Experiment No: 6

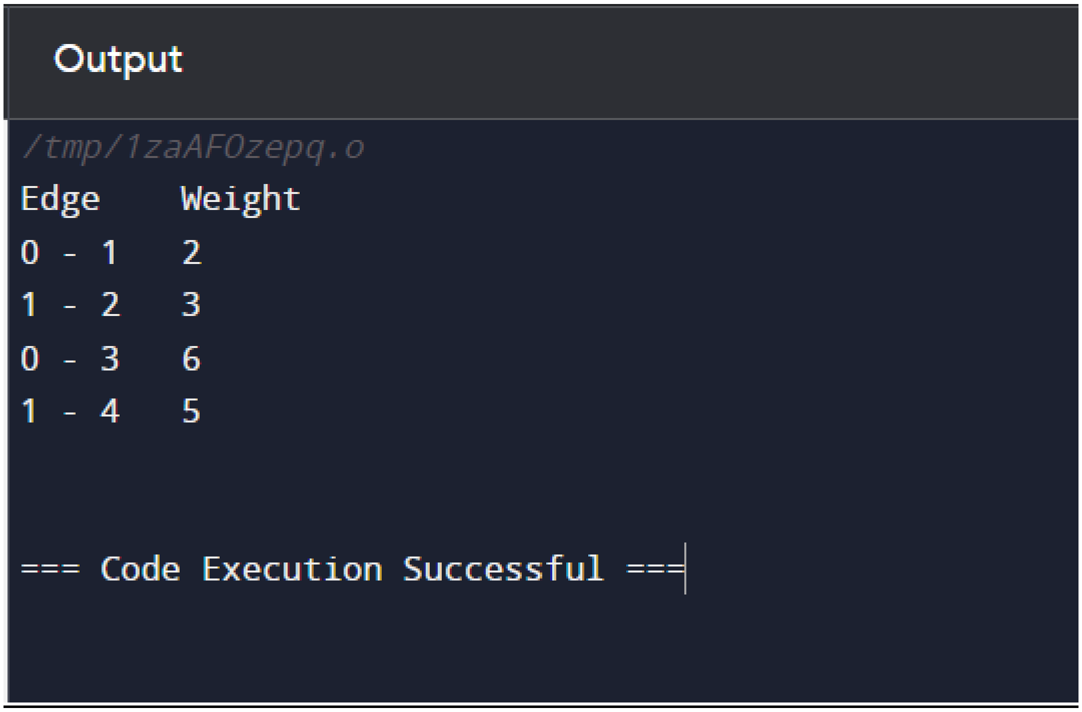
Prim’s MST Algorithm using Greedy Method.

CODE:

```
#include <limits.h>

#include <stdbool.h>

#include <stdio.h>

#define V 5

int minKey(int key[], bool mstSet[])

{

        int min = INT_MAX, min_index;

        for (int v = 0; v < V; v++)

                if (mstSet[v] == false && key[v] < min)

                        min = key[v], min_index = v;

        return min_index;

}

int printMST(int parent[], int graph[V][V])

{

        printf("Edge \tWeight\n");

        for (int i = 1; i < V; i++)

                printf("%d - %d \t%d \n", parent[i], i,

                        graph[i][parent[i]]);

}

void primMST(int graph[V][V])

{

        int parent[V];

        int key[V];

        bool mstSet[V];

        for (int i = 0; i < V; i++)
```

```
    Key[i] = INT_MAX, mstSet[i] = false;

    key[0] = 0;

    parent[0] = -1;

    for (int count = 0; count < V - 1; count++) {

    int u = minKey(key, mstSet);

    mstSet[u] = true;

    for (int v = 0; v < V; v++)

          if (graph[u][v] && mstSet[v] == false

    && graph[u][v] < key[v])

    parent[v] = u, key[v] = graph[u][v];

    }

    printMST(parent, graph);

}

int main()

{

    int graph[V][V] = { { 0, 2, 0, 6, 0 },

                                            { 2, 0, 3, 8, 5 },

                                            { 0, 3, 0, 0, 7 },

                                            { 6, 8, 0, 0, 9 },

                                            { 0, 5, 7, 9, 0 } };

    primMST(graph);

    return 0;

}
```

OUTPUT:



```
/tmp/1zaAF0zepq.o
Edge    Weight
0 - 1   2
1 - 2   3
0 - 3   6
1 - 4   5


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