Langkah-langkah dalam Algoritma Genetika:

1. Buka Program Matlab.
2. Pada Command Window, ketik edit.
3. Pada Matlab Editor masukkan Inisialisasi Populasi dengan mengetikkan:

```
%-----------------------------------------------------------------
%Membangkitkan UkPop kromosom, dimana masing-masing krmosom berisi
%1 sampai JumGen (jumlah lokasi tujuan)
%
%Masukan
%   UkPop : ukuran populasi atau jumlah kromosom dalam populasi
%   JumGen: jumlah gen dalam kromosom (jumlah lokasi tujuan)
%
%Keluaran
%   Populasi: kumpulan kromosom, matriks berukuran UkPop x JumGen
%-----------------------------------------------------------------

function Populasi = TSPInisialisasiPopulasi(UkPop,JumGen)
for ii=1:UkPop,
    [Xval,Ind] = sort(rand(1,JumGen));
    Populasi(ii,:) = Ind;
end
```

4. Kemudian simpan dengan nama TSPInisialisasiPopulasi.
5. Kemudian lakukan langkah 2 hingga 4 untuk memasukkan:

TSPEvaluasiIndividu

```
%-----------------------------------------------------------------
%Mengevaluasi kromosom hingga mendapatkan nilai fitness
%
%Masukan
%   Kromosom: matriks berukuran 1 x JumGen
%   JumGen  : jumlah gen
%   XYLokasi: matriks berukuran UkPop x 3
%
%Keluaran
%   fitness: nilai fitness
%-----------------------------------------------------------------
```

```
function fitness = TSPEvaluasiIndividu(Kromosom,JumGen,XYLokasi)
TB = 0;
for ii=1:JumGen-1,
    TB = TB + XYLokasi(Kromosom(ii),Kromosom(ii+1));
end

%Jalur harus kembali ke lokasi asal
TB = TB + XYLokasi(Kromosom(JumGen),Kromosom(1));
fitness = 1/TB;
```

LinearFitnessRangking

```
%---------------------------------------------------------------
%Memasukkan nilai fitness ke dalam ranking sehingga diperoleh
%nilai-nilai fitnes baru yang berada dalam rentang [MaxF,MinF]
%
%Masukan
%  UkPop : ukuran populasi atau jumlah kromosom dalam populasi
%  Fitness: nilai fitness, matriks ukuran 1 x UkPop
%  MaxF : nilai fitness maximum
%  MinF : nilai fitness minimum
%
%Keluaran
%  LFR : Linear Fitness Ranking
%
%---------------------------------------------------------------

function LFR = LinearFitnessRanking(UkPop,Fitness,MaxF,MinF)

[SF,IndF] = sort(Fitness);

for rr=1:UkPop,
    LFR(IndF(UkPop-rr+1)) = MaxF-(MaxF-MinF)*((rr-1)/(UkPop-1));
end
```

RouletteWheel

```
%-----------------------------------------------------------------
%Memilih orang tua menggunakan LinearFitness, yaitu nilai fitness
hasil
%pen-skala-an. Pilihan dilakukan secara proporsional sesuai dengan
%nilai fitness-nya.
%
%Masukan
%  UkPop : ukuran populasi atau jumlah kromosom dalam populasi
%  LinearFitness : nilai fitness yang sudah di-skala-kan
%
%Keluaran
%  Pindex : indeks dari kromosom yang terpilih (bernilai 1 sampai
UkPop)
%-----------------------------------------------------------------

function Pindex = RouletteWheel(UkPop,LinearFitness);

JumFitness= sum(LinearFitness);
KumulatifFitness = 0;
RN = rand;
ii = 1;

while ii <= UkPop,
    KumulatifFitness = KumulatifFitness + LinearFitness(ii);
    if (KumulatifFitness/JumFitness) > RN,
        Pindex = ii;
        break;
    end
    ii = ii + 1;
end
```

TSPPindahSilang

```
%------------------------------------------------------------------
%Pindah silang menggunakan Order Crossover
%
%Masukan
%  Bapak : kromosom, matriks berukuran 1 x JumGen
%  Ibu : kromosom, matriks berukuran 1 x JumGen
%  JumGen : jumlah gen
%
%Keluaran
%   Anak  :  kromosom  hasil  pindah  silang,  matriks  berukuran  1  x
JumGen
%------------------------------------------------------------------
function Anak = TSPPindahSilang(Bapak,Ibu,JumGen)

cp1 = 1 + fix(rand*(JumGen-1));
cp2 = 1 + fix(rand*(JumGen-1));
while cp2==cp1,
    cp2 = 1 + fix(rand*(JumGen-1));
end

if cp1 < cp2,
    cps = cp1;
    cpd = cp2;
else
    cps = cp2;
    cpd = cp1;
end

Anak(1,cps+1:cpd) = Ibu(cps+1:cpd);
Anak(2,cps+1:cpd) = Bapak(cps+1:cpd);

SisaGenbapak = [];
SisaGenIbu = [];
for ii=1:JumGen,
    if ~ismember(Bapak(ii),Anak(1,:)),
        SisaGenbapak = [SisaGenbapak Bapak(ii)];
    end
    if ~ismember(Ibu(ii),Anak(2,:)),
        SisaGenIbu = [SisaGenIbu Ibu(ii)];
    end
end

Anak(1,cpd+1:JumGen) = SisaGenbapak(1:JumGen-cpd);
Anak(1,1:cps) = SisaGenbapak(1+JumGen-cpd:length(SisaGenbapak));

Anak(2,cpd+1:JumGen) = SisaGenIbu(1:JumGen-cpd);
Anak(2,1:cps) = SisaGenIbu(1+JumGen-cpd:length(SisaGenIbu));
```

TSPMutasi

```
%----------------------------------------------------------------
%Skema mutasi menggunakan Swapping Mutation
%
%Masukan
%  Kromosom : kromosom, matriks berukuran 1 x JumGen
%  JumGen : jumlah gen
%  Pmutasi : Probabilitas mutasi
%
%Keluaran
%  MutKrom : kromosom hasil mutasi, matriks berukuran 1 x JumGen
%----------------------------------------------------------------

function MutKrom = TSPMutasi(Kromosom,JumGen,Pmutasi)
MutKrom = Kromosom;

for ii=1:JumGen,
    if rand < Pmutasi,
        TM2 = 1 + fix(rand*JumGen);
        while TM2==ii,
            TM2 = 1 + fix(rand*JumGen);
        end
        temp = MutKrom(ii);
        MutKrom(ii) = MutKrom(TM2);
        MutKrom(TM2) = temp;
    end
end
```

MainTSP (untuk memanggil semua fungsi sebelumnya)

```
clc
clear all

XYLokasi   = [1000  40.25   41.17   42.7    32.33   36.1    37.03
54.22   53.38;
38.97    1000     1.05     3.35     10.92    14.68    15.62    24.52
23.68;
39.19    5.45     1000     4.25     11.83    15.6     16.53    24.43
24.58;
42.7     7.32     8.28     1000     13.36    17.13    18.05    26.95
26.12;
34.03    16.42    17.33    18.87    1000     3.82     4.75     29.3
28.47;
30.27   12.6    13.58   15.11   4.03    1000    1   33.07   32.23;
29.33   11.72   12.63   14.17   4.97    1.2 1000    34  33.17;
54.22    24.12    25.03    26.55    26.72    30.48    31.42    1000
1.12;
53.38    23.28    24.18    25.92    25.88    29.65    30.58    1.12
1000];

JumGen      = length(XYLokasi(:,1)); %Jumlah gen (jumlah lokasi)
UkPop        = 150;                    %Jumlah kromosom dalam
populasi
Psilang     = 0.8;                    %Probabilitas pindah silang
Pmutasi     = 0.005;                  %Probabilitas mutasi
MaxG        = 155;                    %Jumlah generasi

PanjJalHarp  = 100;                        %Panjang jalur yang
diharapkan
Fthreshold  = 1/PanjJalHarp;          %Threshold untuk fitness
Bgraf        = Fthreshold;                %Untuk menangani tampilan
pada grafis
```

```
%Inisialisasi grafis
hfig = figure;
hold on

set(hfig, 'position', [50,50,600,400]);
set(hfig, 'DoubleBuffer', 'on');
axis([1 MaxG 0 Bgraf]);
hbestplot1 = plot(1:MaxG,zeros(1,MaxG));
hbestplot2 = plot(1:MaxG,zeros(1,MaxG));
htext1   =   text(0.6*MaxG,0.25*Bgraf,sprintf('Fitness   terbaik:
%7.6f', 0.0));
htext2   =   text(0.6*MaxG,0.20*Bgraf,sprintf('Fitness   rata-rata:
%7.6f', 0.0));
htext3 = text(0.6*MaxG,0.15*Bgraf,sprintf('Panjang jalur terbaik:
%7.3f', 0.0));
htext4   =   text(0.6*MaxG,0.10*Bgraf,sprintf('Ukuran   populasi:
%3.0f', 0.0));
htext5  =  text(0.6*MaxG,0.05*Bgraf,sprintf('Probabilitas  Mutasi:
%4.3f', 0.0));
xlabel('Generasi');
ylabel('Fitness');
hold off
drawnow;

%Inisialisasi Populasi
Populasi = TSPInisialisasiPopulasi(UkPop,JumGen);

for generasi=1:MaxG,
    MaxF = TSPEvaluasiIndividu(Populasi(1,:),JumGen,XYLokasi);
    MinF = MaxF;
    IndeksIndividuTerbaik = 1;
    for ii=1:UkPop,
        Fitness(ii)                                        =
TSPEvaluasiIndividu(Populasi(ii,:),JumGen,XYLokasi);
        if (Fitness(ii) > MaxF),
            MaxF = Fitness(ii);
            IndeksIndividuTerbaik = ii;
            JalurTerbaik = Populasi(ii,:);
        end
        if (Fitness(ii) <= MinF),
            MinF = Fitness(ii);
        end
    end

    FitnessRataRata = mean(Fitness);

    plotvector1 = get(hbestplot1,'YData');
    plotvector1 (generasi) = MaxF;
    set(hbestplot1,'YData',plotvector1);
    plotvector2 = get(hbestplot2,'YData');
    plotvector2 (generasi) = FitnessRataRata;
    set(hbestplot2,'YData',plotvector2);
    set(htext1,'String',sprintf('Fitness terbaik: %7.6f',MaxF));
    set(htext2,'String',sprintf('Fitness rata-rata:
%7.6f',FitnessRataRata));
    set(htext3,'String',sprintf('Panjang jalur terbaik:
%7.3f',1/MaxF));
    set(htext4,'String',sprintf('Ukuran populasi: %3.0f',UkPop));
    set(htext5,'String',sprintf('Probabilitas Mutasi:
%4.3f',Pmutasi));
    drawnow

    if MaxF > Fthreshold,
        break;
    end
    TemPopulasi = Populasi;

    %Elitisme:
    %-Buat satu kopi kromosom terbaik jika ukuran populasi ganjil
    %-Buat dua kopi kromosom terbaik jika ukuran populasi genap
    if mod(UkPop,2)==0,             %ukuran populasi genap
        IterasiMulai = 3;
        TemPopulasi(1,:) = Populasi(IndeksIndividuTerbaik,:);
        TemPopulasi(2,:) = Populasi(IndeksIndividuTerbaik,:);
    else                            %ukuran populasi gajil
        IterasiMulai = 2;
        TemPopulasi(1,:) = Populasi(IndeksIndividuTerbaik,:);
    end

    LinearFitness = LinearFitnessRanking(UkPop,Fitness,MaxF,MinF);

    %Roulette-wheel selection dan pindah silang
    for jj=IterasiMulai:2:UkPop,
        IP1 = RouletteWheel(UkPop,LinearFitness);
        IP2 = RouletteWheel(UkPop,LinearFitness);
        if (rand < Psilang),
            Anak                                                  =
TSPPindahSilang(Populasi(IP1,:),Populasi(IP2,:),JumGen);
            TemPopulasi(jj,:) = Anak(1,:);
            TemPopulasi(jj+1,:) = Anak(2,:);
        else
            TemPopulasi(jj,:) = Populasi(IP1,:);
            TemPopulasi(jj+1,:) = Populasi(IP2,:);
        end
    end

    %Mutasi dilakukan pada semua kromosom
    for kk=IterasiMulai:UkPop,
        TempPopulasi(kk,:)                                        =
TSPMutasi(TemPopulasi(kk,:),JumGen,Pmutasi);
    end

    Populasi = TemPopulasi

end

%Tanpa   tanda   ';'   berarti   menampilkan   nilai   dari   variabel
'JalurTerbaik'
JalurTerbaik
```

```
%Simpan variabel 'JalurTerbaik' ke dalam file JalurTerbaik.mat
save JalurTerbaik.mat JalurTerbaik
```

6. Setelah semua program dimasukkan maka tinggal memengetikkan pada Command Window MainTSP, maka program akan mencari nilai terbaik yang diharapkan.

Output Minggu ke-1 Hari ke-1

```
Contoh Populasi =

   7   1   9   8   2   3   4   5   6
   7   1   9   8   2   3   4   5   6
   3   2   1   5   8   7   4   6   9
   4   3   2   1   5   7   9   8   6
   6   8   2   3   7   4   5   1   9
   1   9   4   5   2   6   3   8   7
   8   7   1   2   3   6   4   5   9
   6   7   4   5   9   8   1   2   3
   7   1   2   3   4   8   6   9   5
   9   8   3   6   2   1   4   5   7
   3   4   5   7   6   1   9   8   2
   1   9   5   8   2   3   4   7   6
   7   1   3   8   6   2   4   9   5
   9   3   2   8   6   1   5   7   4
   5   2   1   6   4   9   3   7   8
   6   9   7   5   2   3   4   1   8
   7   1   9   5   2   6   4   8   3
   7   6   1   4   8   3   5   2   9
   5   2   8   6   1   3   4   9   7
```

7	1	8	3	5	2	6	4	9
3	6	2	1	4	5	7	9	8
7	5	6	2	3	8	9	1	4
3	4	9	8	2	7	1	6	5
1	6	5	3	4	7	9	8	2
9	8	5	3	7	4	2	1	6
4	5	1	9	3	7	6	8	2
1	6	8	9	2	5	7	3	4
6	5	7	1	3	9	2	4	8
8	1	7	2	9	6	3	4	5
9	4	2	7	3	6	5	1	8
6	2	1	4	9	8	7	5	3
3	8	4	6	5	2	7	9	1
6	1	4	9	7	5	3	8	2
4	5	2	6	3	8	9	7	1
6	7	8	4	5	3	9	1	2
5	6	2	3	8	9	4	1	7
2	5	8	3	1	6	7	4	9
7	9	4	5	2	6	3	8	1
2	3	5	6	7	4	1	9	8
7	1	9	8	2	3	4	5	6
1	9	2	7	4	5	6	8	3
2	5	6	4	8	1	7	9	3
1	5	2	6	7	4	8	3	9
9	5	4	8	6	2	7	1	3
2	4	5	7	3	6	1	9	8
4	5	7	1	9	8	3	6	2
4	9	5	8	1	6	7	2	3
8	6	2	1	4	5	7	9	3
4	8	9	6	3	5	2	1	7
5	8	1	6	7	4	2	9	3

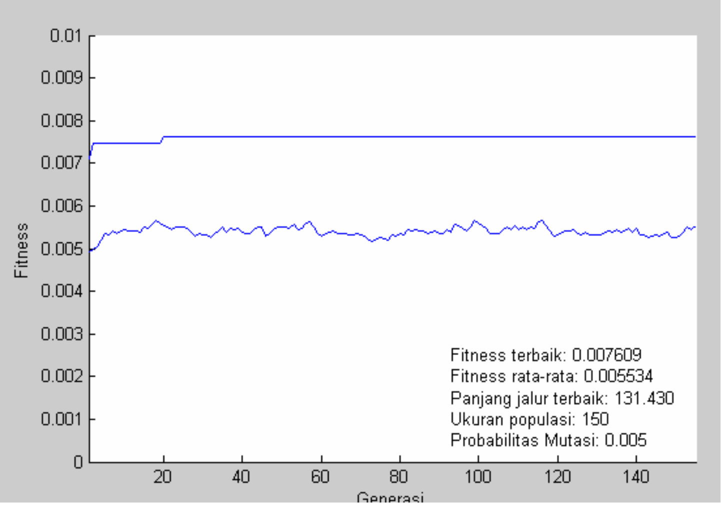
2	1	4	7	6	8	9	5	3
6	1	8	9	3	4	7	5	2
3	5	2	6	7	4	1	8	9
1	9	4	8	5	6	2	7	3
9	8	7	5	3	2	6	1	4
7	4	1	3	9	8	5	2	6
6	3	4	9	5	7	8	2	1
2	4	5	7	3	6	1	9	8
9	8	6	7	5	3	4	2	1
3	4	9	1	5	7	8	6	2
6	4	8	7	2	3	1	9	5
4	6	2	1	9	3	8	7	5
2	3	4	5	6	7	1	9	8
2	7	1	9	8	3	4	5	6
6	7	1	3	5	2	4	8	9
6	5	2	7	1	8	9	3	4
1	2	8	6	4	9	3	5	7
9	1	3	4	5	7	2	8	6
9	6	2	3	7	4	5	1	8
4	5	1	8	9	6	2	3	7
8	9	5	7	1	3	4	2	6
4	9	1	8	6	2	7	3	5
8	1	2	7	5	3	4	6	9
4	1	3	6	9	8	7	2	5
3	7	6	4	9	1	5	8	2
5	4	8	7	1	2	3	6	9
4	5	7	1	9	6	8	3	2
2	6	1	9	8	7	5	4	3
8	3	1	6	7	4	2	5	9
9	3	1	7	2	5	8	4	6
6	7	1	8	9	2	3	4	5

2	6	8	3	4	5	7	1	9
8	2	4	5	6	3	7	1	9
7	9	2	8	1	6	5	3	4
7	1	9	8	3	6	2	4	5
5	9	8	2	6	1	3	7	4
9	2	7	5	6	1	8	3	4
6	1	9	8	4	2	3	5	7
7	6	4	3	2	1	8	9	5
9	3	4	8	5	6	2	7	1
1	3	6	7	5	4	9	2	8
5	7	1	8	9	2	3	4	6
3	5	4	7	1	9	8	6	2
2	3	4	8	6	5	7	1	9
3	7	8	5	4	1	2	6	9
2	1	9	8	4	7	3	6	5
9	8	2	7	1	6	5	3	4
5	7	1	8	9	2	3	4	6
1	4	7	5	2	3	6	8	9
3	4	9	5	7	1	8	6	2
1	2	3	7	4	9	8	6	5
1	2	3	7	4	9	8	6	5
7	5	4	9	8	2	1	3	6
5	2	1	9	3	4	7	6	8
8	3	4	5	9	2	6	7	1
8	7	2	6	1	9	4	5	3
6	8	9	5	7	1	2	3	4
3	8	7	1	9	4	5	2	6
3	1	9	4	6	8	2	7	5
8	6	2	7	5	1	9	4	3
1	9	8	7	2	3	5	6	4
5	3	4	7	9	8	2	1	6

3	8	7	2	6	1	5	4	9
7	8	5	4	9	3	2	1	6
4	5	6	7	1	9	8	2	3
4	1	9	7	5	6	2	3	8
5	4	3	7	1	6	2	8	9
7	5	6	2	3	8	9	1	4
7	8	6	5	4	2	1	9	3
8	3	2	5	6	1	4	7	9
5	2	3	6	8	9	7	1	4
3	2	5	6	7	4	1	9	8
9	3	4	7	5	2	6	1	8
9	5	2	6	3	4	7	1	8
6	1	9	8	2	5	7	3	4
6	7	1	8	9	2	3	4	5
5	3	4	1	9	8	7	2	6
9	2	3	8	1	6	4	5	7
7	5	4	3	2	6	1	9	8
2	4	9	8	6	5	7	1	3
1	9	3	2	4	6	8	7	5
8	1	7	5	2	3	4	6	9
4	7	1	8	9	2	5	6	3
8	9	2	6	3	4	5	7	1
4	6	5	1	3	9	8	2	7
3	2	1	9	6	7	8	4	5
6	3	1	8	9	4	5	7	2
4	6	7	1	2	5	8	9	3
1	8	5	7	4	6	2	3	9
5	6	8	2	3	1	9	7	4
9	4	6	5	7	1	2	3	8
7	2	3	1	9	4	5	6	8
3	4	6	7	5	1	8	9	2

```
    4    1    9    8    2    3    5    7    6
    9    8    3    7    5    2    6    1    4
    3    9    8    1    5    4    6    7    2
    5    6    2    3    1    4    8    9    7
    8    6    9    7    5    3    2    1    4
    3    4    5    9    8    7    6    1    2
    1    9    8    2    4    5    7    3    6

JalurTerbaik =
    7    1    9    8    2    3    4    5    6
```



