Kruskal’s Algorithm:

```
#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("\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: 6

Enter the cost adjacency matrix:
0 3 1 6 0 0
3 0 5 0 30 0
1 5 0 5 6 4
6 0 5 0 0 2
0 3 6 0 0 2
0 0 4 2 6 0
The edges of Minimum Cost Spanning Tree are
1 edge (1,3) =1
2 edge (4,6) =2
```

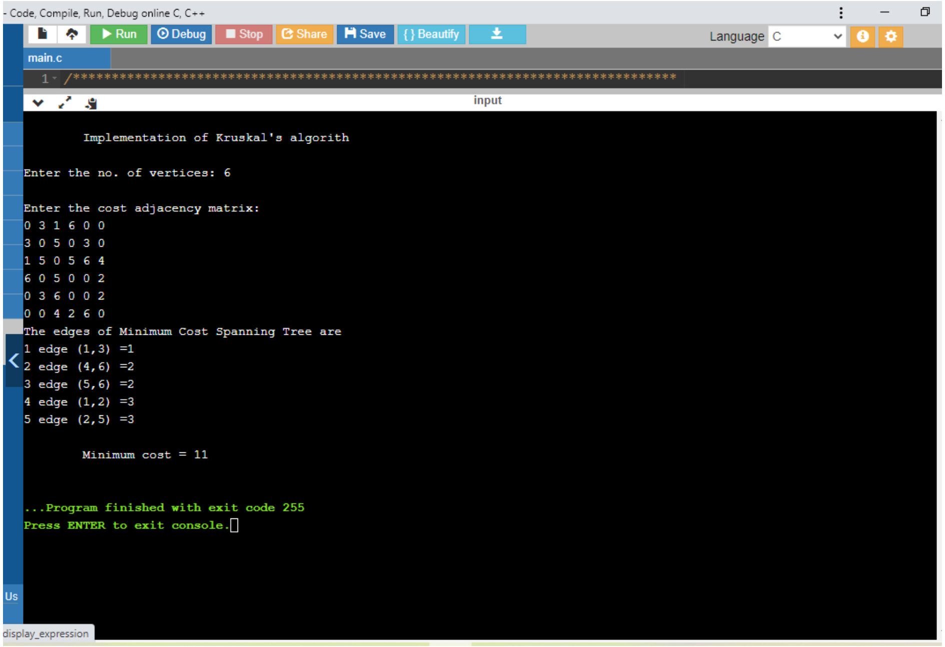
3 edge (5,6) =2

4 edge (1,2) =3

5 edge (2,5) =3

Minimum cost = 11

SCREENSHOT OF OUTPUT:



```
        Implementation of Kruskal's algorith

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0 3 1 6 0 0
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The edges of Minimum Cost Spanning Tree are
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5 edge (2,5) =3

        Minimum cost = 11


...Program finished with exit code 255
Press ENTER to exit console.
```

PRIMS ALGORITM:

```
#include<stdio.h>

#include<conio.h>

int a,b,u,v,n,i,j,ne=1;
int visited[10]={0},min,mincost=0,cost[10][10];

void main()

{

        printf("\nEnter the number of nodes:");

        scanf("%d",&n);

        printf("\nEnter the 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;

        }
```

```
visited[1]=1;
printf("\n");
while(ne < n)
{
    for(i=1,min=999;i<=n;i++)
    for(j=1;j<=n;j++)
    if(cost[i][j]< min)
    if(visited[i]!=0)
    {
        min=cost[i][j];
        a=u=i;
        b=v=j;
    }
    if(visited[u]==0 || visited[v]==0)
```

```
        {

            printf("\n Edge %d:(%d %d) cost:%d",ne++,a,b,min);

            mincost+=min;

            visited[b]=1;

        }

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

    }

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

    getch();

}
```

OUTPUT:

```
Enter the number of nodes:6

Enter the adjacency matrix:
0 3 1 6 0 0
```

3 0 5 0 3 0

1 ^] 5 0 5 6 4

6 0 5 0 0 2

0 3 6 0 0 2

0 0 4 2 6 0

Edge 1:(1 3) cost:1

Edge 2:(1 2) cost:3

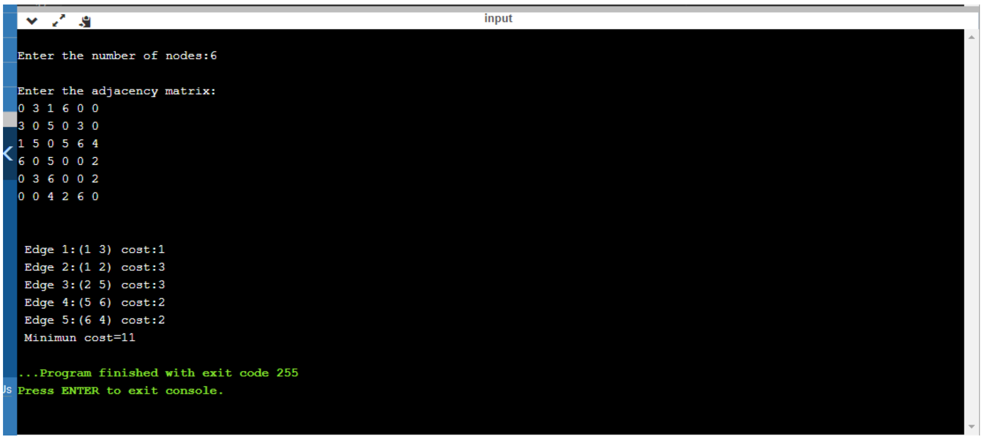
Edge 3:(2 5) cost:3

Edge 4:(5 6) cost:2

Edge 5:(6 4) cost:2

Minimun cost=11

SCREENSHOT OF OUTPUT:



```
Enter the number of nodes:6

Enter the adjacency matrix:
0 3 1 6 0 0
3 0 5 0 3 0
1 5 0 5 6 4
6 0 5 0 0 2
0 3 6 0 0 2
0 0 4 2 6 0


 Edge 1:(1 3) cost:1
 Edge 2:(1 2) cost:3
 Edge 3:(2 5) cost:3
 Edge 4:(5 6) cost:2
 Edge 5:(6 4) cost:2
 Minimun cost=11

...Program finished with exit code 255
Press ENTER to exit console.
```