

Q3

As the question mentioned, we should to find the minimum cost to disconnect Computer 1 to Computer N , which is a minimal cut problem.

First, the source is Computer 1, and the sink is Computer N . Now we construct a flow network as a directed graph where the computers are the vertices of the graph and each edge is represented by two directed edges of opposite orientation and each of capacity equal to the cost of removing link from Computer i to Computer j or from Computer j to Computer i . Now, we run *Edmons-Karp* algorithm to find the maximal flow through such a network. After the algorithm has converged, we construct the last residual network flow and look at all the vertices to which there is a path from source Computer 1. This will define a minimal cut, so we look at all the edges crossing such a minimal cut. The sum of edges which in the forward direction determines the minimum cost that needed to disconnect from Computer 1 to Computer N .