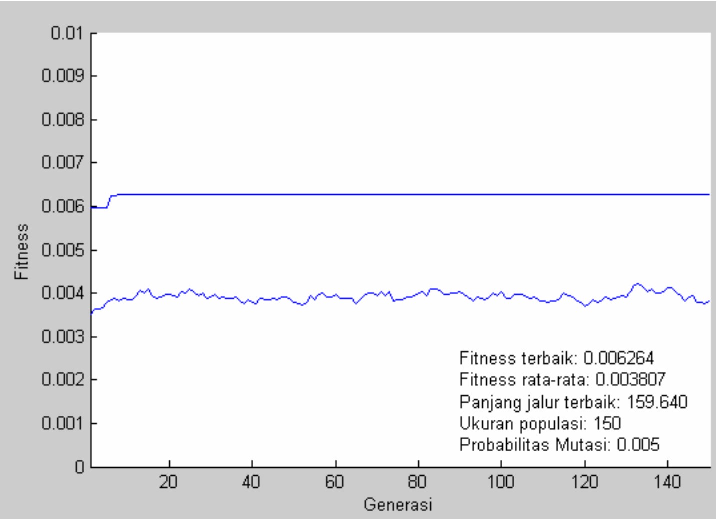
Input Minggu ke-1 Hari ke-2

```
XYLokasi    = [1000   56.17    56.95    50.62    50.67    50.72    45.37
45.97;
54.98    1000     1    51.17    51.22    51.27    53.32    53.92;
54.2     2.13     1000     50.38    50.43    50.48    52.53    53.14;
60.62    52.32    53.1     1000     0.83     1.5 5.25     25.85;
50.67    52.37    53.15    0.83     1000     0.83     25.3     25.9;
50.72    52.42    53.2     1.5 0.83     1000     25.35    25.95;
44.73    54.15    54.93    26.72    26.77    26.82    1000     0.95;
44.13    53.55    54.33    26.12    26.17    26.22    2.95     1000];
```

Output Minggu ke-1 Hari ke-2

JalurTerbaik =

```
   3    6    5    4    7    8    1    2
```



Fitness terbaik: 0.006264
Fitness rata-rata: 0.003807
Panjang jalur terbaik: 159.640
Ukuran populasi: 150
Probabilitas Mutasi: 0.005

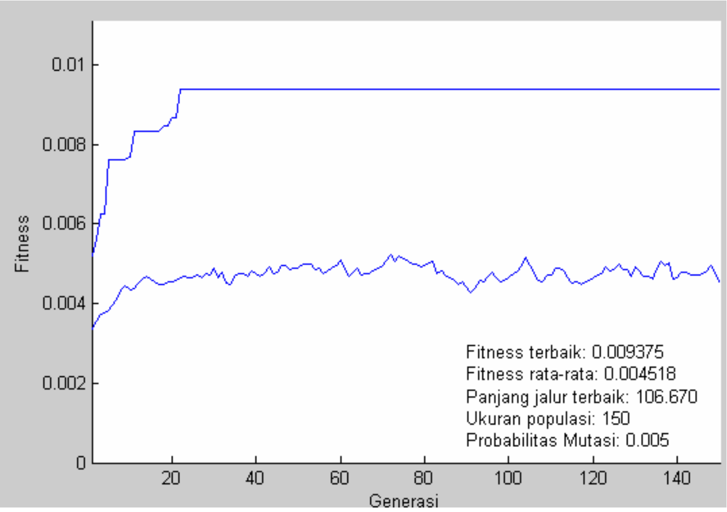
Input Minggu ke-1 Hari ke-3

```
XYLokasi   = [1000  30.58   33.13   36.92   12.48   13.17   12.88
12.53   27  27.47   28.17;
33.87   1000     2.13     5.92     21.39    47.83    47.53    47.18
59.17   59.63   60.33;
31.23    2.4  1000     3.3  18.75    45.18    44.8     44.53    56.52
56.98   57.68;
27.45    6.18     3.55     1000     14.97    41.38    41.08    40.73
52.72   53.18   53.8;
12.48    20.23    22.78    26.57    1000     24.72    23.43    23.08
37.42   37.88   38.58;
12.28    48.47    45.82    42.03    24.37    1000     3.02     2.72
13.95   14.4    15.1;
12.58    48.17    45.52    41.73    24.07    0.62     1000     3.02
14.35   14.8    15.5;
12.93    47.82    45.17    41.38    23.72    0.87     0.58     1000
14.6    15.05   15.75;
25.72    59.17    56.52    52.72    21.95    14.82    14.54    13.53
1000    0.63    1.73;
26.17    59.63    56.98    53.18    22.37    15.28    15   14.63    0.63
1000    2.2;
26.87    60.33    57.68    53.88    23.07    16   15.7     15.35    3.25
3.72     1000];
```

Output Minggu ke-1 Hari ke-3

JalurTerbaik =

```
   10    9   11    5    2    3    4    1    8    7    6
```



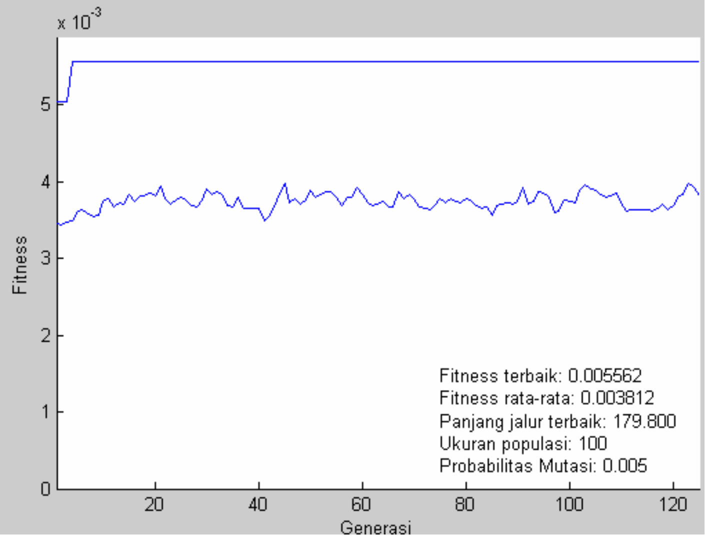
Input Minggu ke-1 Hari ke-4

```
XYLokasi    = [1000   32.15    73.4     74.78    95.25    35.13;
32.15    1000     43.25    44.65    65.33    23.53;
73.4     43.25    1000     21.23    41.88    65.28;
74.78    44.65    21.23    1000     20.47    66.6;
95.25    65.33    41.88    20.47    1000     87.07;
31.23    23.85    65.6     6.92     87.38    1000];
```

Output Minggu ke-1 Hari ke-4

JalurTerbaik =

```
    4    5    3    2    1    6
```

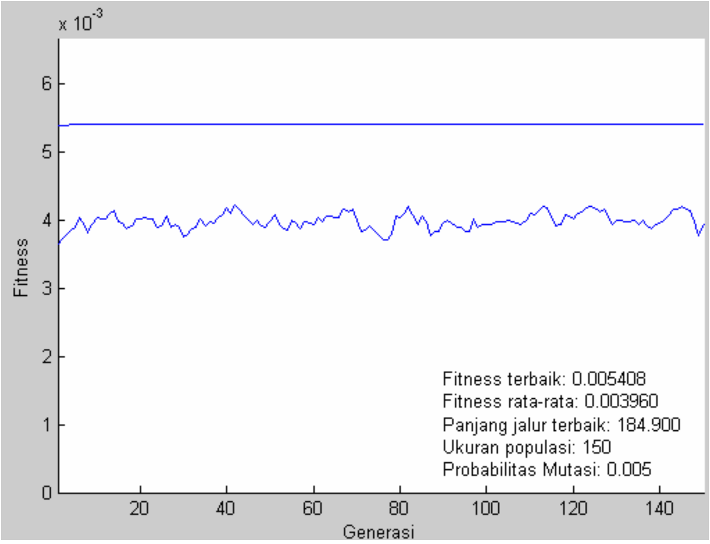


Input Minggu ke-1 Hari ke-5

```
XYLokasi    = [1000   8.6 8.77    27.52   57.5    57.72   77.9;
8.15    1000    0.75    23.32   52.3    52.52   72.7;
8.3 0.75    1000    23.48   52.47   52.68   72.87;
27.52   23.77   23.93   1000    53.38   53.6    73.78;
57.7    53.42   53.58   54.5    1000    0.68    20.87;
57.92   53.8    53.63   54.72   0.68    1000    20.6;
78.1    74.82   74.8    74.9    20.87   20.6    1000];
```

Output Minggu ke-1 Hari ke-5

```
JalurTerbaik =
   2   1   4   5   7   6   3
```



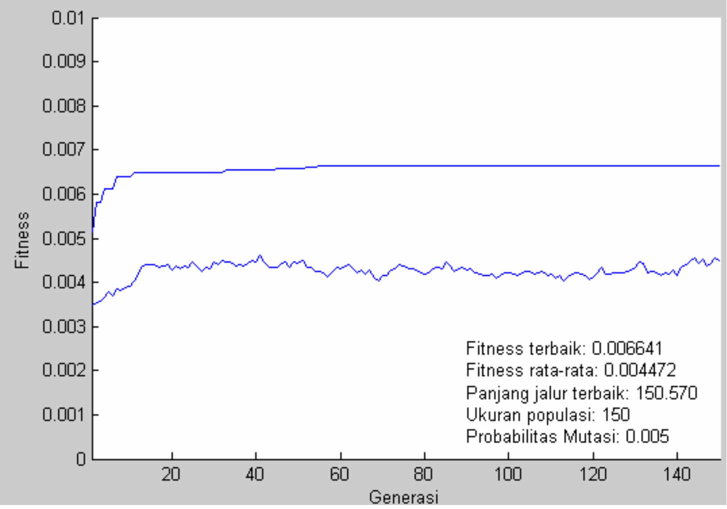
Input Minggu ke-1 Hari ke-6

```
XYLokasi   = [1000  39.82   39.97   40.12   53.72   53.9    53.93
54.28   45.97   45.3    14.55;
40.67   1000    0.8 0.95    20.37   20.5    20.58   20.93   5.82
7   51.72;
40.53   2.3 1000    0.88    20.23   20.42   20.45   20.8    5.68
6.35    51.58;
40.38   2.45    2.58    1000    20.08   20.27   20.3    20.65
5.53    6.2 51.43;
53.92   20.52   20.38   20.23   1000    0.8 0.9 1.18    20.73
20.07   70.52;
54.1    20.7    20.57   20.42   1.37    1000    0.62    0.97
21.37   20.7    71.17;
54.13   20.73   20.6    20.45   1.4 0.62    1000    0.7 21.4
20.73   71.2;
54.48   21.08   20.95   20.8    1.75    0.97    0.7 1000    21.75
21.08   71.55;
44.63   5.82    5.68    5.53    20.93   21.57   21.6    21.95
1000    2.38    55.18;
45.3    7   6.35    6.2 20.27   20.9    20.93   21.28   1.05
1000    55.85;
13.67   51.7    51.57   51.42   70.72   71.37   71.4    71.75
55.22   55.88   1000];
```

Output Minggu ke-1 Hari ke-6

JalurTerbaik =

```
    1     5     6     8     7    10     9     2     3     4    11
```



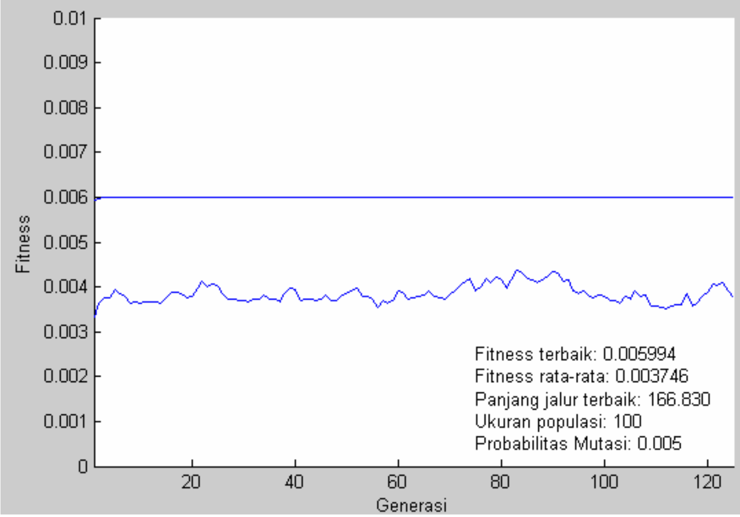
Input Minggu ke-2 Hari ke-1

```
XYLokasi    = [1000   14.5    26.73    26.27    27.43    27.37    55.02
55.8;
13.61    1000     13.27    13.72    14.37    39.82    67.47    68.25;
25.43    13.27    1000     0.63     2.2 52.05     79.7     80.48;
24.98    13.72    0.63     1000     1.73     51.58    79.23    80.02;
26.13    14.37    3.72     3.25     1000     52.74    80.38    81.17;
27.37    41.87    54   53.63    54.78    1000     29.93    30.72;
53.83    68.33    80.57    80.08    81.23    28.73    1000     1;
53.05    67.55    79.78    79.3     80.45    27.95    2.13     1000];
```

Output Minggu ke-2 Hari ke-1

JalurTerbaik =

```
    6     1     2     3     4     5     7     8
```



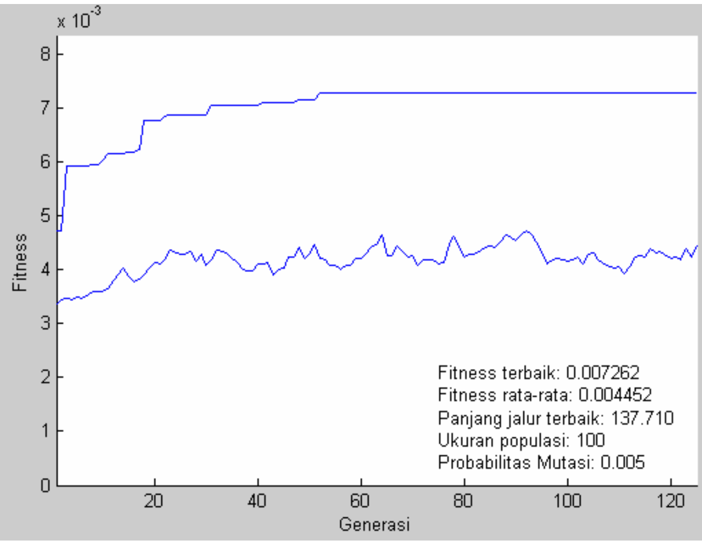
Input Minggu ke-2 Hari ke-2

```
XYLokasi    = [1000   8.92     9.08     45.3     45.62    45.97    46.2
35.13    37.03    53.63    54.47;
8.47      1000      0.75      36.17     36.48     36.83     37.08     24.32
26.21    44.72    45.57;
8.62      0.75      1000      36.32     36.64     36.98     37.23     24.47
26.37    44.87    45.72;
45.3      36.12     36.28     1000      0.7  1.05      1.3  12.17     14.07
35.08    35.92;
44.98     35.8      35.97     2.03      1000      0.7  0.95      11.87     13.72
34.77    35.61;
44.63     35.45     35.62     2.38      2.7  1000      0.73      11.52     13.37
34.42    35.27;
44.38     35.2      35.37     2.63      2.95      3.3  1000      11.27     13.12
34.17    35.02;
31.23     24.27     24.42     13.17     13.48     13.83     14.08     1000
1.55     38.08    38.92;
29.33     22.37     22.52     15.07     15.38     15.73     15.98     2.17
1000     39.98    40.82;
53.63     44.67     44.82     36.93     37.25     37.6      37.85     39.93
41.83    1000     1.12;
54.47     45.52     45.67     37.77     38.08     38.43     38.68     40.77
42.67    1.12     1000];
```

Output Minggu ke-2 Hari ke-2

JalurTerbaik =

```
   2    3   10   11    4    5    6    7    8    9    1
```



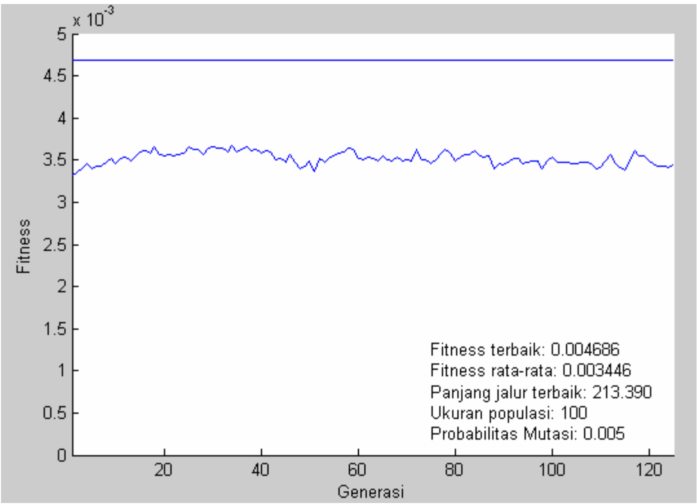
Input Minggu ke-2 Hari ke-3

```
XYLokasi    = [1000   32.23    34.92    72.92    74.3     94.65    32.15;
33.77    1000     1.87     42.88    44.25    67.6     24.47;
31.08    1.87     1000     40   41.38    61.73    25.16;
72.92    39.88    42.77    1000     20.98    41.67    43.07;
74.3     41.27    44.15    20.78    1000     22.68    44.47;
94.65    61.92    64.8     41.67    22.48    1000     65.15;
52.15    24.1     24.78    43.07    44.47    65.15    1000];
```

Output Minggu ke-2 Hari ke-3

JalurTerbaik =

```
   2    3    1    7    6    5    4
```



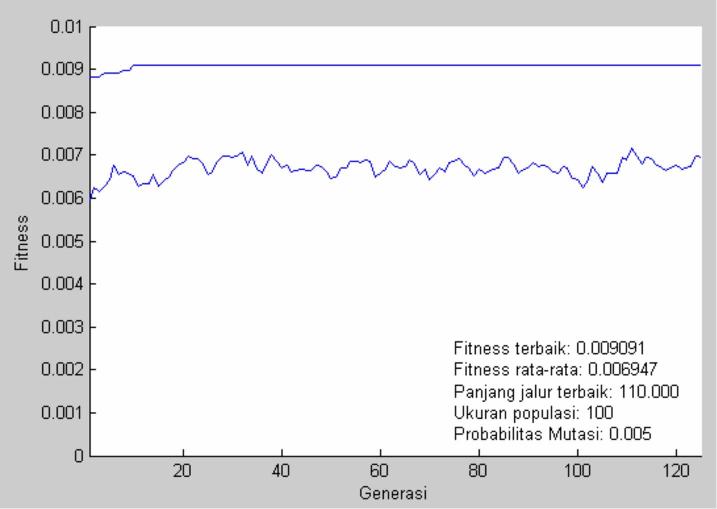
Fitness terbaik: 0.004686
Fitness rata-rata: 0.003446
Panjang jalur terbaik: 213.390
Ukuran populasi: 100
Probabilitas Mutasi: 0.005

Input Minggu ke-2 Hari ke-4

```
XYLokasi    = [1000   53   53.18    53.22    53.57    31.17    33.22
36.02;
53.2     1000     0.8 0.9 1.25     20.55    22.6     25.4;
53.38    1.37     1000     0.6 0.95     20.73    22.78    25.58;
53.42    1.4 0.6 1000     0.7 20.77    22.82    25.62;
53.77    1.75     0.95     0.7 1000     21.12    23.17    25.97;
33.25    24.43    25.62    25.65    26   1000     2.6 5.12;
31.2     22.38    23.57    23.6     23.95    2.85     1000     2.78;
28.4     19.58    20.77    20.8     21.15    6.25     3.37     1000];
```

Output Minggu ke-2 Hari ke-4

```
JalurTerbaik =
   4    5    6    7    8    1    2    3
```



