                    LP

```

```

Total variables:                46
Nonlinear variables:            0
Integer variables:              0

Total constraints:              67
Nonlinear constraints:          0

Total nonzeros:                170
Nonlinear nonzeros:            0

```

| Variable | Value | Reduced Cost |
|----------|----------|--------------|
| N1 | 16272.00 | 0.000000 |
| N2 | 3000.000 | 0.000000 |
| N3 | 18000.00 | 0.000000 |
| N4 | 3600.000 | 0.000000 |
| N5 | 1800.000 | 0.000000 |
| N6 | 15000.00 | 0.000000 |

| | | |
|-----|---------------|----------|
| N7 | 960.0000 | 0.000000 |
| N8 | 1800.000 | 0.000000 |
| N9 | 1800.000 | 0.000000 |
| N10 | 360.0000 | 0.000000 |
| N11 | 900.0000 | 0.000000 |
| N12 | 1800.000 | 0.000000 |
| N13 | 2400.000 | 0.000000 |
| N14 | 840.0000 | 0.000000 |
| N15 | 300.0000 | 0.000000 |
| N16 | 600.0000 | 0.000000 |
| N17 | 840.0000 | 0.000000 |
| N18 | 840.0000 | 0.000000 |
| N19 | 9000.000 | 0.000000 |
| N20 | 0.000000 | 1.000000 |
| P21 | 0.000000 | 1.000000 |
| N22 | 0.000000 | 2.000000 |
| P22 | 0.000000 | 0.000000 |
| X1 | 16128.00 | 0.000000 |
| X2 | 0.000000 | 0.000000 |
| X3 | 0.000000 | 0.000000 |
| X4 | 0.000000 | 0.000000 |
| X5 | 0.000000 | 0.000000 |
| X6 | 0.000000 | 0.000000 |
| X7 | 0.000000 | 0.000000 |
| X8 | 0.000000 | 0.000000 |
| X9 | 0.000000 | 0.000000 |
| X10 | 0.000000 | 0.000000 |
| X11 | 0.000000 | 0.000000 |
| X12 | 0.000000 | 0.000000 |
| X13 | 0.000000 | 0.000000 |
| X14 | 0.000000 | 0.000000 |
| X15 | 0.000000 | 0.000000 |
| X16 | 0.000000 | 0.000000 |
| X17 | 0.000000 | 0.000000 |
| X18 | 0.000000 | 0.000000 |
| X19 | 0.000000 | 0.000000 |
| P20 | 0.000000 | 0.000000 |
| Q | 0.6289920E+09 | 0.000000 |
| N21 | 0.000000 | 0.000000 |
| D | 0.4953554E+09 | 0.000000 |

Output analisis sensitivitas:

Righthand Side Ranges:

| Row | Current RHS | Allowable Increase | Allowable Decrease |
|-----|----------------|-----------------------|-----------------------|
| 2 | 32400.00 | INFINITY | 16272.00 |
| 3 | 3000.000 | INFINITY | 3000.000 |
| 4 | 18000.00 | INFINITY | 18000.00 |
| 5 | 3600.000 | INFINITY | 3600.000 |
| 6 | 1800.000 | INFINITY | 1800.000 |
| 7 | 15000.00 | INFINITY | 15000.00 |
| 8 | 960.0000 | INFINITY | 960.0000 |
| 9 | 1800.000 | INFINITY | 1800.000 |
| 10 | 1800.000 | INFINITY | 1800.000 |
| 11 | 360.0000 | INFINITY | 360.0000 |
| 12 | 900.0000 | INFINITY | 900.0000 |
| 13 | 1800.000 | INFINITY | 1800.000 |
| 14 | 2400.000 | INFINITY | 2400.000 |
| 15 | 840.0000 | INFINITY | 840.0000 |
| 16 | 300.0000 | INFINITY | 300.0000 |
| 17 | 600.0000 | INFINITY | 600.0000 |
| 18 | 840.0000 | INFINITY | 840.0000 |
| 19 | 840.0000 | INFINITY | 840.0000 |

| | | | |
|----|----------|---------------|----------|
| 20 | 9000.000 | INFINITY | 9000.000 |
| 21 | 0.000000 | 0.6289920E+09 | INFINITY |
| 22 | 0.000000 | 0.4953554E+09 | INFINITY |
| 23 | 16128.00 | 16272.00 | 16128.00 |

Objective Coefficient Ranges:

| Variable | Current Coefficient | Allowable Increase | Allowable Decrease |
|----------|---------------------|--------------------|--------------------|
| N1 | 1.000000 | 3714.000 | 15949.68 |
| N2 | 1.000000 | 38131.86 | INFINITY |
| N3 | 1.000000 | 21650.52 | INFINITY |
| N4 | 1.000000 | 26581.85 | INFINITY |
| N5 | 1.000000 | 27887.58 | INFINITY |
| N6 | 1.000000 | 21560.75 | INFINITY |
| N7 | 1.000000 | 41329.81 | INFINITY |
| N8 | 1.000000 | 31243.02 | INFINITY |
| N9 | 1.000000 | 33019.63 | INFINITY |
| N10 | 1.000000 | 28826.49 | INFINITY |
| N11 | 1.000000 | 33163.95 | INFINITY |
| N12 | 1.000000 | 27116.62 | INFINITY |
| N13 | 1.000000 | 32327.99 | INFINITY |
| N14 | 1.000000 | 35021.33 | INFINITY |
| N15 | 1.000000 | 36106.91 | INFINITY |
| N16 | 1.000000 | 36706.09 | INFINITY |
| N17 | 1.000000 | 35255.17 | INFINITY |
| N18 | 1.000000 | 35985.68 | INFINITY |
| N19 | 1.000000 | 14336.30 | INFINITY |

Lampiran 3

Script Lingo model *Goal Programming* dengan prioritas sasaran disertai bobot sebelum Covid-19

