

LAB-10

Kruskal.c

CODE-

```
#include<stdio.h>
```

```
#include<conio.h>
```

```
#include<stdlib.h>
```

```
int i,j,k,a,b,u,v,n,ne=1;
```

```
int min,mincost=0,cost[9][9],parent[9];
```

```
int find(int);
```

```
int uni(int,int);
```

```
void main()
```

```
{
```

```
    printf("\nEnter the no. of vertices:");
```

```
    scanf("%d",&n);
```

```
    printf("\nEnter the cost adjacency matrix:\n");
```

```
    for(i=1;i<=n;i++)
```

```
    {
```

```

    for(j=1;j<=n;j++)
    {
        scanf("%d",&cost[i][j]);
        if(cost[i][j]==0)
            cost[i][j]=999;
    }
}

printf("The edges of Minimum Cost Spanning Tree
are\n");

while(ne < n)
{
    for(i=1,min=999;i<=n;i++)
    {
        for(j=1;j <= n;j++)
        {
            if(cost[i][j] < min)
            {

```

```

        min=cost[i][j];

        a=u=i;

        b=v=j;

    }

}

}

u=find(u);

v=find(v);

if(uni(u,v))

{

    printf("edge (%d,%d) =%d\n",a,b,min);

    ne++;

    mincost +=min;

}

cost[a][b]=cost[b][a]=999;

}

printf("\n\tMinimum cost = %d\n",mincost);

```

```
        getch();
    }
    int find(int i)
    {
        while(parent[i])
            i=parent[i];
        return i;
    }
    int uni(int i,int j)
    {
        if(i!=j)
        {
            parent[j]=i;
            return 1;
        }
        return 0;
    }
```

OUTPUT-

```
Enter the no. of vertices:5

Enter the cost adjacency matrix:
0 10 14 999 999
10 0 999 16 999
14 999 0 12 18
16 999 999 0 999
999 18 999 999 0

The edges of Minimum Cost Spanning Tree are
edge (1,2) =10
edge (3,4) =12
edge (1,3) =14
edge (3,5) =18

        Minimum cost = 54

...Program finished with exit code 0
Press ENTER to exit console.
```