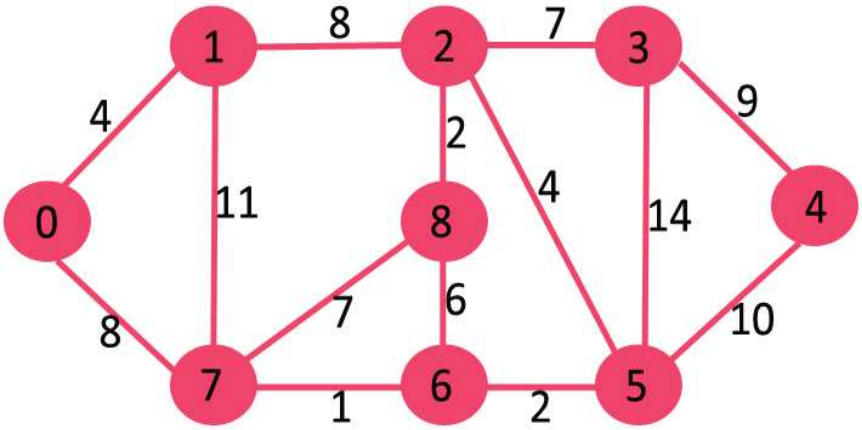
January 2020 CSE208: Data Structures and Algorithms II Sessional
Offline on Fibonacci Heap

You are to implement Dijkstra's algorithm for Single Source Shortest Path Problem with a priority queue and make a comparison between (i) binary heap implementation and (ii) fibonacci heap implementation.

Input: There are two input files.

The first line of the first input file contains the number of vertices ***n*** and the number of edges ***m***, followed by ***m*** lines each containing origin ***u***, end ***v*** and weight ***w*** of an edge of the undirected graph.



The first few lines of the first input file will be

9 14

0 1 4

0 7 8

1 7 11

1 2 8

… … …

The second input file contains the number of source-destination pairs ***k***, followed by ***k*** lines each containing source vertex ***s*** and the destination vertex ***t***.

The second input file:

2

0 4

4 8

Output: The output file has ***k*** lines, each containing the path length, the path cost, the execution time of Dijkstra's algorithm with binary heap, the execution time of Dijkstra's algorithm with fibonacci heap.

The output file:

4	21	??	??
3	16	??	??