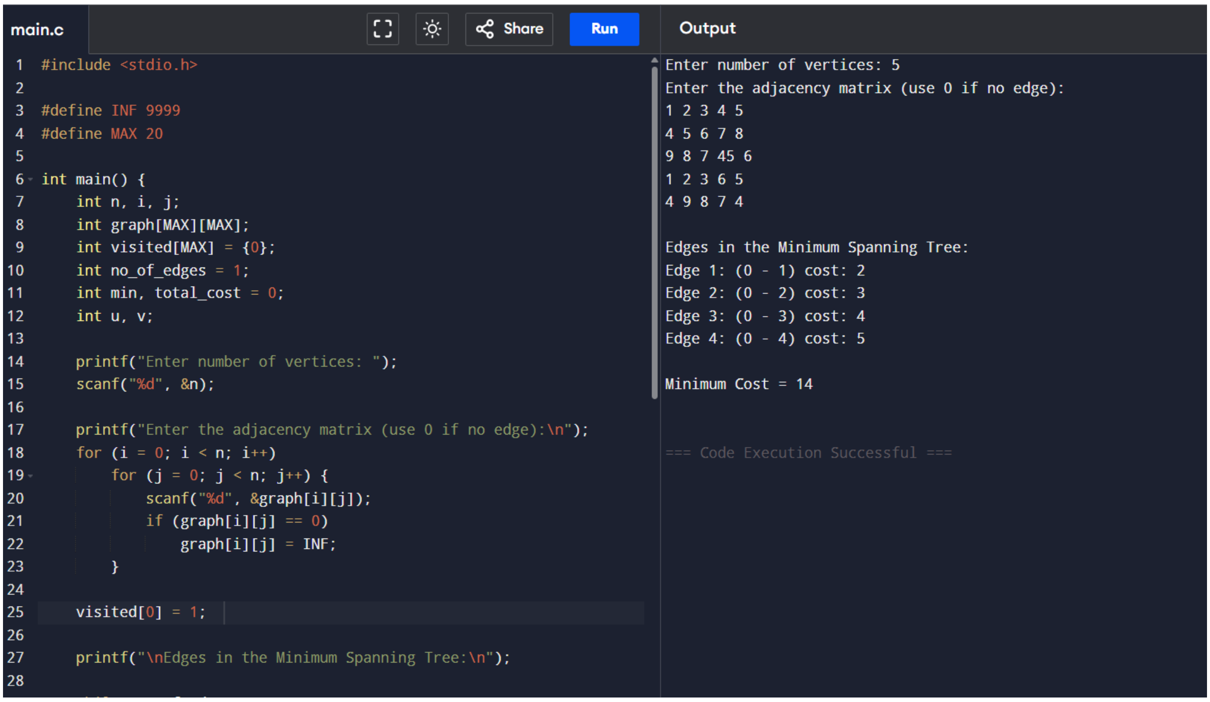
25.Implementation of Minimum Spanning Tree using Prim’s Algorithm

```
#include <stdio.h>
#define INF 9999
#define MAX 20
int main() {
    int n, i, j;
    int graph[MAX][MAX];
    int visited[MAX] = {0};
    int no_of_edges = 1;
    int min, total_cost = 0;
    int u, v;
    printf("Enter number of vertices: ");
    scanf("%d", &n);
    printf("Enter the adjacency matrix (use 0 if no edge):\n");
    for (i = 0; i < n; i++)
        for (j = 0; j < n; j++) {
            scanf("%d", &graph[i][j]);
            if (graph[i][j] == 0)
                graph[i][j] = INF;
        }
    visited[0] = 1;
    printf("\nEdges in the Minimum Spanning Tree:\n");
    while (no_of_edges < n) {
        min = INF;
        for (i = 0; i < n; i++) {
            if (visited[i]) {
                for (j = 0; j < n; j++) {
                    if (!visited[j] && graph[i][j] < min) {
                        min = graph[i][j];
                        u = i;
                        v = j;
                    }
                }
            }
        }
        printf("Edge %d: (%d - %d) cost: %d\n", no_of_edges, u, v, min);
        total_cost += min;
        visited[v] = 1;
        no_of_edges++;
    }
    printf("\nMinimum Cost = %d\n", total_cost);
    return 0;
}
```



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            if (graph[i][j] == 0)
                graph[i][j] = INF;
        }

    visited[0] = 1;

    printf("\nEdges in the Minimum Spanning Tree:\n");

```

```
Enter number of vertices: 5
Enter the adjacency matrix (use 0 if no edge):
1 2 3 4 5
4 5 6 7 8
9 8 7 45 6
1 2 3 6 5
4 9 8 7 4

Edges in the Minimum Spanning Tree:
Edge 1: (0 - 1) cost: 2
Edge 2: (0 - 2) cost: 3
Edge 3: (0 - 3) cost: 4
Edge 4: (0 - 4) cost: 5

Minimum Cost = 14


=== Code Execution Successful ===
```