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CSCI 570 - SPRING 2018 - HW 8

1.) Graded Problems :

1.)

Let,

$u \in V$

and $k = \min_{v \in V,\, v \neq u} C_{u,v}$

Set all edge capacities to 1. Implement Edmonds Karp (shortest pipes) using BFS and send a flow of 1 through this path.

Complexity : $n-1$: flow computations

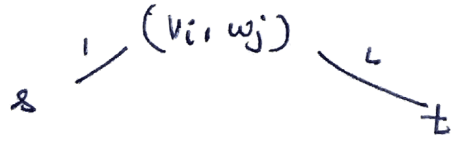
m^2 : Each flow

$\Theta(m^2 n)$

2.)

Client i : v_i

Base station j : w_j

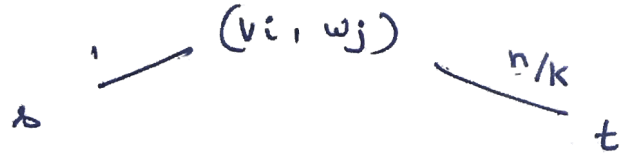


Feasible connection exists, if there is a s-t flow. Both capacity & conservation property is preserved.

Complexity : $O(n+k)$ nodes, $O(nk)$ edges } Max-flow algorithm

3.) Patient : v_i

Hospital : w_j



Feasible connection exist, if there is a valid s-t flow of 1. Both capacity & Conservation property is preserved.

Complexity :

$O(n+k)$ nodes
$O(nk)$ edges
} Max-flow algorithm.