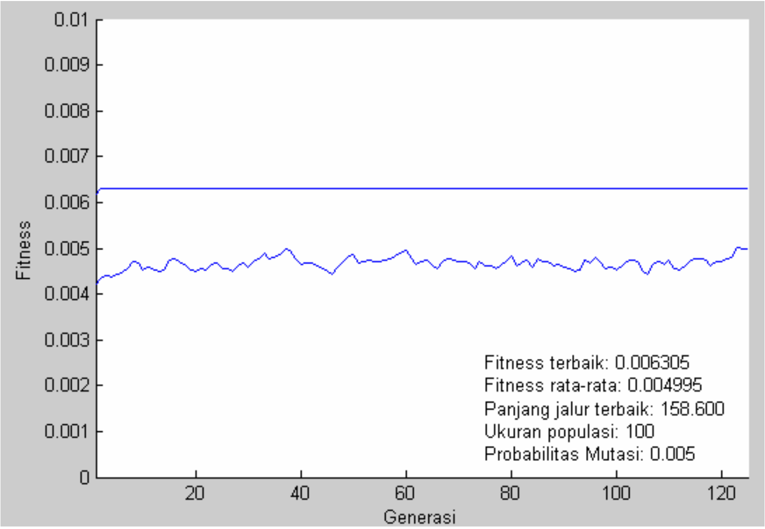
Input Minggu ke-2 Hari ke-5

```
XYLokasi    = [1000   12.73    39.68    39.82    39.97    58   58.22
78.4;
12.73   1000    28.95   29.08   29.23   44.15   44.37   64.55;
40.67   29.93   1000    0.8 0.95    19.2    19.42   39.6;
40.53   29.78   2.3 1000    0.88    19.07   19.28   39.47;
40.38   29.63   2.45    2.58    1000    18.92   19.13   39.32;
58.2    44.35   19.4    19.27   19.12   1000    0.67    20.85;
58.42   44.57   19.62   19.48   19.33   0.67    1000    20.18;
78.6    64.75   39.8    39.67   39.52   20.85   20.18   1000];
```

Output Minggu ke-2 Hari ke-5

```
JalurTerbaik =

     6     2     1     3     4     5     7     8
```



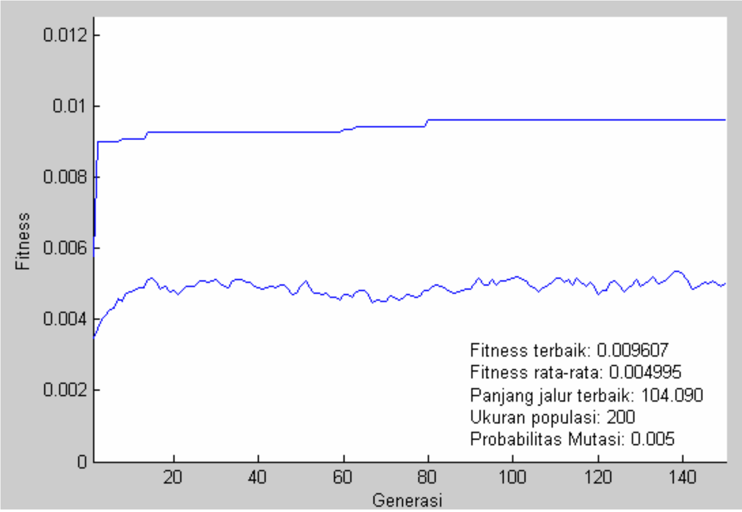
Input Minggu ke-3 Hari ke-1

```
XYLokasi   = [1000  13   13.35   13.63   45   45.67   42.73   35.2
36.17   38.98   12.3;
12.83    1000     0.6  0.88     54.33    55   52.06    44.53    45.5
46.32   20.42;
12.48    3.02     1000     0.65     53.98    54.65    51.72    44.18
45.15   45.97   20.07;
12.2     2.73     3.08     1000     53.7     54.37    51.43    43.9
44.87   45.68   19.78;
45   55.55    55.9     56.18    1000     1    3.75     10.47    11.43
12.25   23.63;
44.33    54.88    55.23    55.52    2.33     1000     3.08     9.8 10.77
11.58   22.97;
42.73    53.28    53.63    53.92    2.78     3.45     1000     8.2 9.17
9.98    21.37;
31.3     45.75    46.1     46.38    10.47    11.13    9.2  1000     1.9
2.78    11.73;
30.33    46.72    47.07    47.35    11.43    12.1     10.17    2.17
1000    0.85    10.77;
29.52    47.54    47.8     48.17    12.25    12.92    10.98    3.05
1.12    1000    9.95;
12.3     21.63    21.98    22.27    28.63    29.3     30.36    21.43
22.54   23.35   1000];
```

Output Minggu ke-3 Hari ke-1

JalurTerbaik =

```
   8    9   10   11    2    3    4    1    7    5    6
```



Fitness terbaik: 0.009607
Fitness rata-rata: 0.004995
Panjang jalur terbaik: 104.090
Ukuran populasi: 200
Probabilitas Mutasi: 0.005

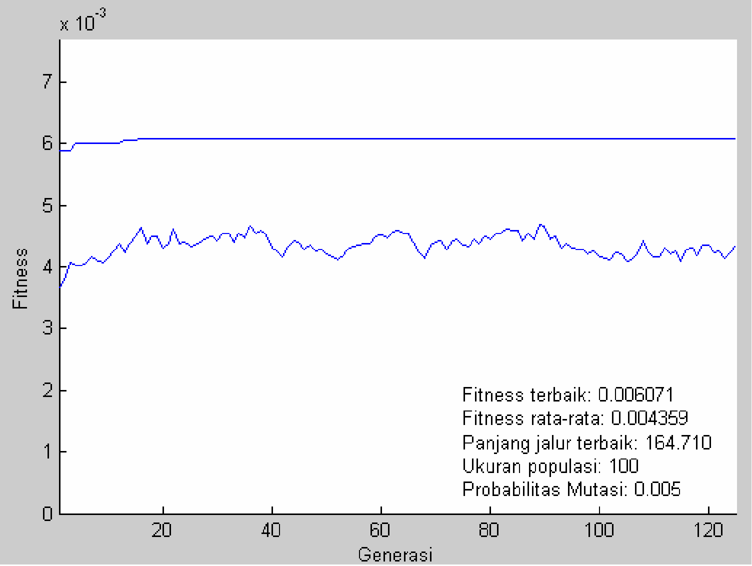
Input Minggu ke-3 Hari ke-2

```
XYLokasi   = [1000  27.5    55.15   55.93   50.2    50.23   50.28
54.42;
27.5    1000    30.05   30.83   25.17   25.2    25.23   24.37;
53.95   28.85   1000    0.98    52.42   52.47   52.5    56.63;
53.18   28.08   2.1 1000    51.63   51.67   51.7    55.83;
50.2    26.37   53.62   52.83   1000    0.8 1.5 4.22;
50.23   26.4    53.67   52.87   0.8 1000    0.8 4.18;
50.28   26.43   52.7    52.9    1.5 0.8 1000    4.13;
54.62   25.57   57.83   57.03   4.52    4.38    4.33    1000];
```

Output Minggu ke-3 Hari ke-2

JalurTerbaik =

```
   4    2    8    7    6    5    1    3
```



Fitness terbaik: 0.006071
Fitness rata-rata: 0.004359
Panjang jalur terbaik: 164.710
Ukuran populasi: 100
Probabilitas Mutasi: 0.005

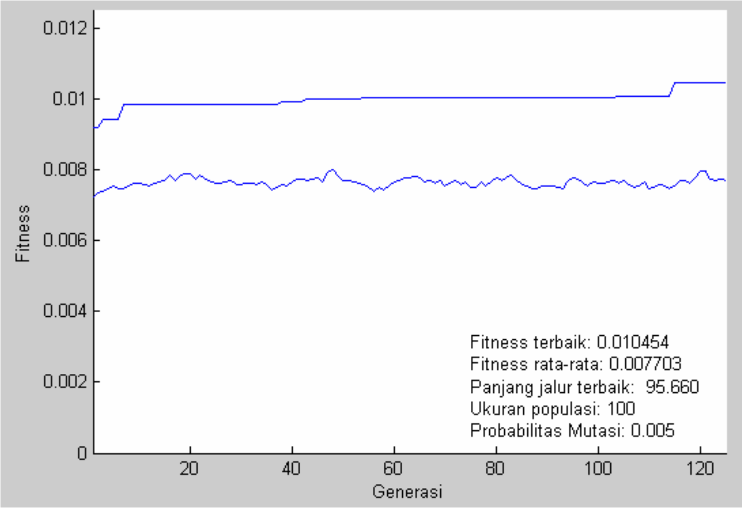
Input Minggu ke-3 Hari ke-3

```
XYLokasi   = [1000  39.23   39.37   39.52   40.36   41.27   45.17
45.77   31.38   33.93;
40.22    1000     0.75     0.9 1.73     2.63     5.8 6.48     12.48
15.03;
40.08    2.25     1000     0.83     1.68     2.68     5.75     6.35
12.34   14.88;
39.93   2.4 2.53    1000    0.95    1.85    5.6 6.2 12.19   14.73;
39.08    3.4  3.53     3.68     1000     1    4.75     5.35     11.35
13.9;
39.98    4.3  4.43     4.58     5.4  1000     5.65     6.25     10.44
12.98;
44.23   5.52    5.67    5.82    6.65    7.55    1000    0.9 13.82
16.37;
43.93   6.12    6.27    6.43    7.27    8.17    2.9 1000    13.42
15.97;
34.67    12.23    12.37    12.52    13.36    14.27    13.82    14.42
1000    2.58;
32.03    9.59     9.73     9.88     10.72    11.63    11.17    11.87
2.85    1000];
```

Output Minggu ke-3 Hari ke-3

JalurTerbaik =

```
   10     7     8     2     3     4     5     6     1     9
```



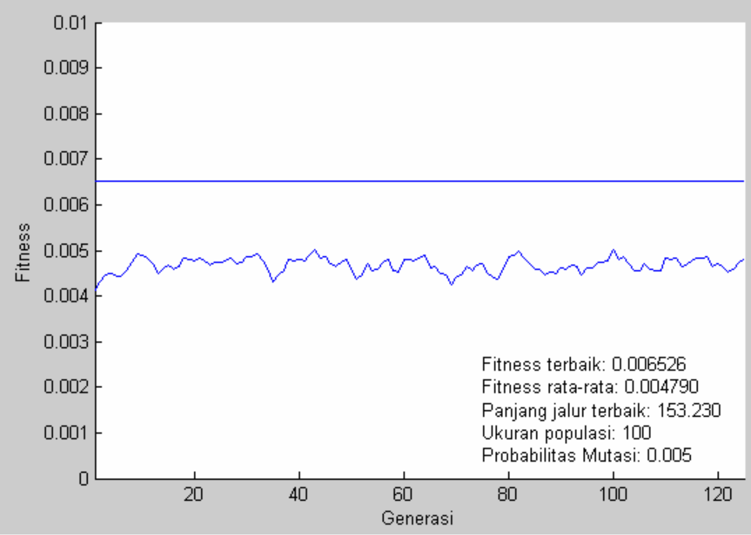
Input Minggu ke-3 Hari ke-4

```
XYLokasi    = [1000   8.42     8.58     57.75    57.97    78.15    31.80;
7.47     1000     0.5 47.02    47.23    66.43    24.73;
7.63     0.5 1000     47.17    47.4     66.6     24.57;
57.95    46.02    46.37    1000     0.68     20.87    26.6;
58.17    46.23    46.6     0.68     1000     20.6     26.82;
78.35    66.43    66.8     21.87    21.6     1000     45;
32.15    23.73    23.88    27.6     27.82    45   1000];
```

Output Minggu ke-3 Hari ke-4

JalurTerbaik =

```
    1     2     4     5     6     7     3
```



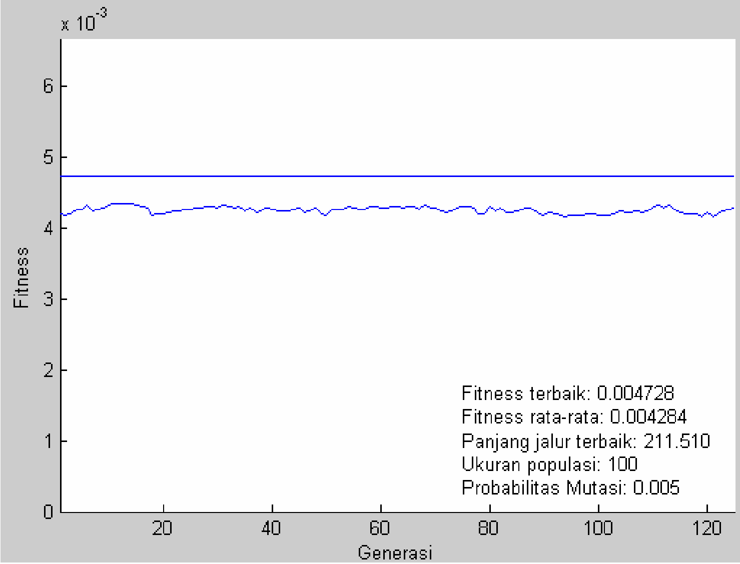
Input Minggu ke-3 Hari ke-5

```
XYLokasi   = [1000  53.16   54  73  74.38   95.03;
53.16   1000    1   20.63   21.28   41.97;
54  1   1000    19.8    20.45   41.13;
73  20.63   19.8    1000    20.77   41.43;
74.38   21.28   20.45   20.77   1000    22.47;
95.03   41.97   41.13   41.43   22.47   1000];
```

Output Minggu ke-3 Hari ke-5

JalurTerbaik =

```
     4     6     5     3     2     1
```



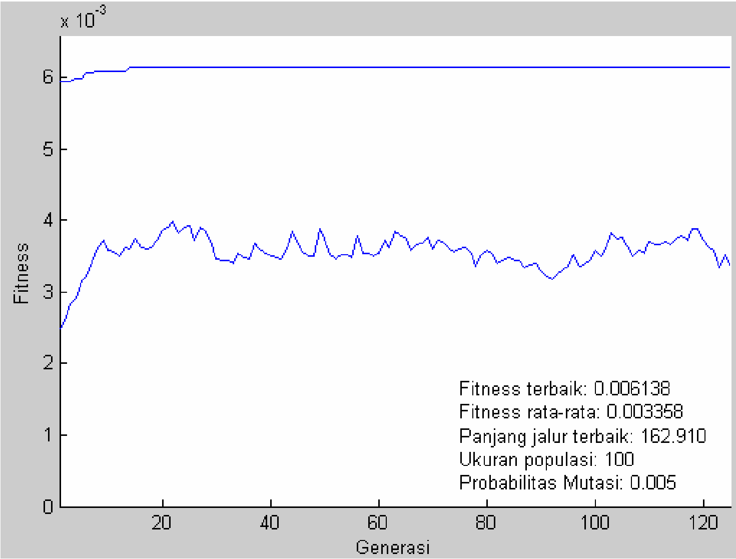
Input Minggu ke-3 Hari ke-6

```
XYLokasi    = [1000   27   26.53    27.7     32.33    33.83    53.48
54.17   54.2    54.55;
26.7    1000    0.75    2.5 57.3    58.8    78.95   79.15   79.17
79.5;
26.25    0.75     1000     1.85     56.83    58.33    78.48    78.83
78.7    79.05;
27.4    3.83    3.37    1000    58   59.5    79.65   79.83   79.87
80.22;
34.03    56.05    55.58    56.75    1000     1.78     21.65    21.83
21.87   22.22;
31.23    53.25    52.78    53.95    4.03     1000     20.15    20.33
20.37   20.72;
54.18    77.7     77.23    78.4     21.65    23.15    1000      0.82
0.92    1.2;
54.37    77.9     77.42    78.58    21.84    23.34    1.38      1000
0.64    1;
54.4     77.92    77.45    78.62    21.87    23.37    1.42      0.64
1000    0.72;
54.75    78.27    77.8     78.97    22.22    23.72    1.77     1    0.72
1000];
```

Output Minggu ke-3 Hari ke-6

JalurTerbaik =

10 5 6 2 3 4 1 7 8 9



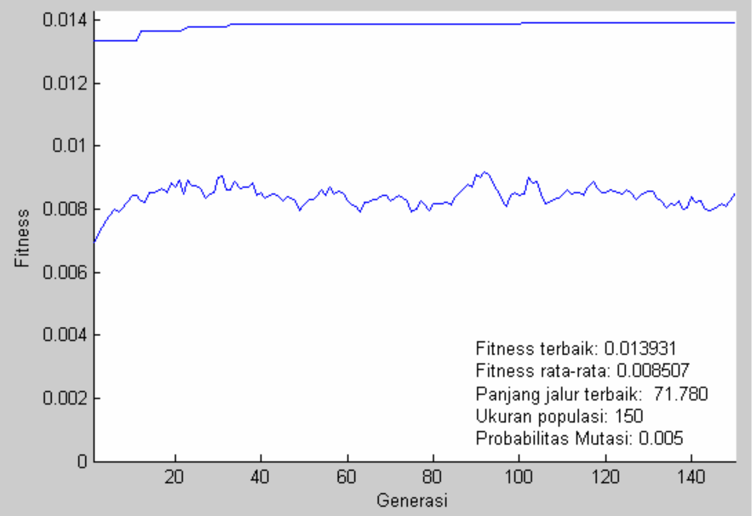
Input Minggu ke-4 Hari ke-1

```
XYLokasi    = [1000   8.42     8.58     12.23    12.58    12.87    15.15
26.42    26.88    27.58;
7.97      1000      0.75      16.97     17.32     17.62     19.9      30.17
30.63    32.33;
8.12      0.75      1000      17.82     18.17     18.47     20.75     32.02
32.48    33.18;
12.07     16.82     16.98     1000      0.58      0.87      3.15      14.28
14.73    15.43;
12.28     17.03     17.18     3.02      1000      0.62      2.9  14.03    14.48
15.18;
11.98     16.73     16.88     2.72      3.02      1000      2.5  13.63    14.08
14.78;
13.76     18.52     18.67     4.5  4.8  5.08      1000      13.42     13.87
14.52;
25.13     29.88     30.03     13.86     14.22     14.5      13.42     1000
0.63     1.73;
25.58     30.33     30.48     14.32     14.68     14.97     13.87     0.63
1000     2.2;
26.28     31.03     31.18     15.03     15.38     15.68     14.52     3.25
3.72     1000];
```

Output Minggu ke-4 Hari ke-1

JalurTerbaik =

```
   5    6    9    8   10    7    2    3    1    4
```



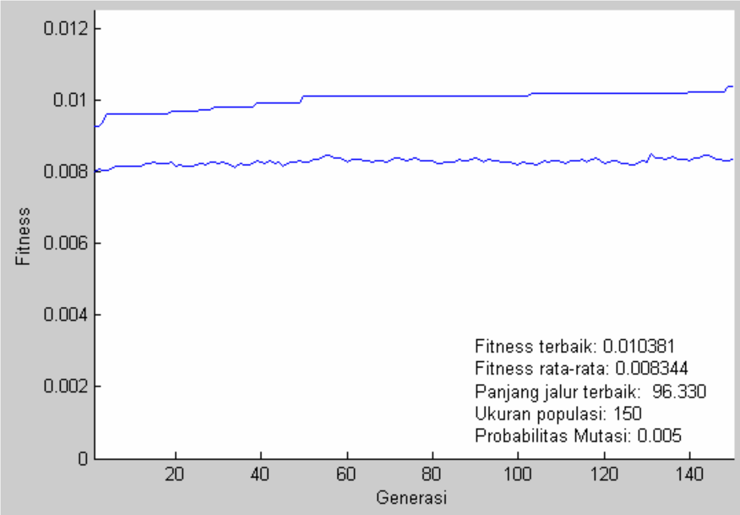
Input Minggu ke-4 Hari ke-2

```
XYLokasi    = [1000   39.43    39.57    39.72    40.56    41.47    45.05
45.37    45.72    45.97    42.78;
40.42    1000     0.8 0.95     1.78     2.68     5.62     5.94     6.8
6.53     4.48;
40.28     2.3  1000      0.88      1.72      2.62      5.48      5.8  6.15
6.4 4.35;
40.13    2.45     2.58     1000     1    1.9 5.33     5.65     6    6.25
4.2;
39.28    3.45     3.58     3.73     1000     1.05     4.48     4.8 5.15
5.4 3.35;
40.18    4.35     4.48     4.63     5.45     1000     5.38     5.7 6.05
6.3 4.25;
45.05    5.25     5.38     5.53     6.37     7.27     1000     0.7 1.05
1.3 3.8;
44.73    5.57     5.72     5.87     6.7 7.6 2.03     1000     0.7 0.95
3.48;
44.38    5.92     6.07     6.22     7.07     7.97     2.38     2.7 1000
0.73     3.13;
44.13    6.17      6.32      6.47      7.32      8.22      2.63      2.95
3.3 1000    2.88;
42.78    6.72      6.87      7.02      7.85      8.75      2.83      3.15
3.5 3.75    1000];
```

