IT LAB - M.TECH CS
Lab - 6

September 24, 2019

Implementation of Prim's Algorithm:

1. Write a program to implement Prim's algorithm to obtain Minimum spanning tree (MST) from a weighted undirected graph. Implement the algorithm using a function for Delete_Min. Implement Delete_min in two ways: (i) Use simple array implementation for select min (ii) Use heaps for select min. The rest of the algorithm has to be the same.

2. The program is run using command line arguments with the first argument as the input file name and the second argument as the output file name.
For example: ./Prims input.txt output.txt

Input: Input is given in a file with first line containing number of vertices followed by the graph given as an edge list. Assume weights given are positive.
n
$u \quad v \quad w(u,v)$

Output: The MST (as an edge list) and its weight along with the time taken by the two implementations.
Example:
Input:
5
1 2 2
1 4 1
1 5 2
2 3 1
2 5 3
3 4 1
3 5 4
4 5 4

Output:
1 4
3 4
2 3
1 5
Weight=5
Time taken by simple array =
Time taken by heap =

Submit the assignments in the google class room page