

15. Find Minimum Cost Spanning Tree of a given undirected graph using Kruskals algorithm.

Program:

```
#include<stdio.h>
#include<conio.h>
void kruskals();
int c[10][10],n;
void main()
{
    int i,j;

    printf("Enter the no. of vertices:");
    scanf("%d",&n);
    printf("Enter the cost matrix:\n");
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=n;j++)
        {
            scanf("%d",&c[i][j]);
        }
    }
    kruskals();
}

void kruskals()
{
    int i,j,u,v,a,b,min;
    int ne=0,mincost=0;
    int parent[10];
    printf("The edges included in MST are:");
    for(i=1;i<=n;i++)
    {
        parent[i]=0;
    }
    while(ne!=n-1)
    {
        min=9999;
        for(i=1;i<=n;i++)
        {
            for(j=1;j<=n;j++)
            {
                if(c[i][j]<min)
                {
                    min=c[i][j];
                    u=a=i;
                    v=b=j;
                }
            }
        }
        while(parent[u]!=0)
        {
            u=parent[u];
        }
        while(parent[v]!=0)
        {
            v=parent[v];
        }

        if(u!=v)
        {
            printf("\n%d--->%d=%d\n",a,b,min);
```

```

parent[v]=u;
ne=ne+1;
mincost=mincost+min;
}
c[a][b]=c[b][a]=9999;
}
printf("\nMincost=%d",mincost);
}

```

Output Screenshot:

```

D:\ADA\labs\ada_lab\kruskal.exe
9999      1      9999      6      9999      4
9999      6      9999      6      9999      8      5
      6      9999      9999      8      9999      2      9999
      5      4      4      5      2
The edges included in MST are:
2--->3=1
5--->6=2
1--->2=3
2--->6=4
4--->6=5
Mincost=15
Process returned 11 (0xB) execution time : 22.633 s
Press any key to continue.

```