Output Minggu ke-4 Hari ke-2

JalurTerbaik =

```
   9   10   11    1    2    3    4    5    6    7    8
```



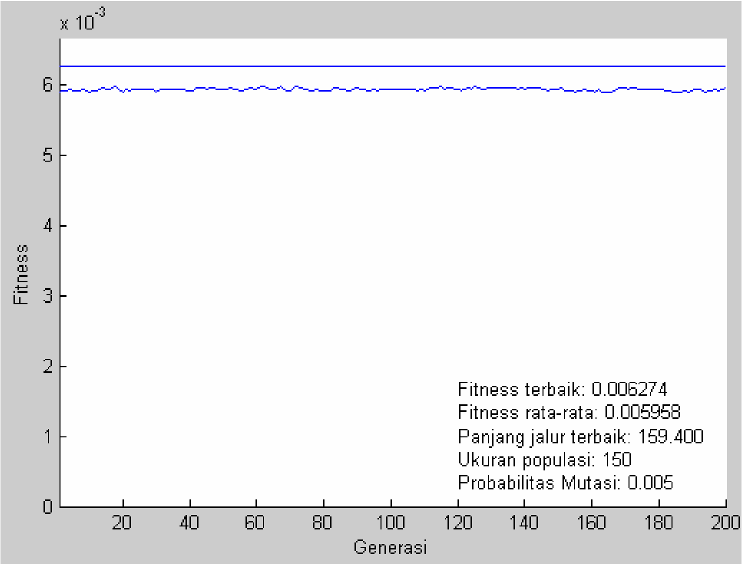
Input Minggu ke-4 Hari ke-3

```
XYLokasi    = [1000   53.78    53.97    54   54.35    57.75    57.97
78.15;
53.98    1000     0.8 0.9 1.18     4.58     4.8 24.98;
54.17    1.37     1000     0.62     0.97     4.37     4.58     24.77;
54.2     1.4 0.62     1000     0.7 4.1 4.32     24.5;
54.55    1.75     0.97     0.7 1000     3.87     4.08     24.27;
57.95    5.15     4.37     4.1 3.87     1000     0.68     20.87;
58.17    5.37     4.58     4.32     4.08     0.68     1000     20.6;
78.35    26   24.77    24.5     24.27    20.87    20.6     1000];
```

Output Minggu ke-4 Hari ke-3

JalurTerbaik =

```
   1    2    3    6    7    8    5    4
```



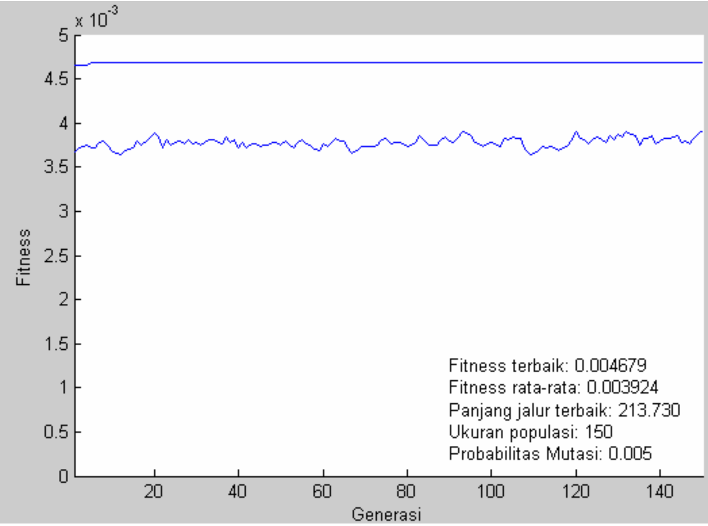
Fitness terbaik: 0.006274
Fitness rata-rata: 0.005958
Panjang jalur terbaik: 159.400
Ukuran populasi: 150
Probabilitas Mutasi: 0.005

Input Minggu ke-4 Hari ke-4

```
XYLokasi   = [1000  32.15   53.38   54.22   73.22   74.6    95.25;
32.15   1000    23.23   24.07   43.07   44.47   65.15;
53.38   23.23   1000    1.12    20.86   21.5    42.18;
54.22   24.07   1.12    1000    20.02   20.67   41.35;
72.22   43.07   20.86   20.02   1000    20.98   41.66;
74.6    44.47   21.5    20.67   20.98   1000    22.68;
95.25   65.15   42.18   41.35   41.66   22.68   1000];
```

Output Minggu ke-4 Hari ke-4

```
JalurTerbaik =
   2   3   4   6   7   5   1
```

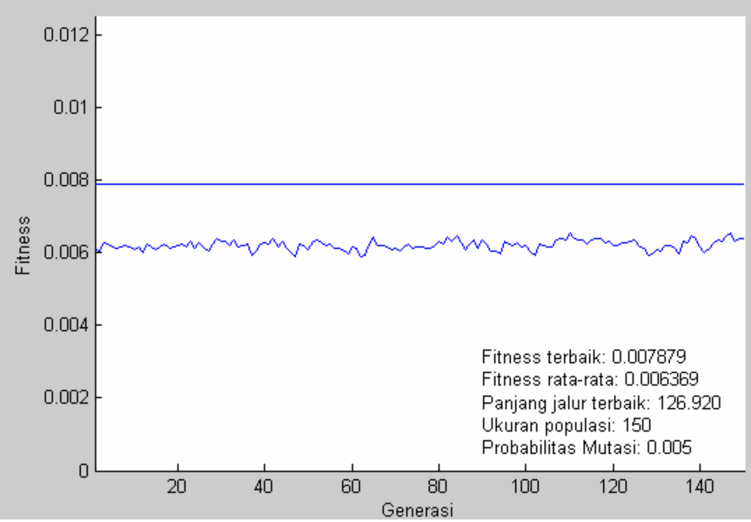


Input Minggu ke-4 Hari ke-5

```
XYLokasi    = [1000  27.52   55.17   55.95   12.48;
27.52   1000    30.08   30.86   31.13;
53.98   28.88   1000    1   58.78;
53.2    28.1    2.13    1000    58;
12.48   30.17   57.82   58.6    1000];
```

Output Minggu ke-4 Hari ke-5

```
JalurTerbaik =
   5   3   4   2   1
```

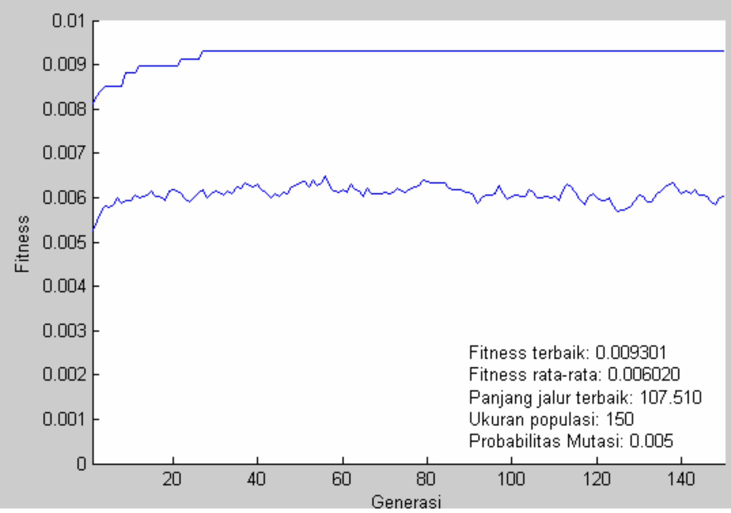


Input Minggu ke-4 Hari ke-6

```
XYLokasi   = [1000  31.58   32.33   34.13   35.13   36.1    37.03
37.92   50.13   50.17   50.22;
34.87   1000    0.83    2.63    3.63    4.6 5.53    6.41    27.27
27.9    28.53;
34.03   1.1 1000    1.85    2.85    3.82    4.75    5.63    26.48
27.12   27.73;
32.23    2.9 2.07     1000     1.02     1.98     2.92     3.8 26.65
27.28   27.92;
31.23   3.9 3.07    1.27    1000    1.02    1.95    2.83    23.68
24.32   24.93;
30.27   4.87    4.03    2.23    1.23    1000    1   1.88    22.73
23.37   23.98;
29.33    5.8 4.97     3.17     2.17     1.2 1000     0.88     21.73
22.37   22.98;
28.45    6.68     5.85     4.05     3.05     2.08     1.15     1000
22.85   23.48   24.12;
50.13   20.58   21.42   23.22   24.22   25.19   26.12   27  1000
0.83    1.5;
50.17    21.22    22.05    23.85    24.85    25.82    26.75    27.63
0.83    1000    0.83;
50.22    21.85    22.68    24.48    25.48    26.45    27.38    28.27
1.5 0.83    1000];
```

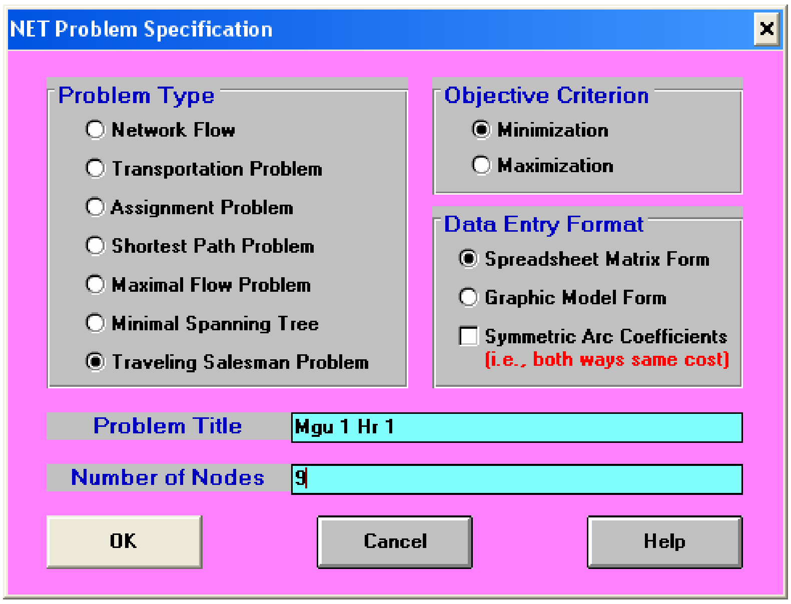
Output Minggu ke-4 Hari ke-6

```
JalurTerbaik =
     8     1    11    10     9     2     3     4     5     6     7
```


0.01
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
Fitness
20
40
60
80
100
120
140
Generasi
Fitness terbaik: 0.009301
Fitness rata-rata: 0.006020
Panjang jalur terbaik: 107.510
Ukuran populasi: 150
Probabilitas Mutasi: 0.005

Langkah-langkah dalam *Branch and Bound Method*:

1. Buka WinQSB dan pilih *Network Modeling*.
2. Pilih *File* → *New Problem*.



NET Problem Specification

Problem Type
- ○ Network Flow
- ○ Transportation Problem
- ○ Assignment Problem
- ○ Shortest Path Problem
- ○ Maximal Flow Problem
- ○ Minimal Spanning Tree
- ● Traveling Salesman Problem

Objective Criterion
- ● Minimization
- ○ Maximization

Data Entry Format
- ● Spreadsheet Matrix Form
- ○ Graphic Model Form
- □ Symmetric Arc Coefficients (i.e., both ways same cost)

Problem Title: Mgu 1 Hr 1

Number of Nodes: 9

3. Pilih *Problem Type* → *Traveling Salesman Problem*.

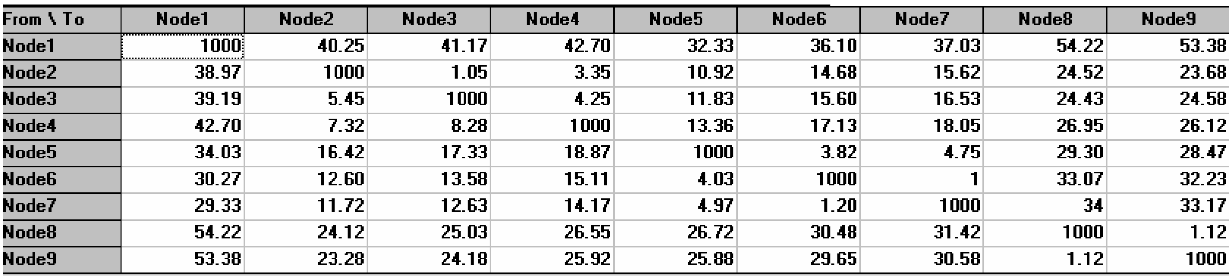
   Objective Criterion → Minimization.

   Masukan *Problem Title* dan *Number of Nodes*.
4. Masukan data waktu perjalanan antar toko.

Minggu ke-1 Hari ke-1

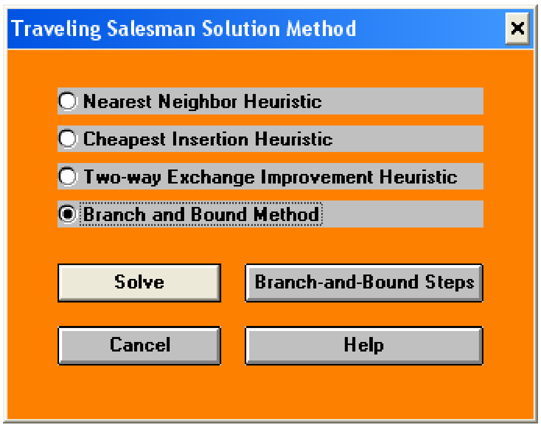
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8	Node9
Node1	1000	40.25	41.17	42.70	32.33	36.10	37.03	54.22	53.38
Node2	38.97	1000	1.05	3.35	10.92	14.68	15.62	24.52	23.68
Node3	39.19	5.45	1000	4.25	11.83	15.60	16.53	24.43	24.58
Node4	42.70	7.32	8.28	1000	13.36	17.13	18.05	26.95	26.12
Node5	34.03	16.42	17.33	18.87	1000	3.82	4.75	29.30	28.47
Node6	30.27	12.60	13.58	15.11	4.03	1000	1	33.07	32.23
Node7	29.33	11.72	12.63	14.17	4.97	1.20	1000	34	33.17
Node8	54.22	24.12	25.03	26.55	26.72	30.48	31.42	1000	1.12
Node9	53.38	23.28	24.18	25.92	25.88	29.65	30.58	1.12	1000

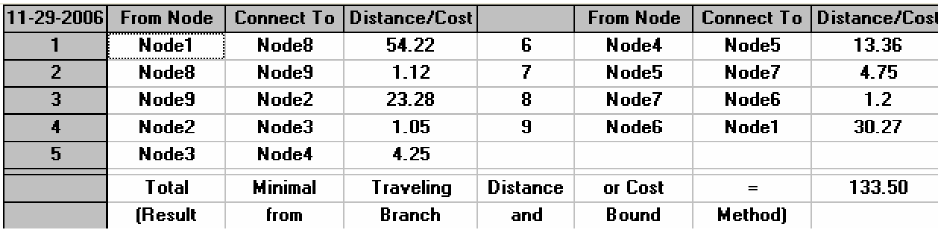
5. Pilih *Solve and Analyze* → *Solve The Problem*.


Traveling Salesman Solution Method

○ Nearest Neighbor Heuristic
○ Cheapest Insertion Heuristic
○ Two-way Exchange Improvement Heuristic
● Branch and Bound Method

6. Pilih *Branch and Bound Method* → *Solve*.

Output



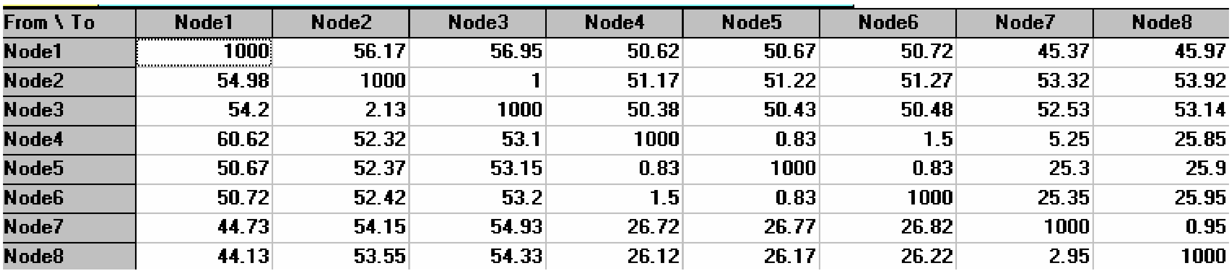
11-29-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node8	54.22	6	Node4	Node5	13.36
2	Node8	Node9	1.12	7	Node5	Node7	4.75
3	Node9	Node2	23.28	8	Node7	Node6	1.2
4	Node2	Node3	1.05	9	Node6	Node1	30.27
5	Node3	Node4	4.25				
	Total	Minimal	Traveling	Distance	or Cost	=	133.50
	(Result	from	Branch	and	Bound	Method)	

7. Ulangi langkah 1 hingga 6 sampai semua data diolah.

Minggu ke-1 Hari ke-2

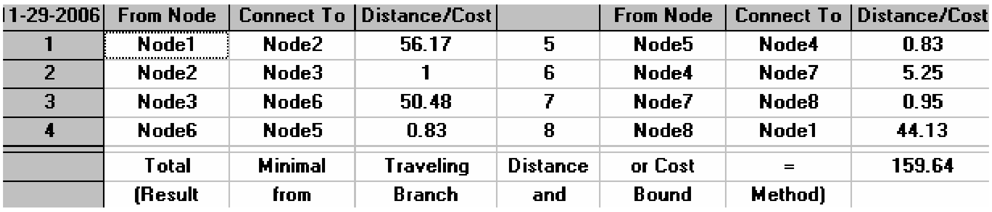
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8
Node1	1000	56.17	56.95	50.62	50.67	50.72	45.37	45.97
Node2	54.98	1000	1	51.17	51.22	51.27	53.32	53.92
Node3	54.2	2.13	1000	50.38	50.43	50.48	52.53	53.14
Node4	60.62	52.32	53.1	1000	0.83	1.5	5.25	25.85
Node5	50.67	52.37	53.15	0.83	1000	0.83	25.3	25.9
Node6	50.72	52.42	53.2	1.5	0.83	1000	25.35	25.95
Node7	44.73	54.15	54.93	26.72	26.77	26.82	1000	0.95
Node8	44.13	53.55	54.33	26.12	26.17	26.22	2.95	1000

Output

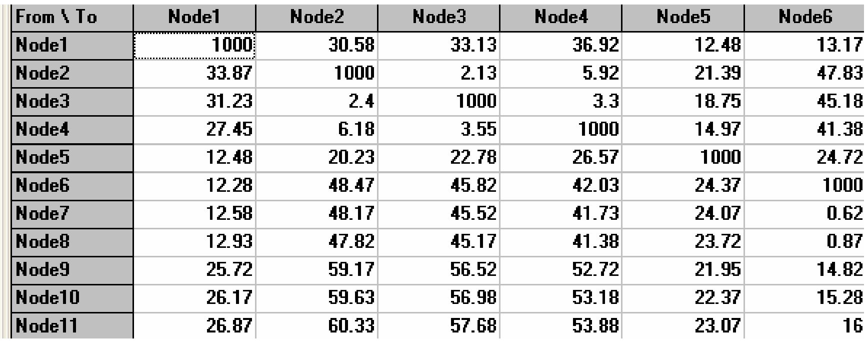


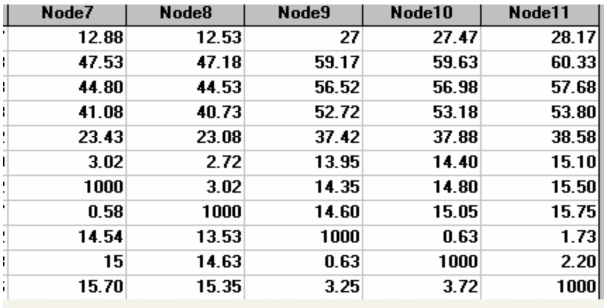
11-29-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node2	56.17	5	Node5	Node4	0.83
2	Node2	Node3	1	6	Node4	Node7	5.25
3	Node3	Node6	50.48	7	Node7	Node8	0.95
4	Node6	Node5	0.83	8	Node8	Node1	44.13
	Total	Minimal	Traveling	Distance	or Cost	=	159.64
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-1 Hari ke-3

