Kruskal program in C

// Online C compiler to run C program online

#include <stdio.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("Kruskal's algorithm in C\n");

printf("========================\n");

printf("Enter the no. of vertices:\n");

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

}

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

Kruskal's algorithm in C

========================

Enter the no. of vertices:

5

Enter the cost adjacency matrix:

0 1 2 0 1

1 0 3 0 1

2 3 0 6 5

0 0 6 0 0

1 1 5 0 0

The edges of Minimum Cost Spanning Tree are

1 edge (1,2) =1

2 edge (1,5) =1

3 edge (1,3) =2

4 edge (3,4) =6

Minimum cost = 10