## Question 3

Applying max flow to solve this problem. Based on the one-direction link of computers, a directed network flow could be constructed where is the set of vertex that represent the computers and represented the on-direction link between two computer.

Because only computer 1 send virus and computer N only do receive. Therefore, is the source and is the sink which represent computer 1 and computer N respectively. The capacity of each link would be the cost of disconnecting it.

Each link is associated with a cost. To obtain the minimum cost, the minimum cut is needed. Thus, we use ***Ford-Fulkerson method*** to find the residual network which respect to the maximum flow of network .

According to the ***max-flow min-cut theorem,*** the value of the maximum flow is equal to some cut of network .

We need to find the minimum cut. Using deep-first search to traverse can store a set of vertexes could be reached such that the rest of vertexes would be . In such way, we find the min-cut . Then, the link which has direction could be removed and the cost would be minimum.