TSP (Branch and Bound Method)

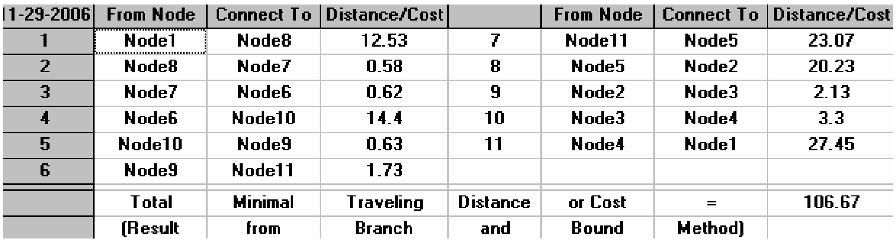
Input





From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8	Node9	Node10	Node11
Node1	1000	30.58	33.13	36.92	12.48	13.17	12.88	12.53	27	27.47	28.17
Node2	33.87	1000	2.13	5.92	21.39	47.83	47.53	47.18	59.17	59.63	60.33
Node3	31.23	2.4	1000	3.3	18.75	45.18	44.80	44.53	56.52	56.98	57.68
Node4	27.45	6.18	3.55	1000	14.97	41.38	41.08	40.73	52.72	53.18	53.80
Node5	12.48	20.23	22.78	26.57	1000	24.72	23.43	23.08	37.42	37.88	38.58
Node6	12.28	48.47	45.82	42.03	24.37	1000	3.02	2.72	13.95	14.40	15.10
Node7	12.58	48.17	45.52	41.73	24.07	0.62	1000	3.02	14.35	14.80	15.50
Node8	12.93	47.82	45.17	41.38	23.72	0.87	0.58	1000	14.60	15.05	15.75
Node9	25.72	59.17	56.52	52.72	21.95	14.82	14.54	13.53	1000	0.63	1.73
Node10	26.17	59.63	56.98	53.18	22.37	15.28	15	14.63	0.63	1000	2.20
Node11	26.87	60.33	57.68	53.88	23.07	16	15.70	15.35	3.25	3.72	1000

Output

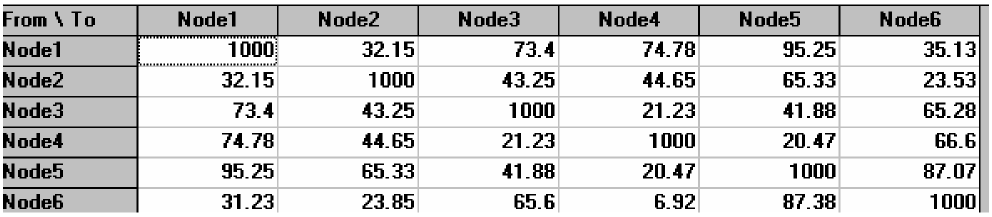


11-29-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node8	12.53	7	Node11	Node5	23.07
2	Node8	Node7	0.58	8	Node5	Node2	20.23
3	Node7	Node6	0.62	9	Node2	Node3	2.13
4	Node6	Node10	14.4	10	Node3	Node4	3.3
5	Node10	Node9	0.63	11	Node4	Node1	27.45
6	Node9	Node11	1.73				
	Total	Minimal	Traveling	Distance	or Cost	=	106.67
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-1 Hari ke-4

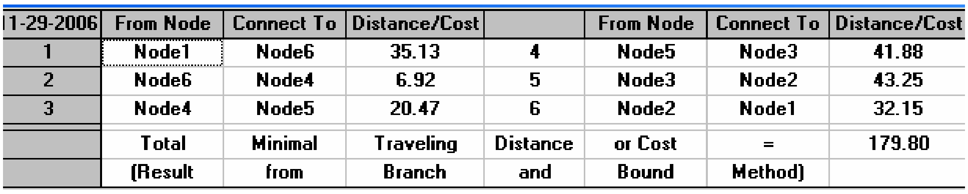
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6
Node1	1000	32.15	73.4	74.78	95.25	35.13
Node2	32.15	1000	43.25	44.65	65.33	23.53
Node3	73.4	43.25	1000	21.23	41.88	65.28
Node4	74.78	44.65	21.23	1000	20.47	66.6
Node5	95.25	65.33	41.88	20.47	1000	87.07
Node6	31.23	23.85	65.6	6.92	87.38	1000

Output

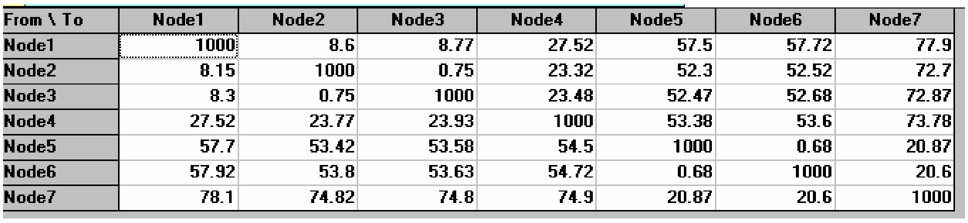


11-29-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node6	35.13	4	Node5	Node3	41.88
2	Node6	Node4	6.92	5	Node3	Node2	43.25
3	Node4	Node5	20.47	6	Node2	Node1	32.15
	Total	Minimal	Traveling	Distance	or Cost	=	179.80
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-1 Hari ke-5

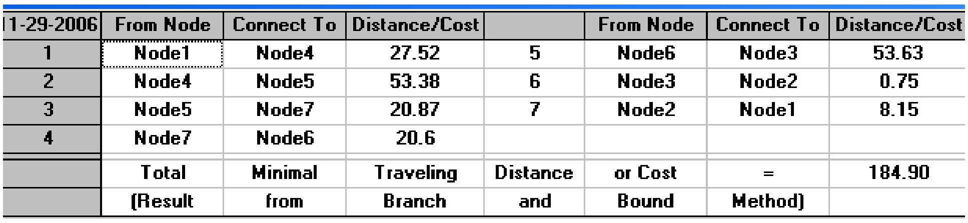
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7
Node1	1000	8.6	8.77	27.52	57.5	57.72	77.9
Node2	8.15	1000	0.75	23.32	52.3	52.52	72.7
Node3	8.3	0.75	1000	23.48	52.47	52.68	72.87
Node4	27.52	23.77	23.93	1000	53.38	53.6	73.78
Node5	57.7	53.42	53.58	54.5	1000	0.68	20.87
Node6	57.92	53.8	53.63	54.72	0.68	1000	20.6
Node7	78.1	74.82	74.8	74.9	20.87	20.6	1000

Output

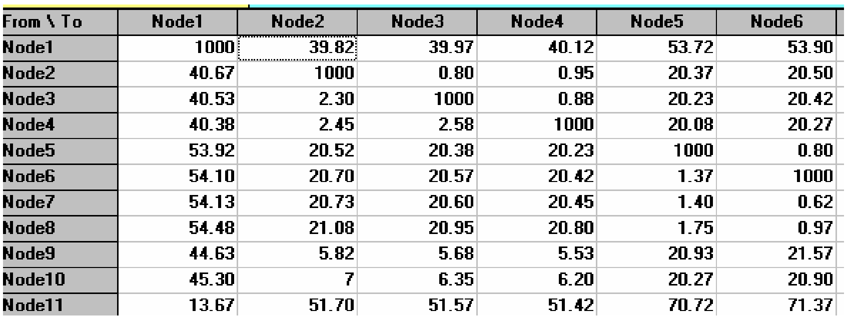


11-29-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node4	27.52	5	Node6	Node3	53.63
2	Node4	Node5	53.38	6	Node3	Node2	0.75
3	Node5	Node7	20.87	7	Node2	Node1	8.15
4	Node7	Node6	20.6				
	Total	Minimal	Traveling	Distance	or Cost	=	184.90
	(Result	from	Branch	and	Bound	Method)	

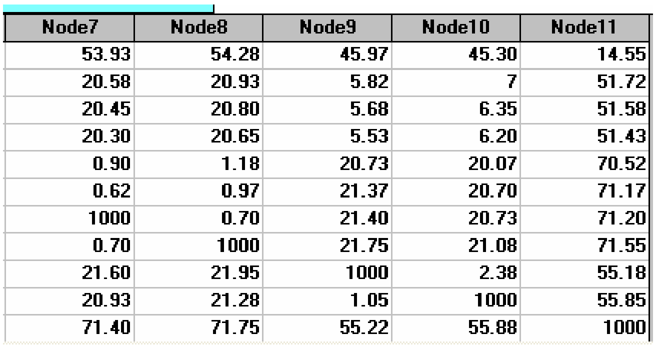
Minggu ke-1 Hari ke-6

TSP (Branch and Bound Method)

Input

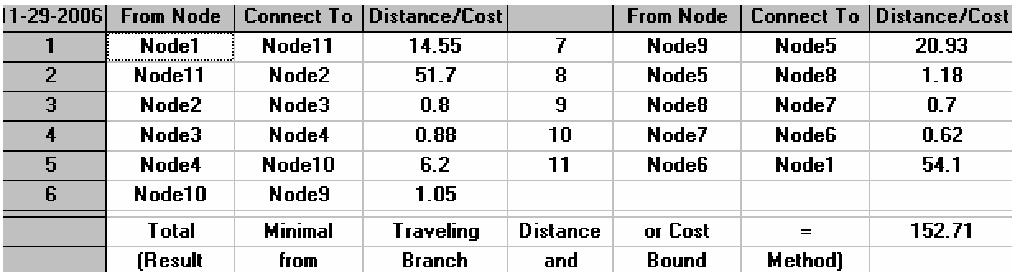


From \ To	Node1	Node2	Node3	Node4	Node5	Node6
Node1	1000	39.82	39.97	40.12	53.72	53.90
Node2	40.67	1000	0.80	0.95	20.37	20.50
Node3	40.53	2.30	1000	0.88	20.23	20.42
Node4	40.38	2.45	2.58	1000	20.08	20.27
Node5	53.92	20.52	20.38	20.23	1000	0.80
Node6	54.10	20.70	20.57	20.42	1.37	1000
Node7	54.13	20.73	20.60	20.45	1.40	0.62
Node8	54.48	21.08	20.95	20.80	1.75	0.97
Node9	44.63	5.82	5.68	5.53	20.93	21.57
Node10	45.30	7	6.35	6.20	20.27	20.90
Node11	13.67	51.70	51.57	51.42	70.72	71.37



Node7	Node8	Node9	Node10	Node11
53.93	54.28	45.97	45.30	14.55
20.58	20.93	5.82	7	51.72
20.45	20.80	5.68	6.35	51.58
20.30	20.65	5.53	6.20	51.43
0.90	1.18	20.73	20.07	70.52
0.62	0.97	21.37	20.70	71.17
1000	0.70	21.40	20.73	71.20
0.70	1000	21.75	21.08	71.55
21.60	21.95	1000	2.38	55.18
20.93	21.28	1.05	1000	55.85
71.40	71.75	55.22	55.88	1000

Output

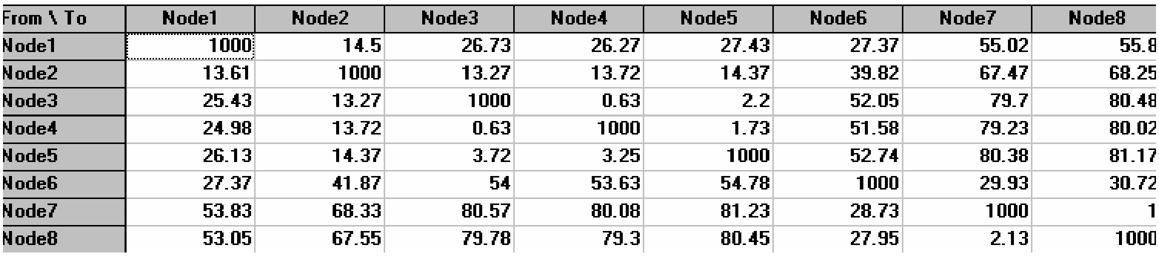


1-29-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node11	14.55	7	Node9	Node5	20.93
2	Node11	Node2	51.7	8	Node5	Node8	1.18
3	Node2	Node3	0.8	9	Node8	Node7	0.7
4	Node3	Node4	0.88	10	Node7	Node6	0.62
5	Node4	Node10	6.2	11	Node6	Node1	54.1
6	Node10	Node9	1.05				
	Total	Minimal	Traveling	Distance	or Cost	=	152.71
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-2 Hari ke-1

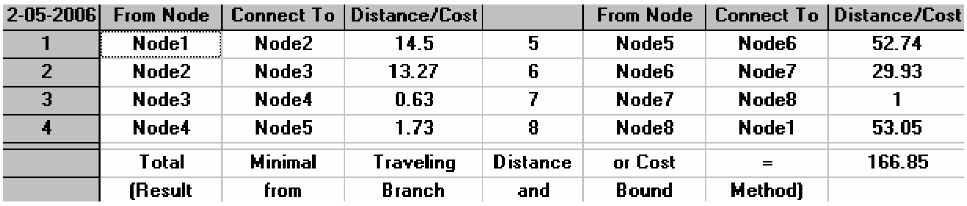
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8
Node1	1000	14.5	26.73	26.27	27.43	27.37	55.02	55.8
Node2	13.61	1000	13.27	13.72	14.37	39.82	67.47	68.25
Node3	25.43	13.27	1000	0.63	2.2	52.05	79.7	80.48
Node4	24.98	13.72	0.63	1000	1.73	51.58	79.23	80.02
Node5	26.13	14.37	3.72	3.25	1000	52.74	80.38	81.17
Node6	27.37	41.87	54	53.63	54.78	1000	29.93	30.72
Node7	53.83	68.33	80.57	80.08	81.23	28.73	1000	1
Node8	53.05	67.55	79.78	79.3	80.45	27.95	2.13	1000

Output

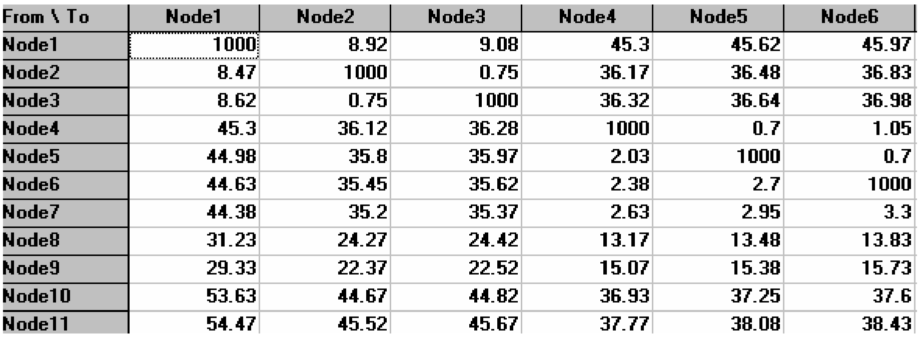


2-05-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node2	14.5	5	Node5	Node6	52.74
2	Node2	Node3	13.27	6	Node6	Node7	29.93
3	Node3	Node4	0.63	7	Node7	Node8	1
4	Node4	Node5	1.73	8	Node8	Node1	53.05
	Total	Minimal	Traveling	Distance	or Cost	=	166.85
	(Result	from	Branch	and	Bound	Method)	

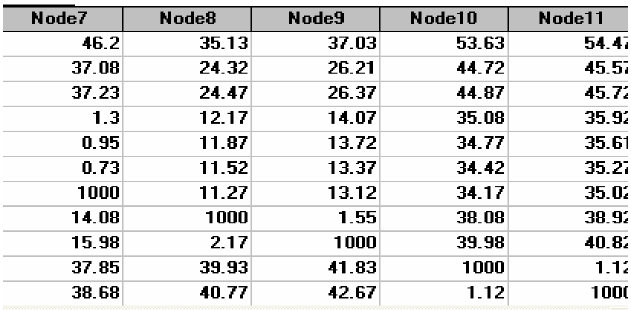
Minggu ke-2 Hari ke-2

TSP (Branch and Bound Method)

Input

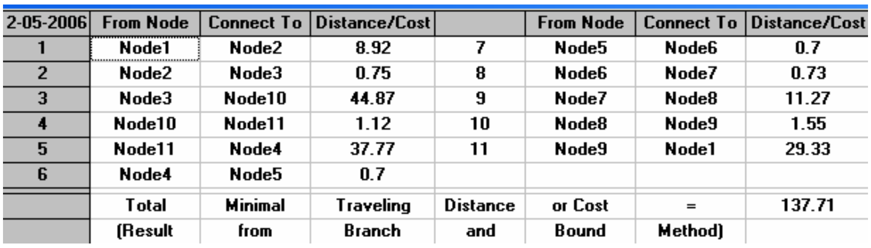


From \ To	Node1	Node2	Node3	Node4	Node5	Node6
Node1	1000	8.92	9.08	45.3	45.62	45.97
Node2	8.47	1000	0.75	36.17	36.48	36.83
Node3	8.62	0.75	1000	36.32	36.64	36.98
Node4	45.3	36.12	36.28	1000	0.7	1.05
Node5	44.98	35.8	35.97	2.03	1000	0.7
Node6	44.63	35.45	35.62	2.38	2.7	1000
Node7	44.38	35.2	35.37	2.63	2.95	3.3
Node8	31.23	24.27	24.42	13.17	13.48	13.83
Node9	29.33	22.37	22.52	15.07	15.38	15.73
Node10	53.63	44.67	44.82	36.93	37.25	37.6
Node11	54.47	45.52	45.67	37.77	38.08	38.43



From \ To	Node7	Node8	Node9	Node10	Node11
Node1	46.2	35.13	37.03	53.63	54.47
Node2	37.08	24.32	26.21	44.72	45.57
Node3	37.23	24.47	26.37	44.87	45.72
Node4	1.3	12.17	14.07	35.08	35.92
Node5	0.95	11.87	13.72	34.77	35.61
Node6	0.73	11.52	13.37	34.42	35.27
Node7	1000	11.27	13.12	34.17	35.02
Node8	14.08	1000	1.55	38.08	38.92
Node9	15.98	2.17	1000	39.98	40.82
Node10	37.85	39.93	41.83	1000	1.12
Node11	38.68	40.77	42.67	1.12	1000

Output

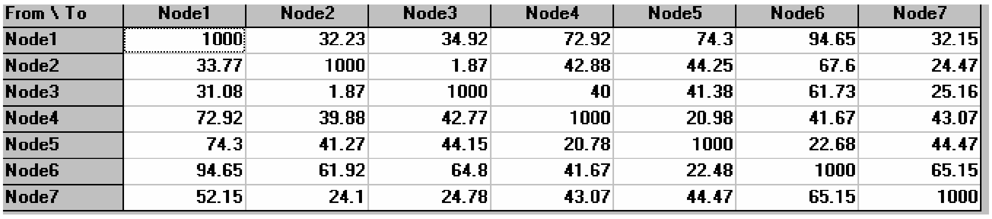


2-05-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node2	8.92	7	Node5	Node6	0.7
2	Node2	Node3	0.75	8	Node6	Node7	0.73
3	Node3	Node10	44.87	9	Node7	Node8	11.27
4	Node10	Node11	1.12	10	Node8	Node9	1.55
5	Node11	Node4	37.77	11	Node9	Node1	29.33
6	Node4	Node5	0.7				
	Total	Minimal	Traveling	Distance	or Cost	=	137.71
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-2 Hari ke-3

