

CSE 208
Offline 1: MST
Date: 01/12/2021

You're trying to figure out the best way to arrange for internet access in your small city. There are N ($3 \leq N \leq 1000$) households in your city connected by M ($N \leq M \leq 10000$) various roads and you can walk between any two houses in the town by traversing some sequence of roads. However, you've got a limited budget and have determined that the **cheapest way** to arrange for internet access is to build some fiber-optic cables along existing roadways. You have a list of the costs of laying fiber-optic cable down along any particular road, and want to figure out how much money you'll need to successfully complete the project—meaning that, at the end, **every house will be connected** along some sequence of fiber-optic cables.

Luckily, as a CSE student you know Prim's and Kruskal's algorithms.

Task 1: Implement Prim's algorithm using priority queue and Kruskal's algorithms using disjoint sets.

Sample input (file mst.in)

```
6 9
0 1 1.0
1 3 5.0
3 0 3.0
3 4 1.0
1 4 1.0
1 2 6.0
5 2 2.0
2 4 4.0
5 4 4.0
```

Output:

Cost of the minimum spanning tree : 9.0

List of edges selected by Prim's: {(0,1),(1,4),(4,3),(4,5),(5,2)}

List of edges selected by Kruskal's: {(0,1),(1,4),(4,3),(5,2),(4,5)}

Deadline: 07/12/2021 11:55 pm.