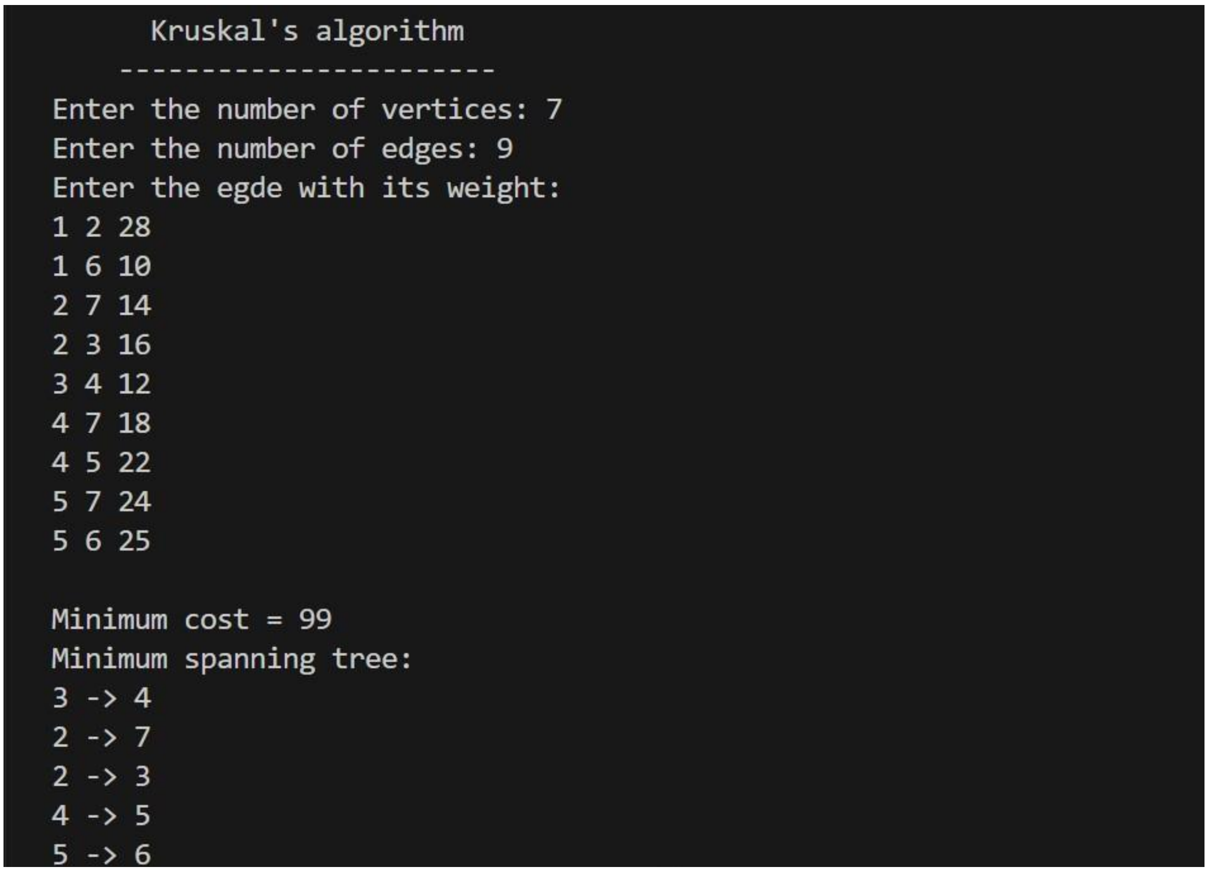
Kruskal’s algorithm

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

int n, m,
parent[100]; int
count = 0; int
ET[100][2]; int
cost[100][100]; int
sum = 0;

void unionn(int a, int b)
{     if (a < b)
parent[b] = a;     else
parent[a] = b;
}

int find(int a)
{     while (parent[a]
!= a)
    {         a = parent[a];
    }
return a;
```

```
}


void kruskal()
{      int k =
0;


    for (int i = 1; i <= n; i++)
    {
parent[i] = i;
    }


    while (count != n - 1)
    {         int min
= 999;        int u,
v;


        for (int i = 1; i <= n; i++)
        {             for (int j = 1; j
<= n; j++)
            {                  if (cost[i][j]
< min && cost[i][j] != 0)
                {                     min
= cost[i][j];                     u =
i;                     v = j;
                }
            }
        }
          int x =
find(u);         int y
= find(v);           if
(x !=
y)
        {
            ET[k][0] = u;
ET[k][1] = v;             k++;
count++;             sum +=
cost[u][v];
unionn(x, y);
        }

        cost[u][v] = cost[v][u] = 999;
    }
}

int main() {     printf("\n      Kruskal's
algorithm\n");     printf("    ---------------------
");     int u, v, w;     printf("\nEnter the
number of vertices: ");     scanf("%d", &n);

    for (int i = 1; i <= n; i++)
    {         for (int j = 1; j
<= n; j++)
        {            if (i ==
j)                cost[i][j] =
0;            else
cost[i][j] = 999;
        }
    }

    printf("Enter the number of edges: ");
scanf("%d", &m);

    printf("Enter the egde with its weight:
\n");     for (int i = 1; i <= m; i++)
    {
        scanf("%d%d%d", &u, &v, &w);
cost[u][v] = cost[v][u] = w;
    }

    kruskal();

    printf("\nMinimum cost = %d\n",
sum);

    printf("Minimum spanning
tree:\n");     for (int i = 1; i < count; i++)
    {
        printf("%d -> %d\n", ET[i][0], ET[i][1]);
    }
return 0;
}
```

OUTPUT:



```
        Kruskal's algorithm
      -----------------------
   Enter the number of vertices: 7
   Enter the number of edges: 9
   Enter the egde with its weight:
   1 2 28
   1 6 10
   2 7 14
   2 3 16
   3 4 12
   4 7 18
   4 5 22
   5 7 24
   5 6 25

   Minimum cost = 99
   Minimum spanning tree:
   3 -> 4
   2 -> 7
   2 -> 3
   4 -> 5
   5 -> 6
```