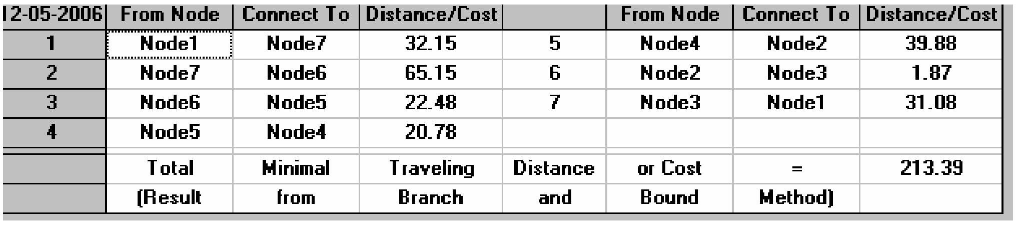
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7
Node1	1000	32.23	34.92	72.92	74.3	94.65	32.15
Node2	33.77	1000	1.87	42.88	44.25	67.6	24.47
Node3	31.08	1.87	1000	40	41.38	61.73	25.16
Node4	72.92	39.88	42.77	1000	20.98	41.67	43.07
Node5	74.3	41.27	44.15	20.78	1000	22.68	44.47
Node6	94.65	61.92	64.8	41.67	22.48	1000	65.15
Node7	52.15	24.1	24.78	43.07	44.47	65.15	1000

Output

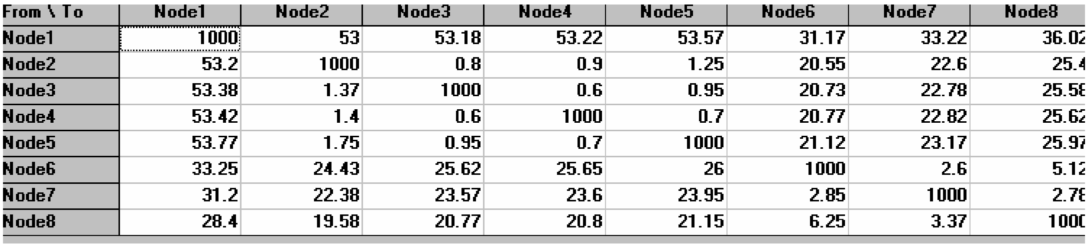


12-05-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node7	32.15	5	Node4	Node2	39.88
2	Node7	Node6	65.15	6	Node2	Node3	1.87
3	Node6	Node5	22.48	7	Node3	Node1	31.08
4	Node5	Node4	20.78				
	Total	Minimal	Traveling	Distance	or Cost	=	213.39
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-2 Hari ke-4

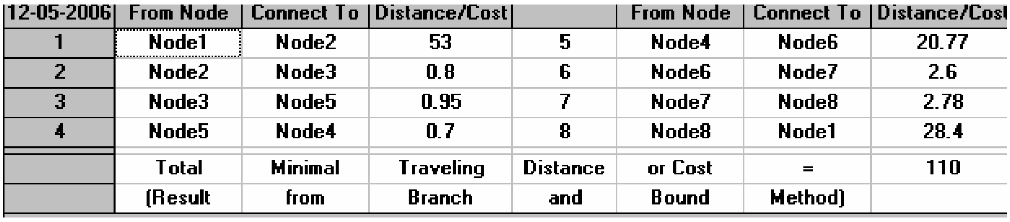
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8
Node1	1000	53	53.18	53.22	53.57	31.17	33.22	36.02
Node2	53.2	1000	0.8	0.9	1.25	20.55	22.6	25.4
Node3	53.38	1.37	1000	0.6	0.95	20.73	22.78	25.58
Node4	53.42	1.4	0.6	1000	0.7	20.77	22.82	25.62
Node5	53.77	1.75	0.95	0.7	1000	21.12	23.17	25.97
Node6	33.25	24.43	25.62	25.65	26	1000	2.6	5.12
Node7	31.2	22.38	23.57	23.6	23.95	2.85	1000	2.78
Node8	28.4	19.58	20.77	20.8	21.15	6.25	3.37	1000

Output

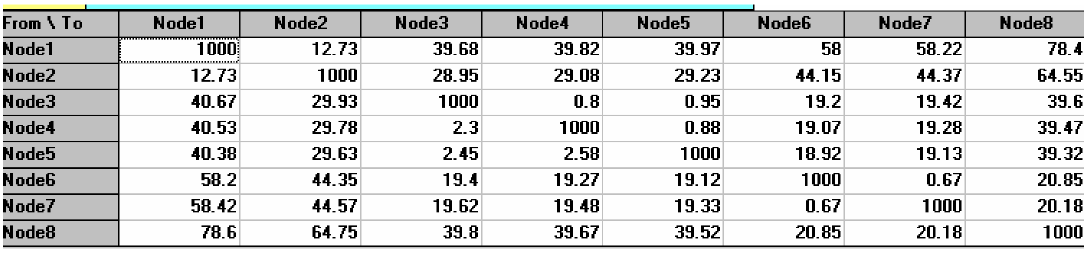


12-05-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node2	53	5	Node4	Node6	20.77
2	Node2	Node3	0.8	6	Node6	Node7	2.6
3	Node3	Node5	0.95	7	Node7	Node8	2.78
4	Node5	Node4	0.7	8	Node8	Node1	28.4
	Total	Minimal	Traveling	Distance	or Cost	=	110
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-2 Hari ke-5

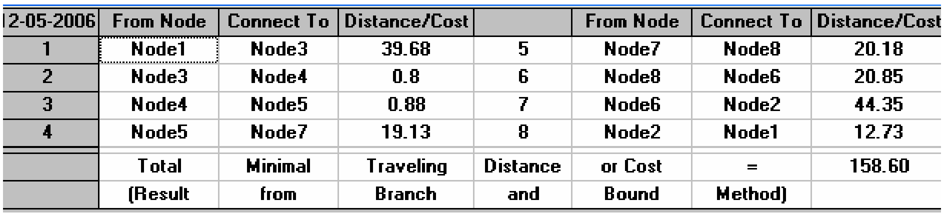
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8
Node1	1000	12.73	39.68	39.82	39.97	58	58.22	78.4
Node2	12.73	1000	28.95	29.08	29.23	44.15	44.37	64.55
Node3	40.67	29.93	1000	0.8	0.95	19.2	19.42	39.6
Node4	40.53	29.78	2.3	1000	0.88	19.07	19.28	39.47
Node5	40.38	29.63	2.45	2.58	1000	18.92	19.13	39.32
Node6	58.2	44.35	19.4	19.27	19.12	1000	0.67	20.85
Node7	58.42	44.57	19.62	19.48	19.33	0.67	1000	20.18
Node8	78.6	64.75	39.8	39.67	39.52	20.85	20.18	1000

Output

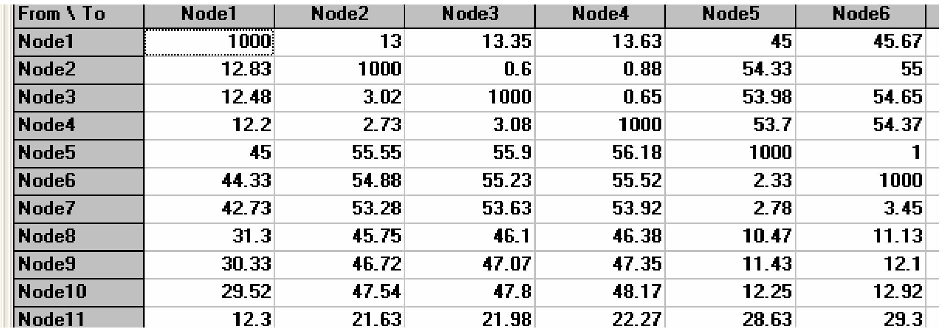


12-05-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node3	39.68	5	Node7	Node8	20.18
2	Node3	Node4	0.8	6	Node8	Node6	20.85
3	Node4	Node5	0.88	7	Node6	Node2	44.35
4	Node5	Node7	19.13	8	Node2	Node1	12.73
	Total	Minimal	Traveling	Distance	or Cost	=	158.60
	(Result	from	Branch	and	Bound	Method)	

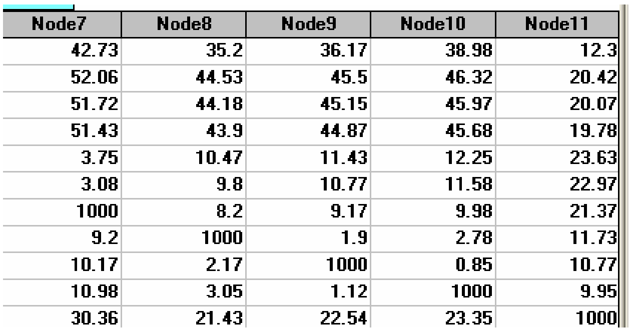
Minggu ke-3 Hari ke-1

TSP (Branch and Bound Method)

Input

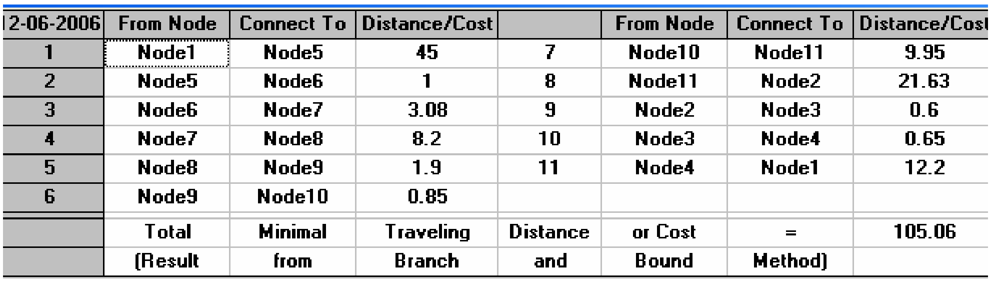


From \ To	Node1	Node2	Node3	Node4	Node5	Node6
Node1	1000	13	13.35	13.63	45	45.67
Node2	12.83	1000	0.6	0.88	54.33	55
Node3	12.48	3.02	1000	0.65	53.98	54.65
Node4	12.2	2.73	3.08	1000	53.7	54.37
Node5	45	55.55	55.9	56.18	1000	1
Node6	44.33	54.88	55.23	55.52	2.33	1000
Node7	42.73	53.28	53.63	53.92	2.78	3.45
Node8	31.3	45.75	46.1	46.38	10.47	11.13
Node9	30.33	46.72	47.07	47.35	11.43	12.1
Node10	29.52	47.54	47.8	48.17	12.25	12.92
Node11	12.3	21.63	21.98	22.27	28.63	29.3



Node7	Node8	Node9	Node10	Node11
42.73	35.2	36.17	38.98	12.3
52.06	44.53	45.5	46.32	20.42
51.72	44.18	45.15	45.97	20.07
51.43	43.9	44.87	45.68	19.78
3.75	10.47	11.43	12.25	23.63
3.08	9.8	10.77	11.58	22.97
1000	8.2	9.17	9.98	21.37
9.2	1000	1.9	2.78	11.73
10.17	2.17	1000	0.85	10.77
10.98	3.05	1.12	1000	9.95
30.36	21.43	22.54	23.35	1000

Output

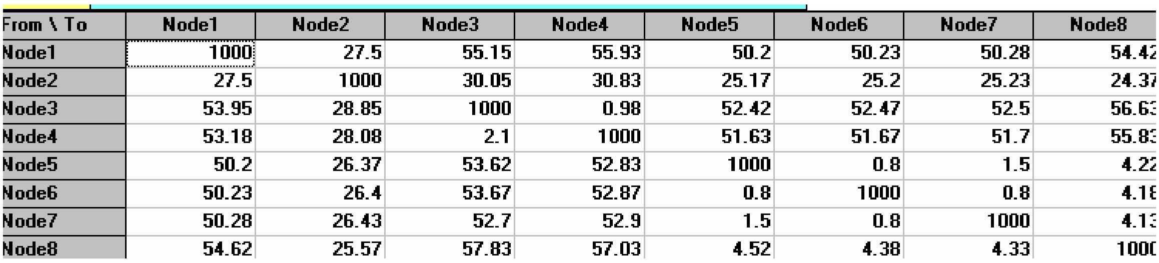


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node5	45	7	Node10	Node11	9.95
2	Node5	Node6	1	8	Node11	Node2	21.63
3	Node6	Node7	3.08	9	Node2	Node3	0.6
4	Node7	Node8	8.2	10	Node3	Node4	0.65
5	Node8	Node9	1.9	11	Node4	Node1	12.2
6	Node9	Node10	0.85				
	Total	Minimal	Traveling	Distance	or Cost	=	105.06
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-3 Hari ke-2

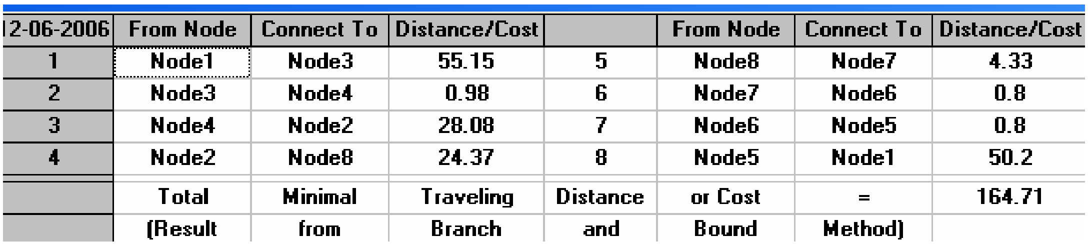
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8
Node1	1000	27.5	55.15	55.93	50.2	50.23	50.28	54.42
Node2	27.5	1000	30.05	30.83	25.17	25.2	25.23	24.37
Node3	53.95	28.85	1000	0.98	52.42	52.47	52.5	56.63
Node4	53.18	28.08	2.1	1000	51.63	51.67	51.7	55.83
Node5	50.2	26.37	53.62	52.83	1000	0.8	1.5	4.22
Node6	50.23	26.4	53.67	52.87	0.8	1000	0.8	4.18
Node7	50.28	26.43	52.7	52.9	1.5	0.8	1000	4.13
Node8	54.62	25.57	57.83	57.03	4.52	4.38	4.33	1000

Output

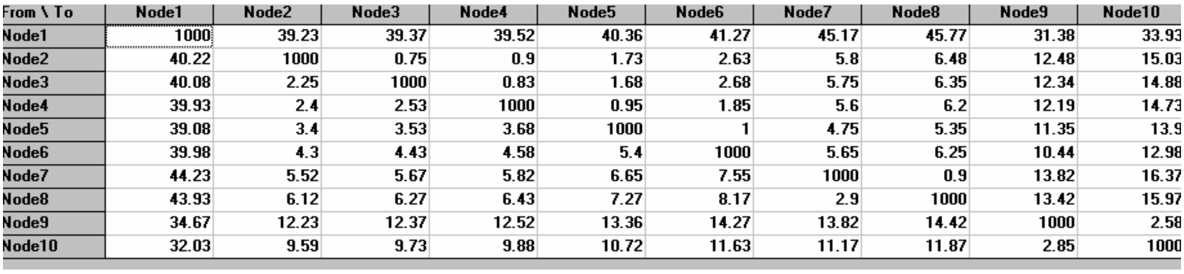


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node3	55.15	5	Node8	Node7	4.33
2	Node3	Node4	0.98	6	Node7	Node6	0.8
3	Node4	Node2	28.08	7	Node6	Node5	0.8
4	Node2	Node8	24.37	8	Node5	Node1	50.2
	Total	Minimal	Traveling	Distance	or Cost	=	164.71
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-3 Hari ke-3

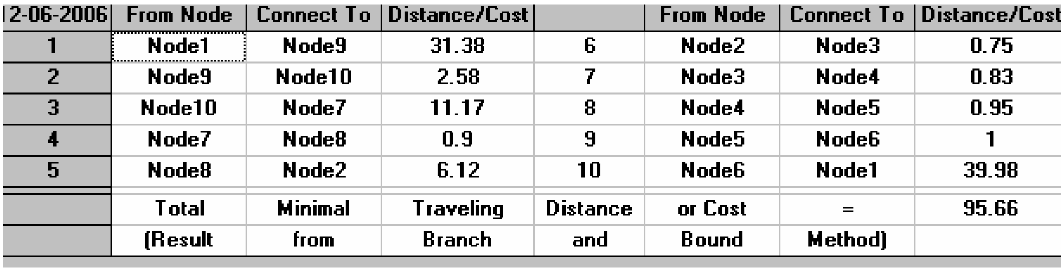
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8	Node9	Node10
Node1	1000	39.23	39.37	39.52	40.36	41.27	45.17	45.77	31.38	33.93
Node2	40.22	1000	0.75	0.9	1.73	2.63	5.8	6.48	12.48	15.03
Node3	40.08	2.25	1000	0.83	1.68	2.68	5.75	6.35	12.34	14.88
Node4	39.93	2.4	2.53	1000	0.95	1.85	5.6	6.2	12.19	14.73
Node5	39.08	3.4	3.53	3.68	1000	1	4.75	5.35	11.35	13.9
Node6	39.98	4.3	4.43	4.58	5.4	1000	5.65	6.25	10.44	12.98
Node7	44.23	5.52	5.67	5.82	6.65	7.55	1000	0.9	13.82	16.37
Node8	43.93	6.12	6.27	6.43	7.27	8.17	2.9	1000	13.42	15.97
Node9	34.67	12.23	12.37	12.52	13.36	14.27	13.82	14.42	1000	2.58
Node10	32.03	9.59	9.73	9.88	10.72	11.63	11.17	11.87	2.85	1000

Output

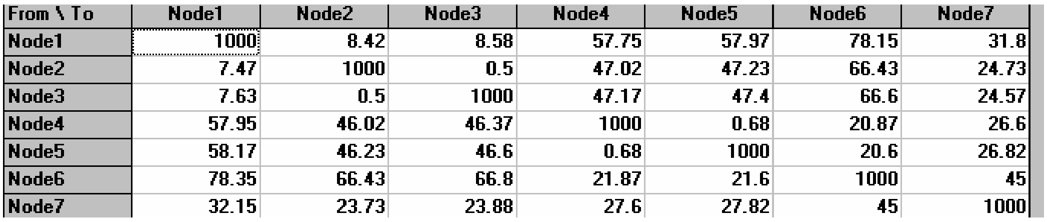


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node9	31.38	6	Node2	Node3	0.75
2	Node9	Node10	2.58	7	Node3	Node4	0.83
3	Node10	Node7	11.17	8	Node4	Node5	0.95
4	Node7	Node8	0.9	9	Node5	Node6	1
5	Node8	Node2	6.12	10	Node6	Node1	39.98
	Total	Minimal	Traveling	Distance	or Cost	=	95.66
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-3 Hari ke-4

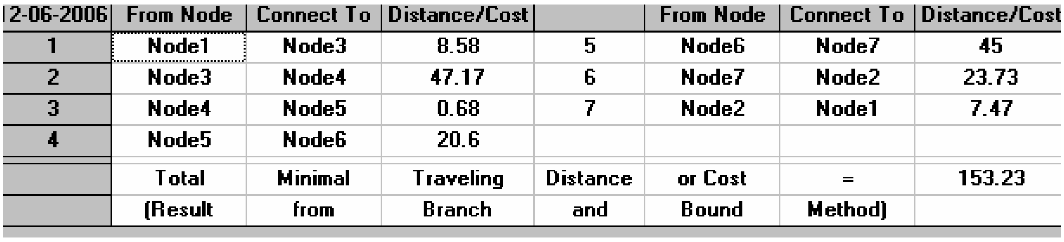
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7
Node1	1000	8.42	8.58	57.75	57.97	78.15	31.8
Node2	7.47	1000	0.5	47.02	47.23	66.43	24.73
Node3	7.63	0.5	1000	47.17	47.4	66.6	24.57
Node4	57.95	46.02	46.37	1000	0.68	20.87	26.6
Node5	58.17	46.23	46.6	0.68	1000	20.6	26.82
Node6	78.35	66.43	66.8	21.87	21.6	1000	45
Node7	32.15	23.73	23.88	27.6	27.82	45	1000

Output

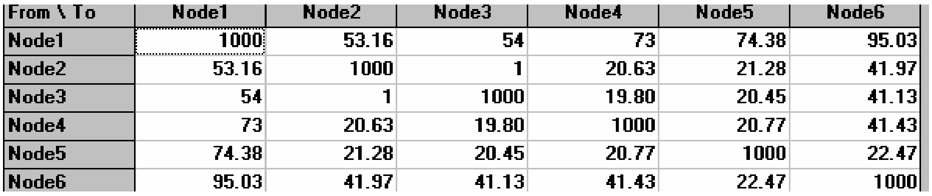


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node3	8.58	5	Node6	Node7	45
2	Node3	Node4	47.17	6	Node7	Node2	23.73
3	Node4	Node5	0.68	7	Node2	Node1	7.47
4	Node5	Node6	20.6				
	Total	Minimal	Traveling	Distance	or Cost	=	153.23
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-3 Hari ke-5