```

MIN=0.5*(n1+n2+n3+n4+n5+n6+n7+n8+n9+n10+n11+n12+n13+n14+n15+n16+n17+n18+n19)+0.25*(n20
)+0.15*(p21)+0.10*(n22+p22);
x1+n1=60000;
x2+n2=4800;
x3+n3=24000;
x4+n4=7200;
x5+n5=3600;
x6+n6=30000;
x7+n7=1800;
x8+n8=3600;
x9+n9=3600;
x10+n10=720;
x11+n11=1800;
x12+n12=3600;
x13+n13=4800;
x14+n14=1440;
x15+n15=600;
x16+n16=1200;
x17+n17=1800;
x18+n18=1800;
x19+n19=18000;
39000*x1+66000*x2+45000*x3+45000*x4+47000*x5+47000*x6+47000*x7+47000*x8+42000*x9+36000
*x10+30000*x11+50000*x12+50000*x13+50000*x14+50000*x15+50000*x16+50000*x17+50000*x18+5
0000*x19+n20-p20=Q;
30714*x1+46221*x2+41692*x3+33651*x4+33430*x5+38746*x6+47925*x7+37247*x8+39268*x9+33133
*x10+38579*x11+32553*x12+39050*x13+40635*x14+41358*x15+42324*x16+40901*x17+41732*x18+2
4840*x19+n21-p21=D;
x1+x2+x3+x4+x5+x6+x7+x8+x9+x10+x11+x12+x13+x14+x15+x16+x17+x18+x19+n22-p22=32236;
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;x16>=0;x17>=0;x18>=0;x19>=0;n1>=0;n2>=0;n3>=0;n4>=0;n5>=0;n6>=0;n7>=0;n8>=0;
n9>=0;n10>=0;n11>=0;n12>=0;n13>=0;n14>=0;n15>=0;n16>=0;n17>=0;n18>=0;n19>=0;n20>=0;n21
>=0;n22>=0;p20>=0;p21>=0;p22>=0;
END

```

Output:

```

Global optimal solution found.
Objective value:                14212.40
Infeasibilities:                0.000000
Total solver iterations:        0
Elapsed runtime seconds:        0.23

Model Class:                    LP

Total variables:                46
Nonlinear variables:            0
Integer variables:              0

