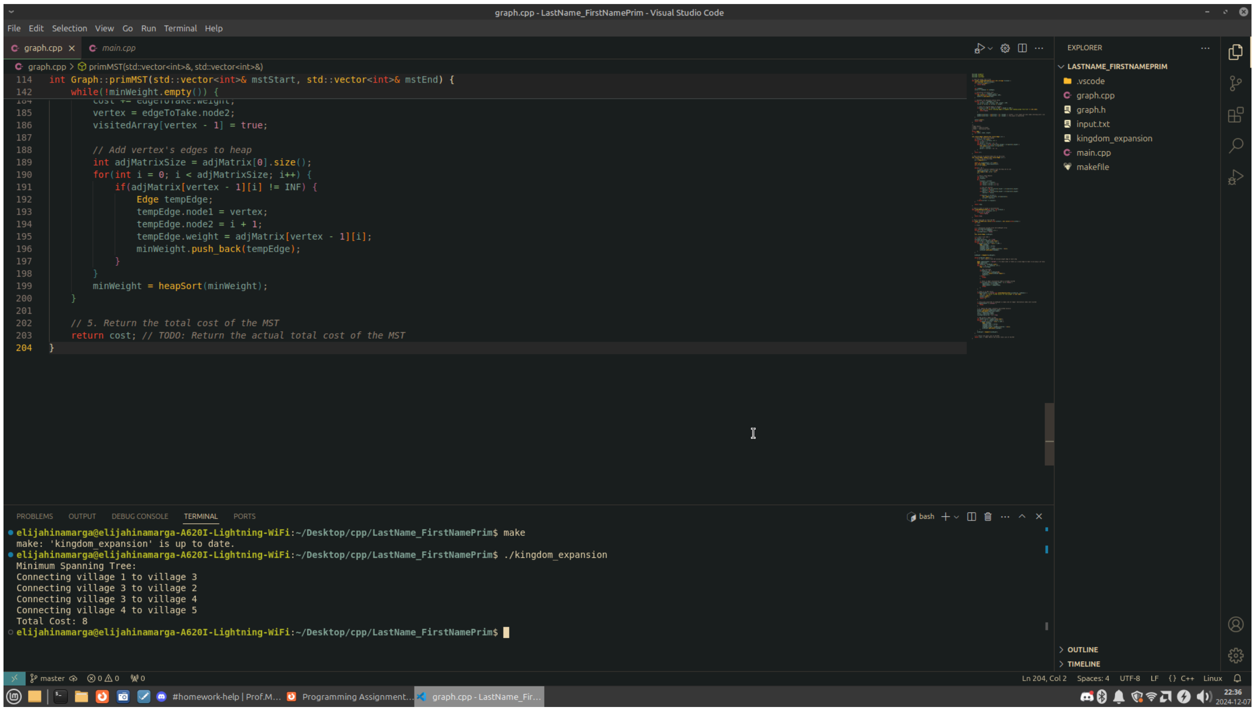
This is the program using the provided input.txt example


graph.cpp - LastName_FirstNamePrim - Visual Studio Code
File Edit Selection View Go Run Terminal Help
graph.cpp
main.cpp
graph.cpp > primMST(std::vector<int>&, std::vector<int>&)
EXPLORER
LASTNAME_FIRSTNAMEPRIM
.vscode
graph.cpp
graph.h
input.txt
kingdom_expansion
main.cpp
makefile
OUTLINE
TIMELINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
master
Ln 204, Col 2 Spaces: 4 UTF-8 LF C++ Linux
#homework-help | Prof.M...
Programming Assignment...
graph.cpp - LastName_Fir...
22:36
2024-12-07