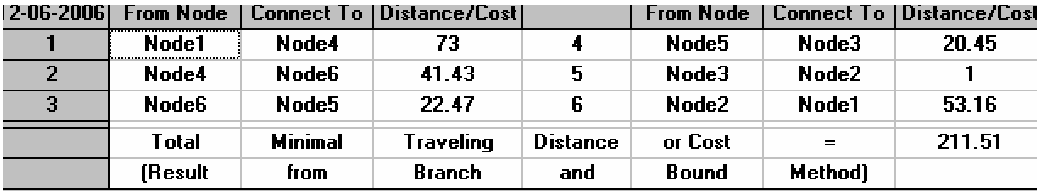
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6
Node1	1000	53.16	54	73	74.38	95.03
Node2	53.16	1000	1	20.63	21.28	41.97
Node3	54	1	1000	19.80	20.45	41.13
Node4	73	20.63	19.80	1000	20.77	41.43
Node5	74.38	21.28	20.45	20.77	1000	22.47
Node6	95.03	41.97	41.13	41.43	22.47	1000

Output

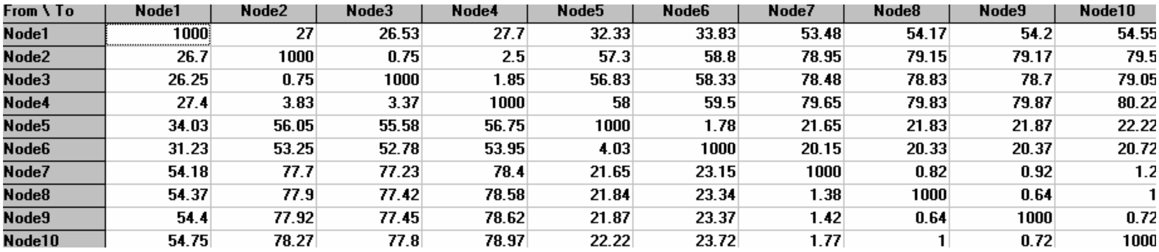


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node4	73	4	Node5	Node3	20.45
2	Node4	Node6	41.43	5	Node3	Node2	1
3	Node6	Node5	22.47	6	Node2	Node1	53.16
	Total	Minimal	Traveling	Distance	or Cost	=	211.51
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-3 Hari ke-6

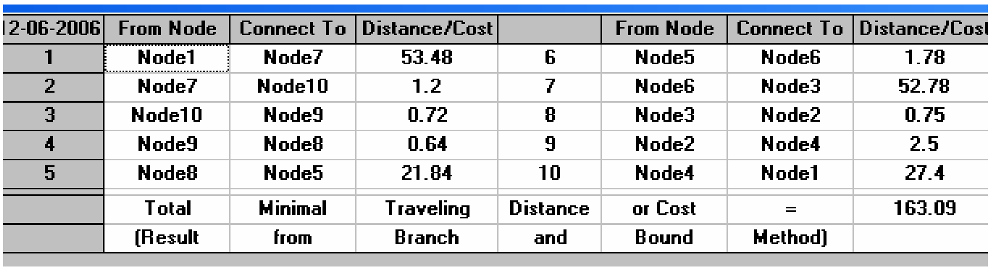
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8	Node9	Node10
Node1	1000	27	26.53	27.7	32.33	33.83	53.48	54.17	54.2	54.55
Node2	26.7	1000	0.75	2.5	57.3	58.8	78.95	79.15	79.17	79.5
Node3	26.25	0.75	1000	1.85	56.83	58.33	78.48	78.83	78.7	79.05
Node4	27.4	3.83	3.37	1000	58	59.5	79.65	79.83	79.87	80.22
Node5	34.03	56.05	55.58	56.75	1000	1.78	21.65	21.83	21.87	22.22
Node6	31.23	53.25	52.78	53.95	4.03	1000	20.15	20.33	20.37	20.72
Node7	54.18	77.7	77.23	78.4	21.65	23.15	1000	0.82	0.92	1.2
Node8	54.37	77.9	77.42	78.58	21.84	23.34	1.38	1000	0.64	1
Node9	54.4	77.92	77.45	78.62	21.87	23.37	1.42	0.64	1000	0.72
Node10	54.75	78.27	77.8	78.97	22.22	23.72	1.77	1	0.72	1000

Output

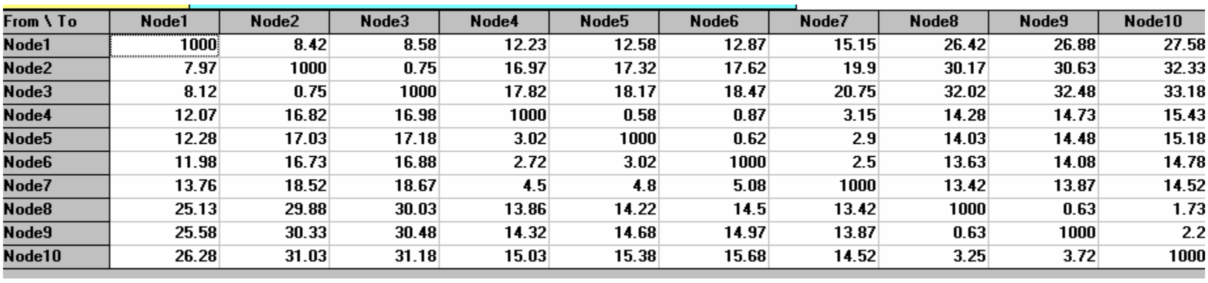


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node7	53.48	6	Node5	Node6	1.78
2	Node7	Node10	1.2	7	Node6	Node3	52.78
3	Node10	Node9	0.72	8	Node3	Node2	0.75
4	Node9	Node8	0.64	9	Node2	Node4	2.5
5	Node8	Node5	21.84	10	Node4	Node1	27.4
	Total	Minimal	Traveling	Distance	or Cost	=	163.09
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-4 Hari ke-1

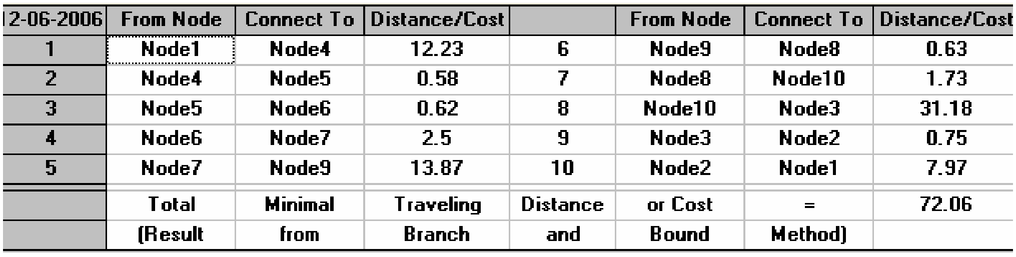
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8	Node9	Node10
Node1	1000	8.42	8.58	12.23	12.58	12.87	15.15	26.42	26.88	27.58
Node2	7.97	1000	0.75	16.97	17.32	17.62	19.9	30.17	30.63	32.33
Node3	8.12	0.75	1000	17.82	18.17	18.47	20.75	32.02	32.48	33.18
Node4	12.07	16.82	16.98	1000	0.58	0.87	3.15	14.28	14.73	15.43
Node5	12.28	17.03	17.18	3.02	1000	0.62	2.9	14.03	14.48	15.18
Node6	11.98	16.73	16.88	2.72	3.02	1000	2.5	13.63	14.08	14.78
Node7	13.76	18.52	18.67	4.5	4.8	5.08	1000	13.42	13.87	14.52
Node8	25.13	29.88	30.03	13.86	14.22	14.5	13.42	1000	0.63	1.73
Node9	25.58	30.33	30.48	14.32	14.68	14.97	13.87	0.63	1000	2.2
Node10	26.28	31.03	31.18	15.03	15.38	15.68	14.52	3.25	3.72	1000

Output

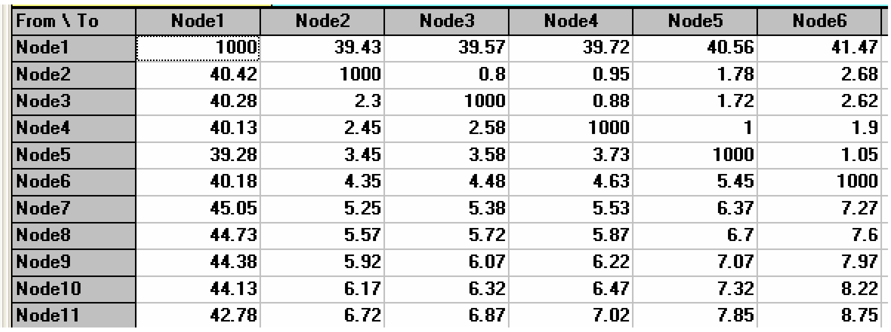


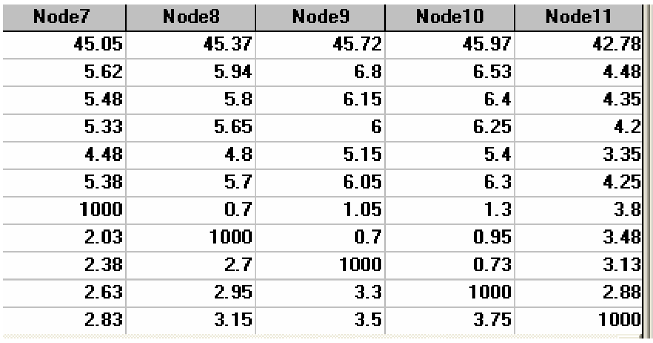
12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node4	12.23	6	Node9	Node8	0.63
2	Node4	Node5	0.58	7	Node8	Node10	1.73
3	Node5	Node6	0.62	8	Node10	Node3	31.18
4	Node6	Node7	2.5	9	Node3	Node2	0.75
5	Node7	Node9	13.87	10	Node2	Node1	7.97
	Total	Minimal	Traveling	Distance	or Cost	=	72.06
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-4 Hari ke-2

TSP (Branch and Bound Method)

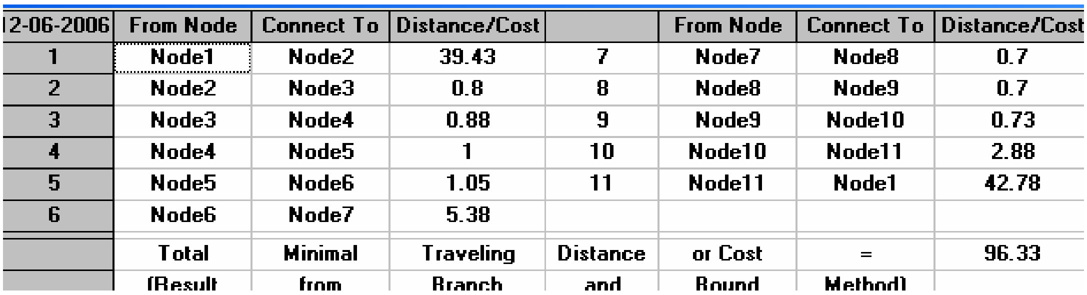
Input





From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8	Node9	Node10	Node11
Node1	1000	39.43	39.57	39.72	40.56	41.47	45.05	45.37	45.72	45.97	42.78
Node2	40.42	1000	0.8	0.95	1.78	2.68	5.62	5.94	6.8	6.53	4.48
Node3	40.28	2.3	1000	0.88	1.72	2.62	5.48	5.8	6.15	6.4	4.35
Node4	40.13	2.45	2.58	1000	1	1.9	5.33	5.65	6	6.25	4.2
Node5	39.28	3.45	3.58	3.73	1000	1.05	4.48	4.8	5.15	5.4	3.35
Node6	40.18	4.35	4.48	4.63	5.45	1000	5.38	5.7	6.05	6.3	4.25
Node7	45.05	5.25	5.38	5.53	6.37	7.27	1000	0.7	1.05	1.3	3.8
Node8	44.73	5.57	5.72	5.87	6.7	7.6	2.03	1000	0.7	0.95	3.48
Node9	44.38	5.92	6.07	6.22	7.07	7.97	2.38	2.7	1000	0.73	3.13
Node10	44.13	6.17	6.32	6.47	7.32	8.22	2.63	2.95	3.3	1000	2.88
Node11	42.78	6.72	6.87	7.02	7.85	8.75	2.83	3.15	3.5	3.75	1000

Output

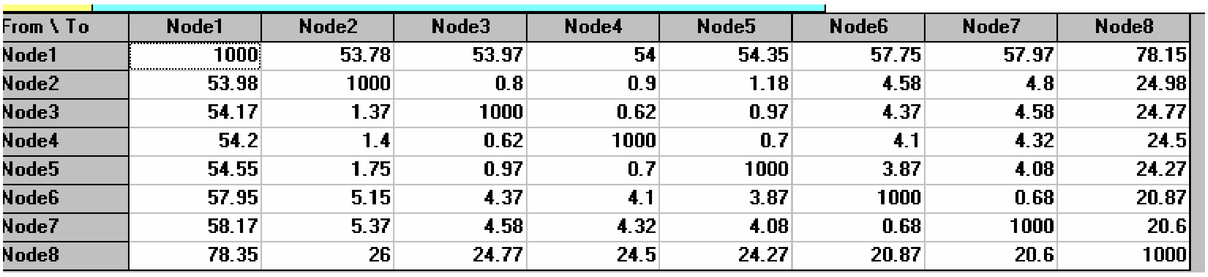


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node2	39.43	7	Node7	Node8	0.7
2	Node2	Node3	0.8	8	Node8	Node9	0.7
3	Node3	Node4	0.88	9	Node9	Node10	0.73
4	Node4	Node5	1	10	Node10	Node11	2.88
5	Node5	Node6	1.05	11	Node11	Node1	42.78
6	Node6	Node7	5.38				
	Total	Minimal	Traveling	Distance	or Cost	=	96.33
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-4 Hari ke-3

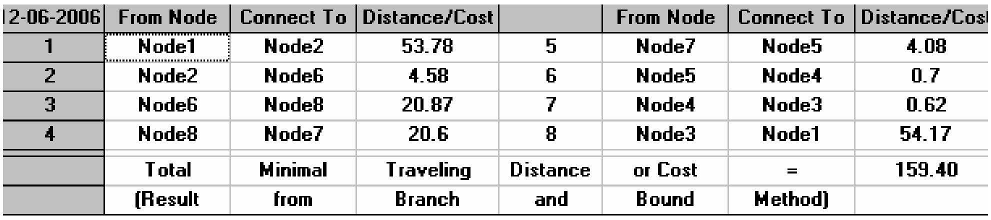
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7	Node8
Node1	1000	53.78	53.97	54	54.35	57.75	57.97	78.15
Node2	53.98	1000	0.8	0.9	1.18	4.58	4.8	24.98
Node3	54.17	1.37	1000	0.62	0.97	4.37	4.58	24.77
Node4	54.2	1.4	0.62	1000	0.7	4.1	4.32	24.5
Node5	54.55	1.75	0.97	0.7	1000	3.87	4.08	24.27
Node6	57.95	5.15	4.37	4.1	3.87	1000	0.68	20.87
Node7	58.17	5.37	4.58	4.32	4.08	0.68	1000	20.6
Node8	78.35	26	24.77	24.5	24.27	20.87	20.6	1000

Output

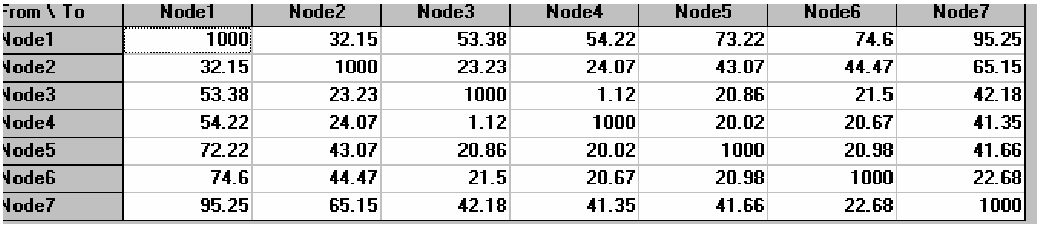


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node2	53.78	5	Node7	Node5	4.08
2	Node2	Node6	4.58	6	Node5	Node4	0.7
3	Node6	Node8	20.87	7	Node4	Node3	0.62
4	Node8	Node7	20.6	8	Node3	Node1	54.17
	Total	Minimal	Traveling	Distance	or Cost	=	159.40
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-4 Hari ke-4

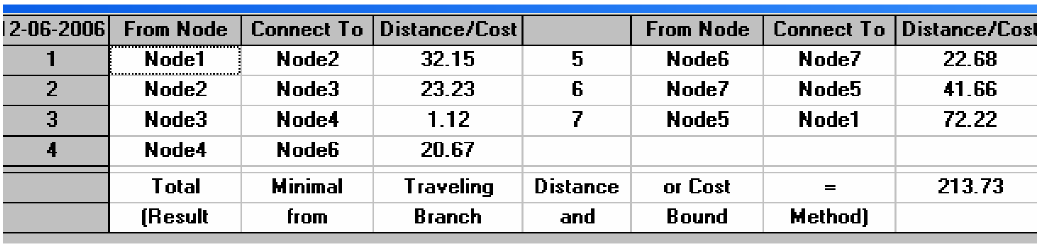
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5	Node6	Node7
Node1	1000	32.15	53.38	54.22	73.22	74.6	95.25
Node2	32.15	1000	23.23	24.07	43.07	44.47	65.15
Node3	53.38	23.23	1000	1.12	20.86	21.5	42.18
Node4	54.22	24.07	1.12	1000	20.02	20.67	41.35
Node5	72.22	43.07	20.86	20.02	1000	20.98	41.66
Node6	74.6	44.47	21.5	20.67	20.98	1000	22.68
Node7	95.25	65.15	42.18	41.35	41.66	22.68	1000

Output

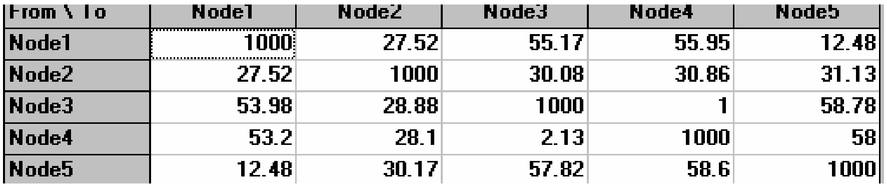


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node2	32.15	5	Node6	Node7	22.68
2	Node2	Node3	23.23	6	Node7	Node5	41.66
3	Node3	Node4	1.12	7	Node5	Node1	72.22
4	Node4	Node6	20.67				
	Total	Minimal	Traveling	Distance	or Cost	=	213.73
	(Result	from	Branch	and	Bound	Method)	

Minggu ke-4 Hari ke-5

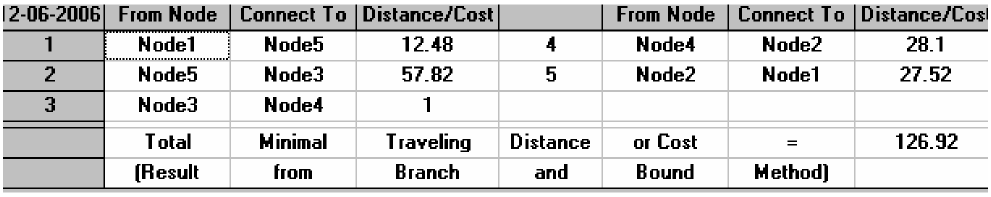
TSP (Branch and Bound Method)

Input



From \ To	Node1	Node2	Node3	Node4	Node5
Node1	1000	27.52	55.17	55.95	12.48
Node2	27.52	1000	30.08	30.86	31.13
Node3	53.98	28.88	1000	1	58.78
Node4	53.2	28.1	2.13	1000	58
Node5	12.48	30.17	57.82	58.6	1000