Total constraints:              67
Nonlinear constraints:          0

Total nonzeros:                 170
Nonlinear nonzeros:            0

```

| Variable | Value | Reduced Cost |
|----------|----------|--------------|
| N1 | 0.000000 | 0.4000000 |
| N2 | 0.000000 | 0.4000000 |
| N3 | 0.000000 | 0.4000000 |
| N4 | 0.000000 | 0.4000000 |
| N5 | 0.000000 | 0.4000000 |

| | | |
|-----|---------------|-----------|
| N6 | 0.000000 | 0.4000000 |
| N7 | 0.000000 | 0.4000000 |
| N8 | 0.000000 | 0.4000000 |
| N9 | 0.000000 | 0.4000000 |
| N10 | 0.000000 | 0.4000000 |
| N11 | 0.000000 | 0.4000000 |
| N12 | 0.000000 | 0.4000000 |
| N13 | 0.000000 | 0.4000000 |
| N14 | 0.000000 | 0.4000000 |
| N15 | 0.000000 | 0.4000000 |
| N16 | 0.000000 | 0.4000000 |
| N17 | 0.000000 | 0.4000000 |
| N18 | 0.000000 | 0.4000000 |
| N19 | 0.000000 | 0.4000000 |
| N20 | 0.000000 | 0.2500000 |
| P21 | 0.000000 | 0.1500000 |
| N22 | 0.000000 | 0.2000000 |
| P22 | 142124.0 | 0.000000 |
| X1 | 60000.00 | 0.000000 |
| X2 | 4800.000 | 0.000000 |
| X3 | 24000.00 | 0.000000 |
| X4 | 7200.000 | 0.000000 |
| X5 | 3600.000 | 0.000000 |
| X6 | 30000.00 | 0.000000 |
| X7 | 1800.000 | 0.000000 |
| X8 | 3600.000 | 0.000000 |
| X9 | 3600.000 | 0.000000 |
| X10 | 720.0000 | 0.000000 |
| X11 | 1800.000 | 0.000000 |
| X12 | 3600.000 | 0.000000 |
| X13 | 4800.000 | 0.000000 |
| X14 | 1440.000 | 0.000000 |
| X15 | 600.0000 | 0.000000 |
| X16 | 1200.000 | 0.000000 |
| X17 | 1800.000 | 0.000000 |
| X18 | 1800.000 | 0.000000 |
| X19 | 18000.00 | 0.000000 |
| P20 | 0.000000 | 0.000000 |
| Q | 0.7786920E+10 | 0.000000 |
| N21 | 0.000000 | 0.000000 |
| D | 0.6079949E+10 | 0.000000 |

Output analisis sensitivitas:

Righthand Side Ranges:

| Row | Current RHS | Allowable Increase | Allowable Decrease |
|-----|----------------|-----------------------|-----------------------|
| 2 | 60000.00 | INFINITY | 60000.00 |
| 3 | 4800.000 | INFINITY | 4800.000 |
| 4 | 24000.00 | INFINITY | 24000.00 |
| 5 | 7200.000 | INFINITY | 7200.000 |
| 6 | 3600.000 | INFINITY | 3600.000 |
| 7 | 30000.00 | INFINITY | 30000.00 |
| 8 | 1800.000 | INFINITY | 1800.000 |
| 9 | 3600.000 | INFINITY | 3600.000 |
| 10 | 3600.000 | INFINITY | 3600.000 |
| 11 | 720.0000 | INFINITY | 720.0000 |
| 12 | 1800.000 | INFINITY | 1800.000 |
| 13 | 3600.000 | INFINITY | 3600.000 |
| 14 | 4800.000 | INFINITY | 4800.000 |
| 15 | 1440.000 | INFINITY | 1440.000 |
| 16 | 600.0000 | INFINITY | 600.0000 |
| 17 | 1200.000 | INFINITY | 1200.000 |
| 18 | 1800.000 | INFINITY | 1800.000 |
| 19 | 1800.000 | INFINITY | 1800.000 |
| 20 | 18000.00 | INFINITY | 18000.00 |

| | | | |
|----|----------|---------------|----------|
| 21 | 0.000000 | 0.7786920E+10 | INFINITY |
| 22 | 0.000000 | 0.6079949E+10 | INFINITY |
| 23 | 32236.00 | 142124.0 | INFINITY |

Objective Coefficient Ranges:

| Variable | Current Coefficient | Allowable Increase | Allowable Decrease |
|----------|------------------------|-----------------------|-----------------------|
| N1 | 0.5000000 | INFINITY | 11130.95 |
| N2 | 0.5000000 | 1060.460 | INFINITY |
| N3 | 0.5000000 | INFINITY | 3141.475 |
| N4 | 0.5000000 | 2535.589 | 638.3139 |
| N5 | 0.5000000 | 740.1463 | INFINITY |
| N6 | 0.5000000 | INFINITY | 4522.829 |
| N7 | 0.5000000 | 1761.436 | INFINITY |
| N8 | 0.5000000 | 910.3352 | INFINITY |
| N9 | 0.5000000 | 1000.446 | INFINITY |
| N10 | 0.5000000 | 1326.904 | INFINITY |
| N11 | 0.5000000 | 1344.725 | INFINITY |
| N12 | 0.5000000 | 701.0434 | INFINITY |
| N13 | 0.5000000 | 740.7257 | INFINITY |
| N14 | 0.5000000 | 1511.396 | INFINITY |
| N15 | 0.5000000 | 1718.633 | INFINITY |
| N16 | 0.5000000 | 1636.704 | INFINITY |
| N17 | 0.5000000 | 1448.256 | INFINITY |
| N18 | 0.5000000 | 1485.308 | INFINITY |
| N19 | 0.5000000 | INFINITY | 2642.857 |

Lampiran 4

Script Lingo model *Goal Programming* dengan prioritas sasaran disertai bobot pada masa Covid-19

