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1  #include<stdio.h>
2  #include<process.h>
3
4  int cost[10][10],min,i,j,count,k,u,v,parent[10],t[10][10],n,sum=0;
5  void union_ij(int i,int j)
6  {
7      if(i<j)
8      {
9          parent[j]=i;
10     }
11     else
12     {
13         parent[i]=j;
14     }
15 }
16
17 int find(int v)
18 {
19     while(parent[v]!=v)
20     {
21         v=parent[v];
22     }
23     return v;
24 }
25
26 void kruskals()
27 {
28     count=0;
29     k=0;
30     sum=0;
31     for (i=0;i<n;i++)
32     {
33         parent[i]=i;
34     }
35     while (count!=(n-1))
36     {
37         min=999;
38         for (i=0;i<n;i++)

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38     for (i=0;i<n;i++)
39     {
40         for (j=0;j<n;j++)
41         {
42             if (cost[i][j]<min && cost[i][j]!=0)
43             {
44                 min=cost[i][j];
45                 u=i;
46                 v=j;
47             }
48         }
49     }
50     i=find(u);
51     j=find(v);
52     if(i==j)
53     {
54         printf("Vertices forming cycle: %d and %d\n",u,v);
55     }
56     if (i!=j)
57     {
58         t[k][0]=u;
59         t[k][1]=v;
60         k++;
61         count++;
62         sum=sum+cost[u][v];
63         union_ij(i,j);
64     }
65     cost[u][v]=cost[v][u]=999;
66 }
67 printf("Minimum spanning tree:\n");
68 for (i=0;i<k;i++)
69 {
70     printf("%d-->%d  ",t[i][0],t[i][1]);
71 }
72 printf("\nTotal cost=%d\n",sum);
73 }
74
75 int main()

```

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53 {
54     printf("Vertices forming cycle: %d and %d\n",u,v);
55 }
56 if (i!=j)
57 {
58     t[k][0]=u;
59     t[k][1]=v;
60     k++;
61     count++;
62     sum=sum+cost[u][v];
63     union_ij(i,j);
64 }
65 cost[u][v]=cost[v][u]=999;
66 }
67 printf("Minimum spanning tree:\n");
68 for (i=0;i<k;i++)
69 {
70     printf("%d-->%d  ",t[i][0],t[i][1]);
71 }
72 printf("\nTotal cost=%d\n",sum);
73 }
74
75 int main()
76 {
77     printf("Enter the No: of vertices: ");
78     scanf("%d",&n);
79     printf("Enter the Cost of adjacency matrix:\n");
80     for (i=0;i<n;i++)
81     {
82         for (j=0;j<n;j++)
83         {
84             scanf("%d",&cost[i][j]);
85         }
86     }
87     kruskals();
88     return 0;
89 }
90

```

C:\WINDOWS\SYSTEM32\cmd.exe

```
Enter the No: of vertices: 5
Enter the Cost of adjacency matrix:
0 10 14 999 999
10 0 999 16 999
14 999 0 12 18
999 16 12 0 999
999 999 18 999 0
Vertices forming cycle: 1 and 3
Minimum spanning tree:
0-->1  2-->3  0-->2  2-->4
Total cost=54
```

(program exited with code: 0)

Press any key to continue . . .