

```

vector <pedge> primUsingQueue(lgraph g, int u) {
    priority_queue <iPair, vector<iPair>, pairless> pq;
    vector <float> dist(g.size(), INT_MAX);
    vector <bool> selected(g.size());

    pq.push( iPair{ pedge{ u,u,0 }, vertex{ u,0 } });

    dist[u] = 0;

    vector <int> prev(g.size(), -1);
    vector<pedge> mst;
    // consider any node as the source node and the distance to other node
    while (!pq.empty()) {
        vertex s = pq.top().second;
        pedge e = pq.top().first;
        pq.pop();
        if (selected[s.u]) {
            continue;
        }
        selected[s.u] = true;
        // for all edges from s.u
        for (ledge e : g[s.u]) {
            float w = e.w;
            if (w < dist[e.v]) {
                dist[e.v] = w;
                pq.push(make_pair(pedge{ s.u, e.v, w }, vertex{ e.v,w
            }

            prev[e.v] = s.u;

        }
    }
    for (int i = 0; i < selected.size(); i++) {
        mst.push_back(pedge{ prev[i], i , dist[i] });
    }
    return mst;
}

void printPrime(vector <pedge> mst) {
    for (int i = 1; i < mst.size(); i++) {
        cout << mst[i].u << "----" << mst[i].v << "----" << mst[i].w << endl;
    }
}

```

```
Microsoft Visual Studio Debug
[0]: [1 2.2] [4 3.2]
[1]: [0 2.2] [2 1.2]
[2]: [1 1.2] [5 3.4] [3 6.2] [7 5.2]
[3]: [2 6.2] [6 1.4] [7 4.3]
[4]: [0 3.2] [5 4.2]
[5]: [4 4.2] [2 3.4] [6 4.8]
[6]: [5 4.8] [3 1.4] [7 1.2]
[7]: [2 5.2] [3 4.3] [6 1.2]
2---1---1.2
1---2---1.2
6---3---1.4
0---4---3.2
2---5---3.4
7---6---1.2
6---7---1.2

D:\OU\NĂM 2\giaithuat2\graph\x64\Debug\graph.exe (process 18728) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

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