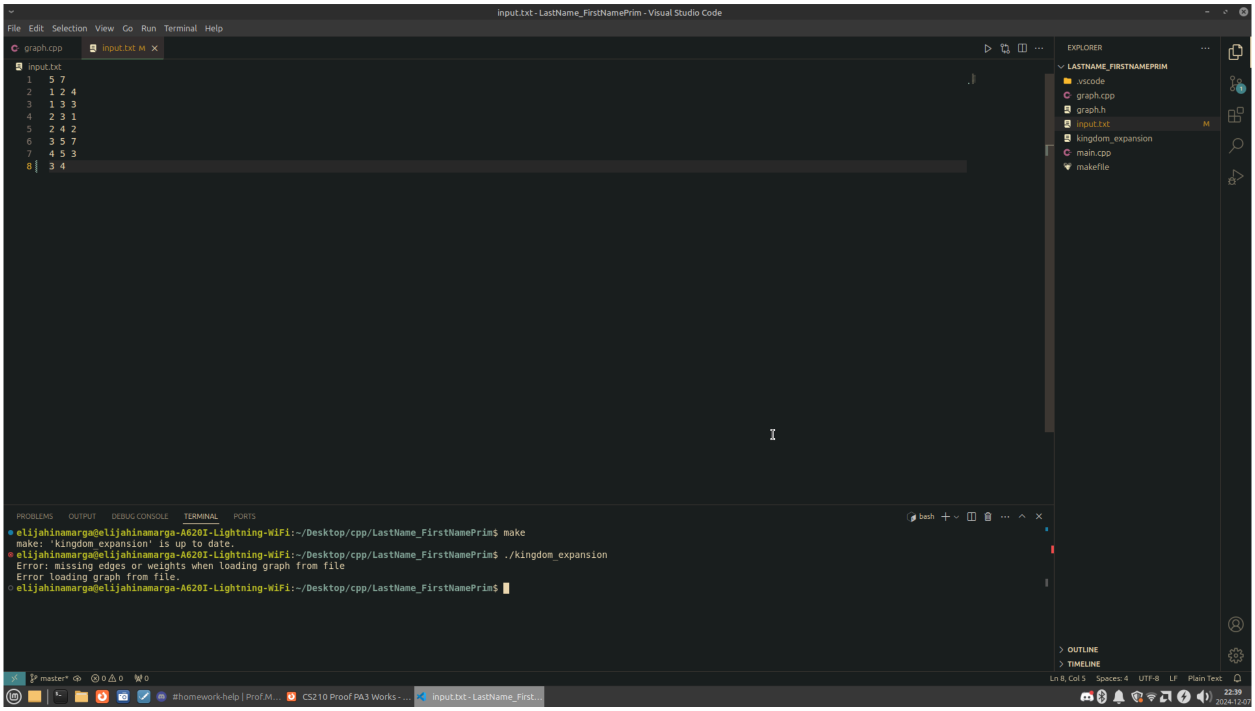
```cpp
int Graph::primMST(std::vector<int>& mstStart, std::vector<int>& mstEnd) {
    while(!minWeight.empty()) {
            cost += edgeToTake.weight;
            vertex = edgeToTake.node2;
            visitedArray[vertex - 1] = true;

            // Add vertex's edges to heap
            int adjMatrixSize = adjMatrix[0].size();
            for(int i = 0; i < adjMatrixSize; i++) {
                if(adjMatrix[vertex - 1][i] != INF) {
                    Edge tempEdge;
                    tempEdge.node1 = vertex;
                    tempEdge.node2 = i + 1;
                    tempEdge.weight = adjMatrix[vertex - 1][i];
                    minWeight.push_back(tempEdge);
                }
            }
            minWeight = heapSort(minWeight);
    }

    // 5. Return the total cost of the MST
    return cost; // TODO: Return the actual total cost of the MST
}
```

```
elijahinamarga@elijahinamarga-A620I-Lightning-WiFi:~/Desktop/cpp/LastName_FirstNamePrim$ make
make: 'kingdom_expansion' is up to date.
elijahinamarga@elijahinamarga-A620I-Lightning-WiFi:~/Desktop/cpp/LastName_FirstNamePrim$ ./kingdom_expansion
Minimum Spanning Tree:
Connecting village 1 to village 3
Connecting village 3 to village 2
Connecting village 3 to village 4
Connecting village 4 to village 5
Total Cost: 8
elijahinamarga@elijahinamarga-A620I-Lightning-WiFi:~/Desktop/cpp/LastName_FirstNamePrim$
```