Output

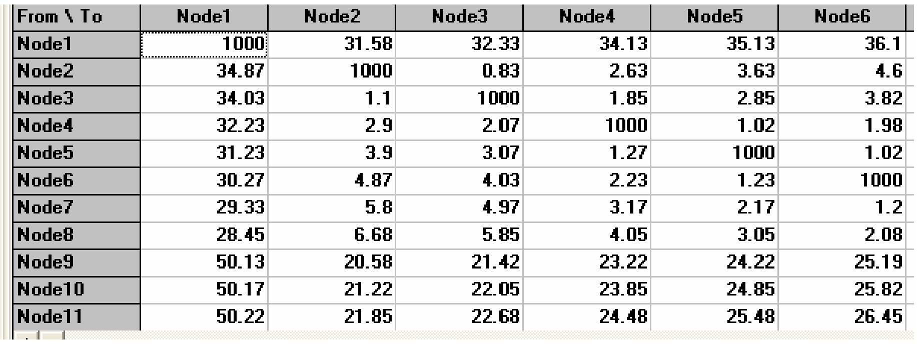


12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node5	12.48	4	Node4	Node2	28.1
2	Node5	Node3	57.82	5	Node2	Node1	27.52
3	Node3	Node4	1				
	Total	Minimal	Traveling	Distance	or Cost	=	126.92
	(Result	from	Branch	and	Bound	Method)	

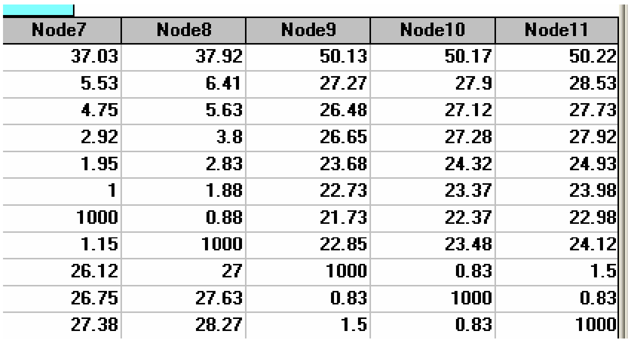
Minggu ke-4 Hari ke-6

TSP (Branch and Bound Method)

Input

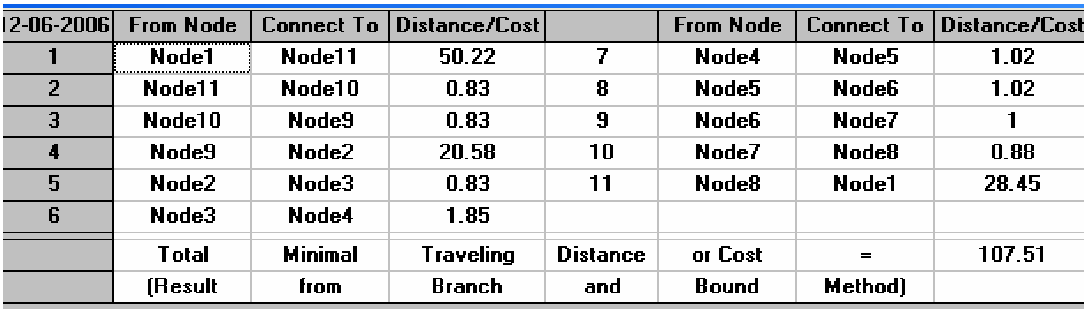


From \ To	Node1	Node2	Node3	Node4	Node5	Node6
Node1	1000	31.58	32.33	34.13	35.13	36.1
Node2	34.87	1000	0.83	2.63	3.63	4.6
Node3	34.03	1.1	1000	1.85	2.85	3.82
Node4	32.23	2.9	2.07	1000	1.02	1.98
Node5	31.23	3.9	3.07	1.27	1000	1.02
Node6	30.27	4.87	4.03	2.23	1.23	1000
Node7	29.33	5.8	4.97	3.17	2.17	1.2
Node8	28.45	6.68	5.85	4.05	3.05	2.08
Node9	50.13	20.58	21.42	23.22	24.22	25.19
Node10	50.17	21.22	22.05	23.85	24.85	25.82
Node11	50.22	21.85	22.68	24.48	25.48	26.45

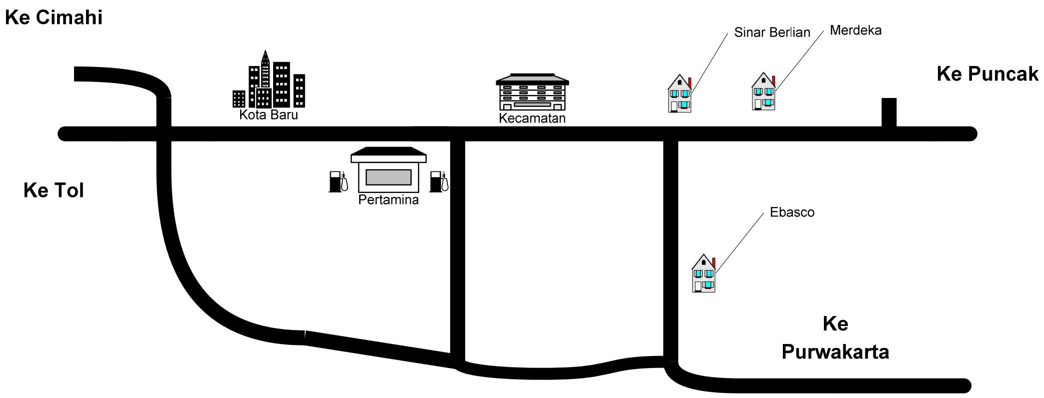


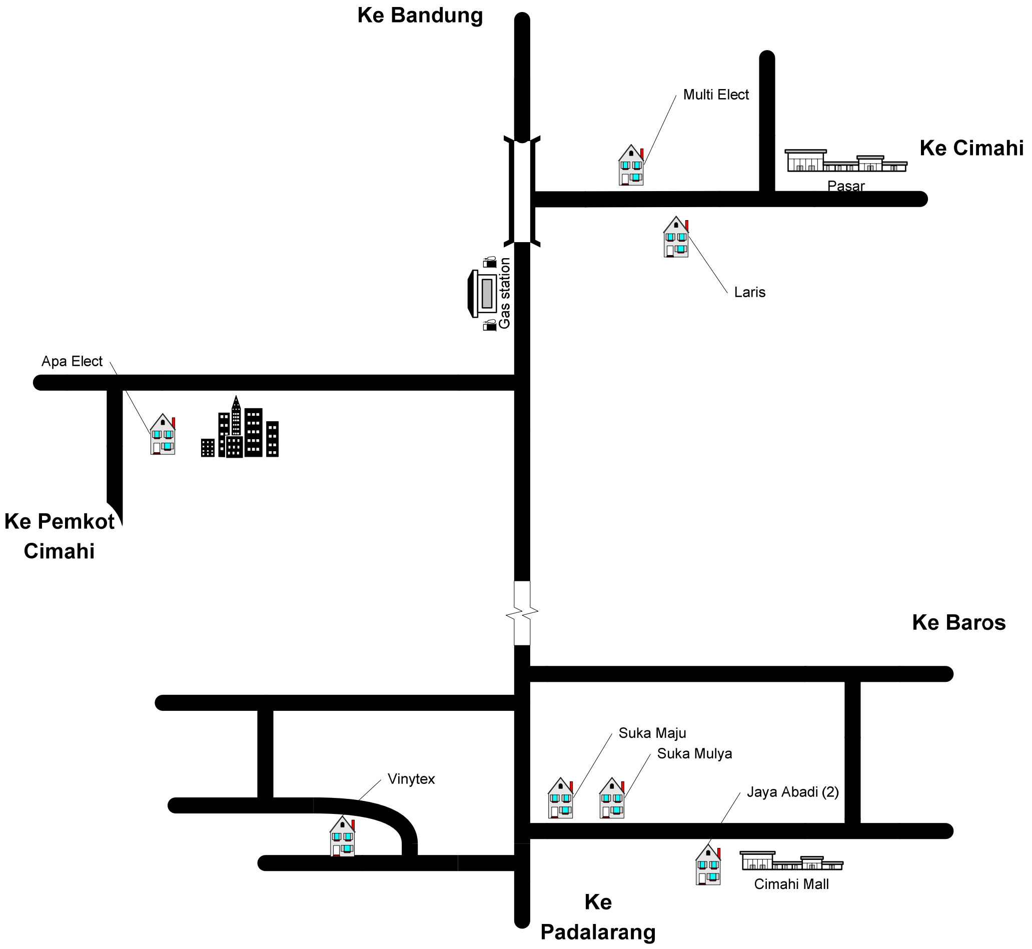
Node7	Node8	Node9	Node10	Node11
37.03	37.92	50.13	50.17	50.22
5.53	6.41	27.27	27.9	28.53
4.75	5.63	26.48	27.12	27.73
2.92	3.8	26.65	27.28	27.92
1.95	2.83	23.68	24.32	24.93
1	1.88	22.73	23.37	23.98
1000	0.88	21.73	22.37	22.98
1.15	1000	22.85	23.48	24.12
26.12	27	1000	0.83	1.5
26.75	27.63	0.83	1000	0.83
27.38	28.27	1.5	0.83	1000

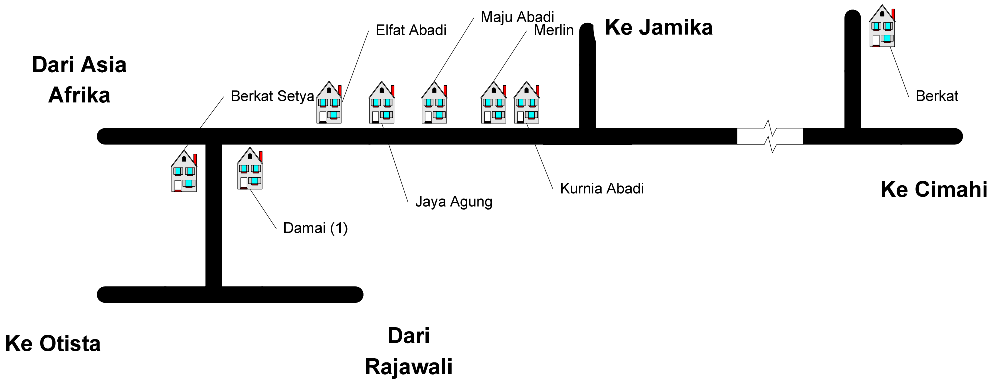
Output

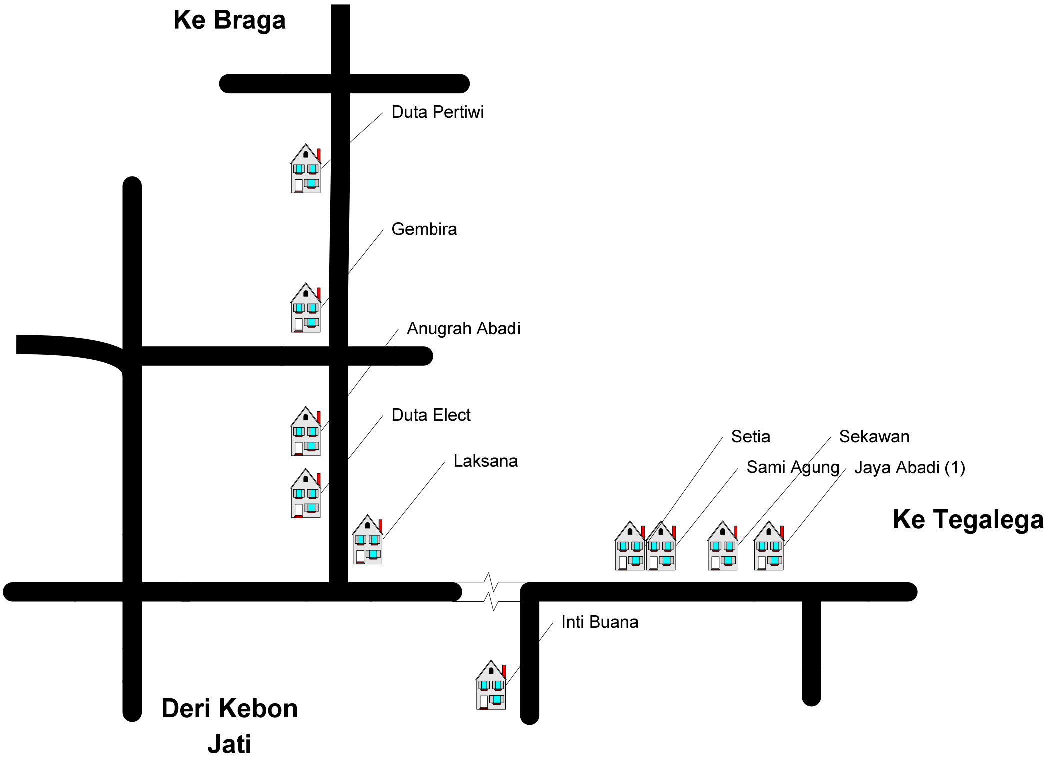


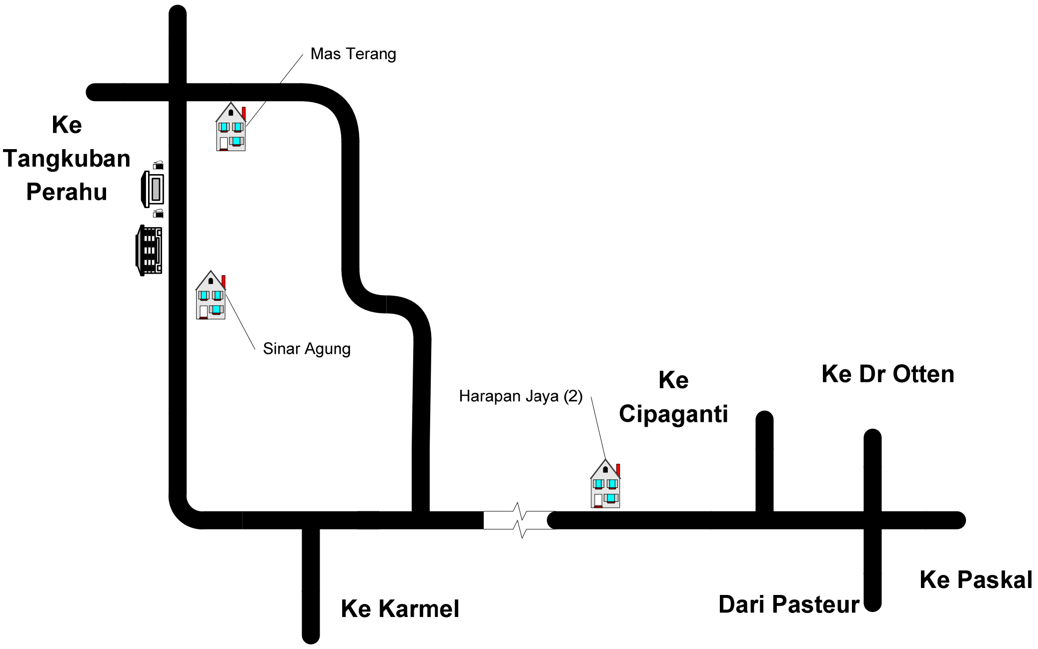
12-06-2006	From Node	Connect To	Distance/Cost		From Node	Connect To	Distance/Cost
1	Node1	Node11	50.22	7	Node4	Node5	1.02
2	Node11	Node10	0.83	8	Node5	Node6	1.02
3	Node10	Node9	0.83	9	Node6	Node7	1
4	Node9	Node2	20.58	10	Node7	Node8	0.88
5	Node2	Node3	0.83	11	Node8	Node1	28.45
6	Node3	Node4	1.85				
	Total	Minimal	Traveling	Distance	or Cost	=	107.51
	(Result	from	Branch	and	Bound	Method)	

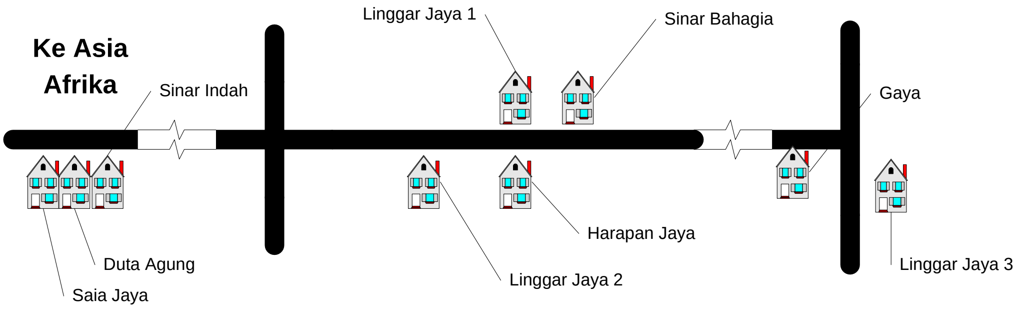

Ke Cimahi
Kota Baru
Kecamatan
Sinar Berlian
Merdeka
Ke Puncak
Ke Tol
Pertamina
Ebasco
Ke
Purwakarta

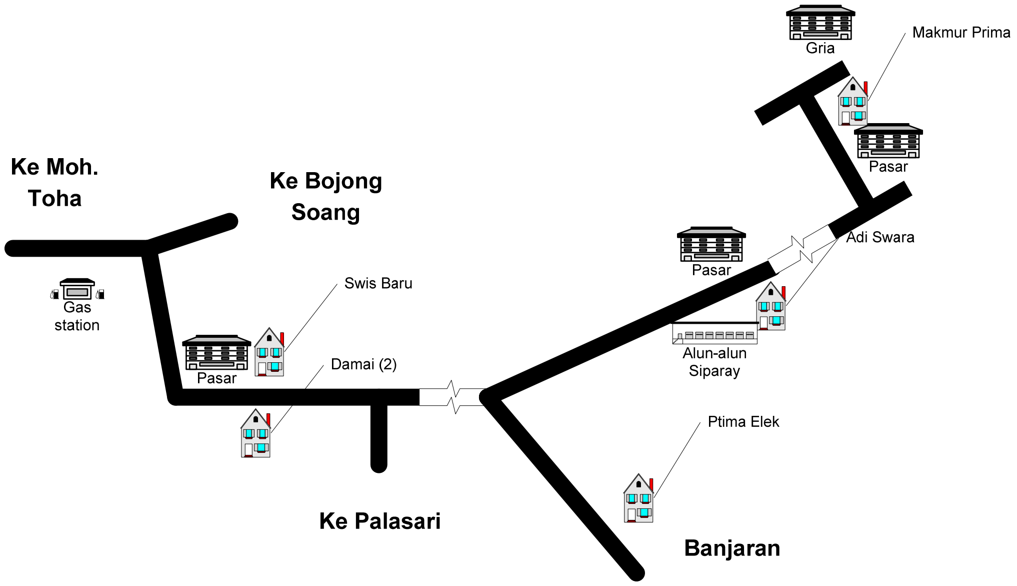

Ke Bandung
Multi Elect
Ke Cimahi
Pasar
Laris
Gas station
Apa Elect
Ke Pemkot
Cimahi
Ke Baros
Suka Maju
Suka Mulya
Vinytex
Jaya Abadi (2)
Cimahi Mall
Ke
Padalarang


Maju Abadi
Elfat Abadi
Merlin
Ke Jamika
Dari Asia Afrika
Berkat Setya
Berkat
Jaya Agung
Kurnia Abadi
Ke Cimahi
Damai (1)
Ke Otista
Dari Rajawali


Ke Braga
Duta Pertiwi
Gembira
Anugrah Abadi
Duta Elect
Laksana
Setia
Sekawan
Sami Agung
Jaya Abadi (1)
Ke Tegalega
Inti Buana
Deri Kebon Jati


Mas Terang
Ke
Tangkuban
Perahu
Sinar Agung
Harapan Jaya (2)
Ke
Cipaganti
Ke Dr Otten
Ke Karmel
Dari Pasteur
Ke Paskal


Ke Asia
Afrika
Sinar Indah
Linggar Jaya 1
Sinar Bahagia
Gaya
Harapan Jaya
Linggar Jaya 3
Linggar Jaya 2
Duta Agung
Saia Jaya


Gria
Makmur Prima
Pasar
Ke Moh. Toha
Ke Bojong Soang
Adi Swara
Pasar
Swis Baru
Gas station
Alun-alun Siparay
Pasar
Damai (2)
Ptima Elek
Ke Palasari
Banjaran