**Program 14-Find minimum Cost Spanning Tree of a given undirected graph using Prim’s algorithm.**

#include <limits.h>

#include <stdbool.h>

#include <stdio.h>

// Number of vertices in the graph

#define V 4

int s;

// A utility function to find the vertex with

// minimum key value, from the set of vertices

// not yet included in MST

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

{

// Initialize min value

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;

}

// A utility function to print the

// constructed MST stored in parent[]

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]]);

int s =graph[i][parent[i]];

}

printf("%d",s);

}

// Function to construct and print MST for

// a graph represented using adjacency

// matrix representation

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

{

// Array to store constructed MST

int parent[V];

// Key values used to pick minimum weight edge in cut

int key[V];

// To represent set of vertices included in MST

bool mstSet[V];

// Initialize all keys as INFINITE

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

key[i] = INT\_MAX, mstSet[i] = false;

// Always include first 1st vertex in MST.

// Make key 0 so that this vertex is picked as first vertex.

key[0] = 0;

parent[0] = -1; // First node is always root of MST

// The MST will have V vertices

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

// Pick the minimum key vertex from the

// set of vertices not yet included in MST

int u = minKey(key, mstSet);

// Add the picked vertex to the MST Set

mstSet[u] = true;

// Update key value and parent index of

// the adjacent vertices of the picked vertex.

// Consider only those vertices which are not

// yet included in MST

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] = { { 0,10,11,0 },

{ 10,0,17,6},

{11,17,0,11 },

{0,6,11,0 },

};

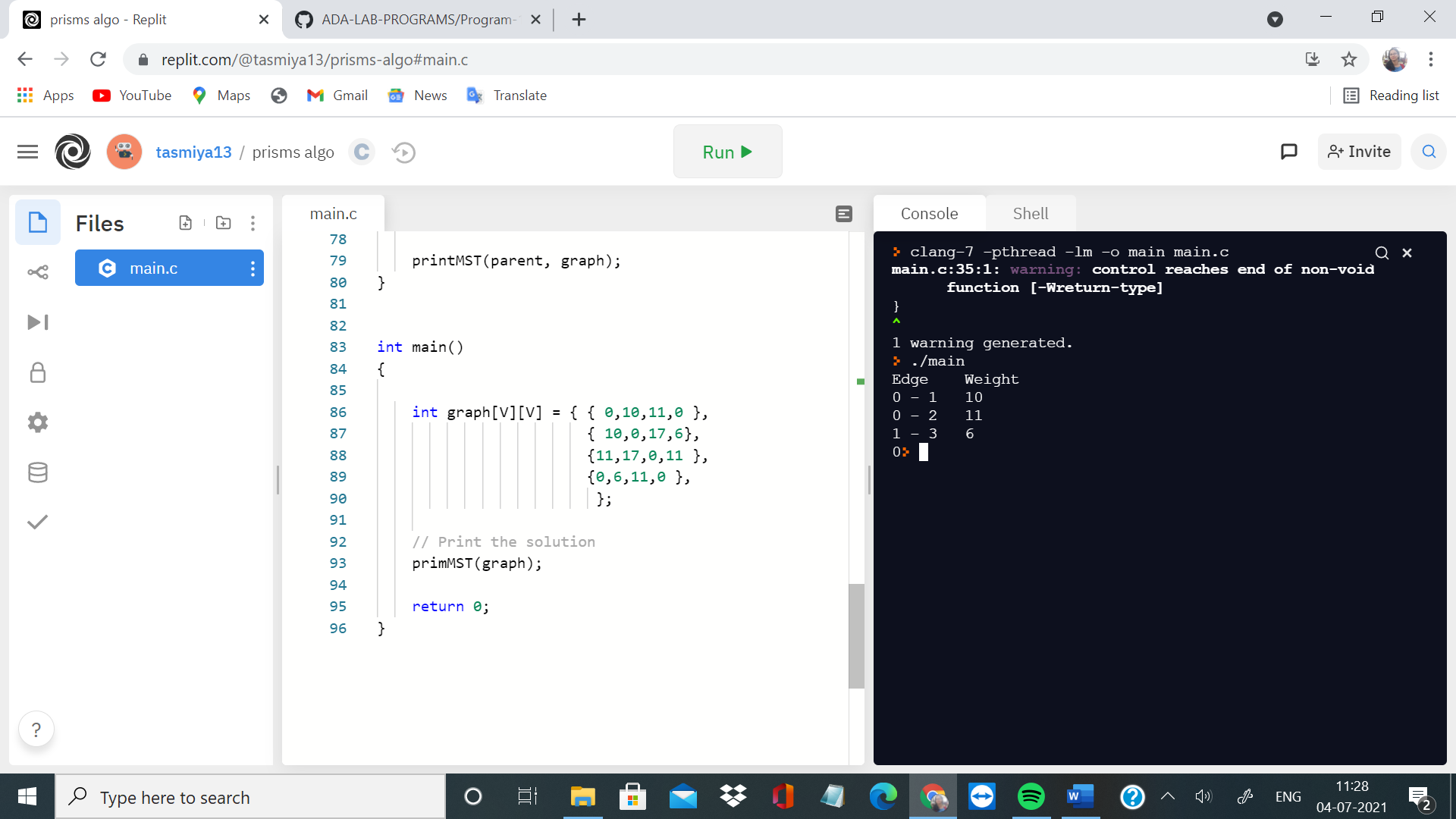
// Print the solution

primMST(graph);

return 0;

}

**OUTPUT:**

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