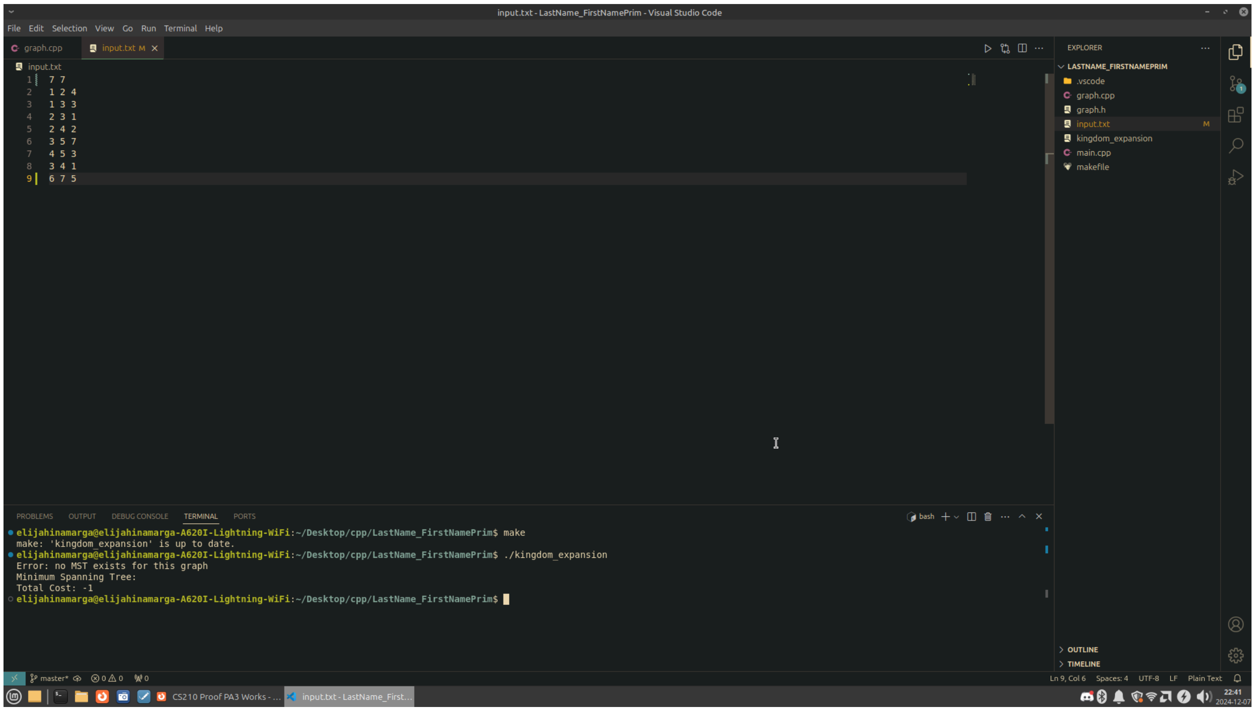
This is the program when there is a missing edge or weight


input.txt - LastName_FirstNamePrim - Visual Studio Code
File Edit Selection View Go Run Terminal Help
graph.cpp
input.txt M
input.txt
EXPLORER
LASTNAME_FIRSTNAMEPRIM
.vscode
graph.cpp
graph.h
input.txt
kingdom_expansion
main.cpp
makefile
OUTLINE
TIMELINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
master*
Ln 8, Col 5 Spaces: 4 UTF-8 LF Plain Text
#homework-help | Prof.M...
CS210 Proof PA3 Works - ...
input.txt - LastName_First...
22:39
2024-12-07

```
5 7
1 2 4
1 3 3
2 3 1
2 4 2
3 5 7
4 5 3
3 4
```

```
elijahinamarga@elijahinamarga-A620I-Lightning-WiFi:~/Desktop/cpp/LastName_FirstNamePrim$ make
make: 'kingdom_expansion' is up to date.
elijahinamarga@elijahinamarga-A620I-Lightning-WiFi:~/Desktop/cpp/LastName_FirstNamePrim$ ./kingdom_expansion
Error: missing edges or weights when loading graph from file
Error loading graph from file.
elijahinamarga@elijahinamarga-A620I-Lightning-WiFi:~/Desktop/cpp/LastName_FirstNamePrim$
```

This is the program when there is no MST for the graph



input.txt - LastName_FirstNamePrim - Visual Studio Code
File Edit Selection View Go Run Terminal Help
graph.cpp
input.txt M
EXPLORER
LASTNAME_FIRSTNAMEPRIM
.vscode
graph.cpp
graph.h
input.txt
kingdom_expansion
main.cpp
makefile
OUTLINE
TIMELINE
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
bash
master*
Ln 9, Col 6 Spaces: 4 UTF-8 LF Plain Text
CS210 Proof PA3 Works - ...
input.txt - LastName_First...
22:41
2024-12-07

input.txt

```
7 7
1 2 4
1 3 3
2 3 1
2 4 2
3 5 7
4 5 3
3 4 1
6 7 5
```

```
elijahinamarga@elijahinamarga-A620I-Lightning-WiFi:~/Desktop/cpp/LastName_FirstNamePrim$ make
make: 'kingdom_expansion' is up to date.
elijahinamarga@elijahinamarga-A620I-Lightning-WiFi:~/Desktop/cpp/LastName_FirstNamePrim$ ./kingdom_expansion
Error: no MST exists for this graph
Minimum Spanning Tree:
Total Cost: -1
elijahinamarga@elijahinamarga-A620I-Lightning-WiFi:~/Desktop/cpp/LastName_FirstNamePrim$
```