

Experiment 7: To implement Kruskal's MST Algorithm using Greedy Method

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()

{

    clrscr();

    printf("\n\tImplementation of Kruskal's algorithm\n");

    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("%d edge (%d,%d) =%d\n",ne++,a,b,min);
        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:

Implementation of Kruskal's algorithm

Enter the no. of vertices:4

Enter the cost adjacency matrix:

0 0 4 2 1 3

4 2 0 0 1 2

0 0 2 1 2 0

The edges of Minimum Cost Spanning Tree are

1 edge (2,1) =1

2 edge (1,4) =2

3 edge (3,4) =2

Minimum cost = 5

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