CS 5012: Foundations of Computer Science

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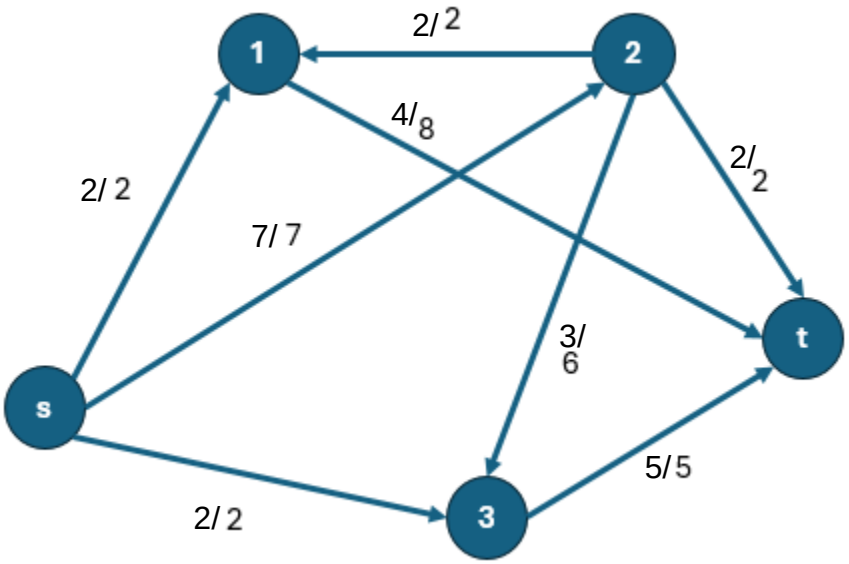
In class review:

Use the Ford-Fulkerson Algorithm to compute the maximum flow on the following graph:



In class group assignment:

Consider the flow network below with source s, sink t and capacities in boxes.

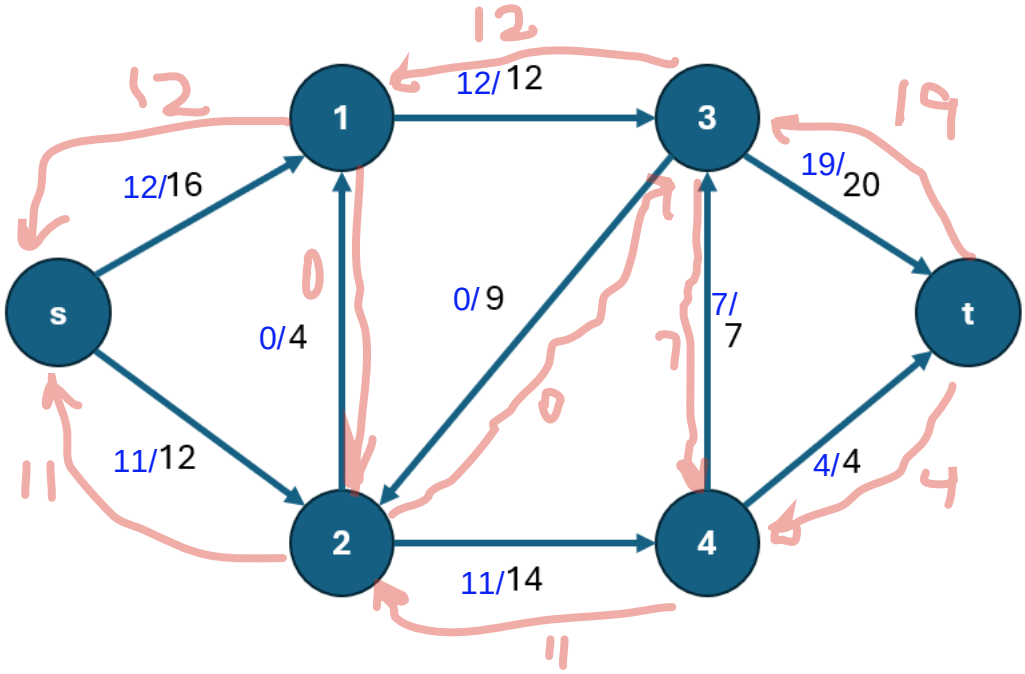
For example, the capacity between the source and node 1 is 16.

Flow

Capacity

Residual

Paths:
s,1,3,t
s,2,4,t
s,2,4,3,t



1) Write the flow on each edge to maximize flow over this network. (4pts)

2) What is the maximum flow? (3pts)

23

3) For all nodes that are not source or sink, what can be said about their net flow? (1pts)

It is equal to zero; flow in = flow out.

4) What can be said about the net flow for the source? (1pts)

It will be postive, as the flow in is equal to infinity and the flow out is relatively small. For this graph it is infinity - 23, a large positive value.

5) What can be said about the net flow for the sink? (1pts)

It will be negative, as the flow in is small relative to the flow out which is infinity. For this graph it is 23 - inifinity, a large negative value.