```

MIN=0.50*(n1+n2+n3+n4+n5+n6+n7+n8+n9+n10+n11+n12+n13+n14+n15+n16+n17+n18+n19)+0.25*(n2
0)+0.15*(p21)+0.10*(n22+p22);
x1+n1=32400;
x2+n2=3000;
x3+n3=18000;
x4+n4=3600;
x5+n5=1800;
x6+n6=15000;
x7+n7=960;
x8+n8=1800;
x9+n9=1800;
x10+n10=360;
x11+n11=900;
x12+n12=1800;
x13+n13=2400;
x14+n14=840;
x15+n15=300;
x16+n16=600;
x17+n17=840;
x18+n18=840;
x19+n19=9000;
39000*x1+66000*x2+45000*x3+45000*x4+47000*x5+47000*x6+47000*x7+47000*x8+42000*x9+36000
*x10+30000*x11+50000*x12+50000*x13+50000*x14+50000*x15+50000*x16+50000*x17+50000*x18+5
0000*x19+n20-p20=Q;
30714*x1+46221*x2+41692*x3+33651*x4+33430*x5+38746*x6+47925*x7+37247*x8+39268*x9+33133
*x10+38579*x11+32553*x12+39050*x13+40635*x14+41358*x15+42324*x16+40901*x17+41732*x18+2
4840*x19+n21-p21=D;
x1+x2+x3+x4+x5+x6+x7+x8+x9+x10+x11+x12+x13+x14+x15+x16+x17+x18+x19+n22-p22=16128;
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;x16>=0;x17>=0;x18>=0;x19>=0;n1>=0;n2>=0;n3>=0;n4>=0;n5>=0;n6>=0;n7>=0;n8>=0;
n9>=0;n10>=0;n11>=0;n12>=0;n13>=0;n14>=0;n15>=0;n16>=0;n17>=0;n18>=0;n19>=0;n20>=0;n21
>=0;n22>=0;p20>=0;p21>=0;p22>=0;
END

```

Output:

```

Global optimal solution found.
Objective value:                8011.200
Infeasibilities:                 0.000000
Total solver iterations:         0
Elapsed runtime seconds:         0.49

Model Class:                     LP

Total variables:                  46
Nonlinear variables:              0
Integer variables:                0

Total constraints:                 67
Nonlinear constraints:             0

Total nonzeros:                   170
Nonlinear nonzeros:               0

```

| Variable | Value | Reduced Cost |
|----------|----------|--------------|
| N1 | 0.000000 | 0.4000000 |
| N2 | 0.000000 | 0.4000000 |
| N3 | 0.000000 | 0.4000000 |
| N4 | 0.000000 | 0.4000000 |

| | | |
|-----|---------------|-----------|
| N5 | 0.000000 | 0.4000000 |
| N6 | 0.000000 | 0.4000000 |
| N7 | 0.000000 | 0.4000000 |
| N8 | 0.000000 | 0.4000000 |
| N9 | 0.000000 | 0.4000000 |
| N10 | 0.000000 | 0.4000000 |
| N11 | 0.000000 | 0.4000000 |
| N12 | 0.000000 | 0.4000000 |
| N13 | 0.000000 | 0.4000000 |
| N14 | 0.000000 | 0.4000000 |
| N15 | 0.000000 | 0.4000000 |
| N16 | 0.000000 | 0.4000000 |
| N17 | 0.000000 | 0.4000000 |
| N18 | 0.000000 | 0.4000000 |
| N19 | 0.000000 | 0.4000000 |
| N20 | 0.000000 | 0.2500000 |
| P21 | 0.000000 | 0.1500000 |
| N22 | 0.000000 | 0.2000000 |
| P22 | 80112.00 | 0.0000000 |
| X1 | 32400.00 | 0.0000000 |
| X2 | 3000.0000 | 0.0000000 |
| X3 | 18000.00 | 0.0000000 |
| X4 | 3600.0000 | 0.0000000 |
| X5 | 1800.0000 | 0.0000000 |
| X6 | 15000.00 | 0.0000000 |
| X7 | 960.0000 | 0.0000000 |
| X8 | 1800.0000 | 0.0000000 |
| X9 | 1800.0000 | 0.0000000 |
| X10 | 360.0000 | 0.0000000 |
| X11 | 900.0000 | 0.0000000 |
| X12 | 1800.0000 | 0.0000000 |
| X13 | 2400.0000 | 0.0000000 |
| X14 | 840.0000 | 0.0000000 |
| X15 | 300.0000 | 0.0000000 |
| X16 | 600.0000 | 0.0000000 |
| X17 | 840.0000 | 0.0000000 |
| X18 | 840.0000 | 0.0000000 |
| X19 | 9000.0000 | 0.0000000 |
| P20 | 0.0000000 | 0.0000000 |
| Q | 0.4299480E+10 | 0.0000000 |
| N21 | 0.0000000 | 0.0000000 |
| D | 0.3394366E+10 | 0.0000000 |

Output analisis sensitivitas:

Righthand Side Ranges:

| Row | Current RHS | Allowable Increase | Allowable Decrease |
|-----|----------------|-----------------------|-----------------------|
| 2 | 32400.00 | INFINITY | 32400.00 |
| 3 | 3000.000 | INFINITY | 3000.000 |
| 4 | 18000.00 | INFINITY | 18000.00 |
| 5 | 3600.000 | INFINITY | 3600.000 |
| 6 | 1800.000 | INFINITY | 1800.000 |
| 7 | 15000.00 | INFINITY | 15000.00 |
| 8 | 960.0000 | INFINITY | 960.0000 |
| 9 | 1800.000 | INFINITY | 1800.000 |
| 10 | 1800.000 | INFINITY | 1800.000 |
| 11 | 360.0000 | INFINITY | 360.0000 |
| 12 | 900.0000 | INFINITY | 900.0000 |
| 13 | 1800.000 | INFINITY | 1800.000 |
| 14 | 2400.000 | INFINITY | 2400.000 |
| 15 | 840.0000 | INFINITY | 840.0000 |
| 16 | 300.0000 | INFINITY | 300.0000 |

| | | | |
|----|----------|---------------|----------|
| 17 | 600.0000 | INFINITY | 600.0000 |
| 18 | 840.0000 | INFINITY | 840.0000 |
| 19 | 840.0000 | INFINITY | 840.0000 |
| 20 | 9000.000 | INFINITY | 9000.000 |
| 21 | 0.000000 | 0.4299480E+10 | INFINITY |
| 22 | 0.000000 | 0.3394366E+10 | INFINITY |
| 23 | 16128.00 | 80112.00 | INFINITY |

Objective Coefficient Ranges:

| Variable | Current Coefficient | Allowable Increase | Allowable Decrease |
|----------|---------------------|--------------------|--------------------|
| N1 | 0.5000000 | INFINITY | 4272.892 |
| N2 | 0.5000000 | 3102.962 | INFINITY |
| N3 | 0.5000000 | INFINITY | 387.3644 |
| N4 | 0.5000000 | 1964.018 | INFINITY |
| N5 | 0.5000000 | 2321.191 | INFINITY |
| N6 | 0.5000000 | 359.9928 | 200.1082 |
| N7 | 0.5000000 | 3665.413 | INFINITY |
| N8 | 0.5000000 | 2629.085 | INFINITY |
| N9 | 0.5000000 | 2792.107 | INFINITY |
| N10 | 0.5000000 | 2597.234 | INFINITY |
| N11 | 0.5000000 | 2924.029 | INFINITY |
| N12 | 0.5000000 | 2250.449 | INFINITY |
| N13 | 0.5000000 | 2649.522 | INFINITY |
| N14 | 0.5000000 | 3102.374 | INFINITY |
| N15 | 0.5000000 | 3273.194 | INFINITY |
| N16 | 0.5000000 | 3288.615 | INFINITY |
| N17 | 0.5000000 | 3123.831 | INFINITY |
| N18 | 0.5000000 | 3190.862 | INFINITY |
| N19 | 0.5000000 | 128.2891 | INFINITY |
| N20 | 0.2500000 | 0.2149200 | 0.2497206 |