Finding Maximum Flow

Using Ford Fulkerson method

Step 1: Start at the top of the network and work your way down systematically

Step 2: Find the smallest capacity for the path and send through

Step 3: Highlight edges where flow = capac

Step 4: Check the maximum flow by finding min cut

MIN CUT MUST pass through highlighted edges (step3) or edge that don't count
↳ i.e. arrow heading back into cut.

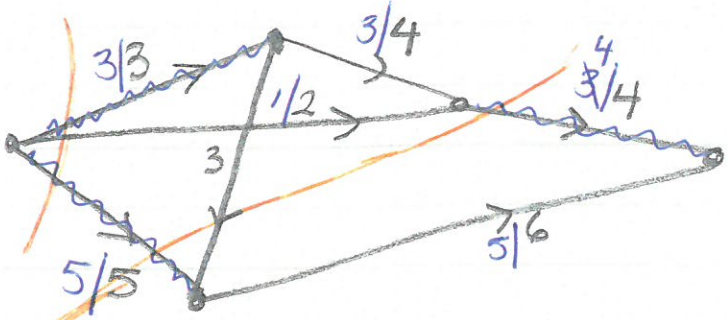
* If you can't do this step, it means you have to check residu to see if there is some more flo to push through *

Key points for looking at residuals:

residual capacity = capacity − allocated flow

backward residual capacity = allocated forward flow

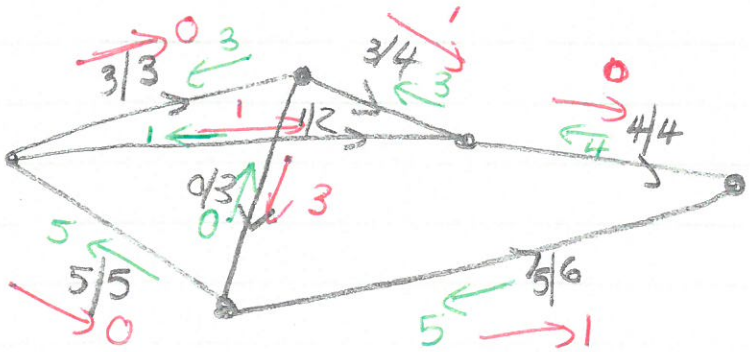
e.g.



both of these cuts have edges NOT full

① Perform FF method. → when try to find min cut I can't meet conditions *

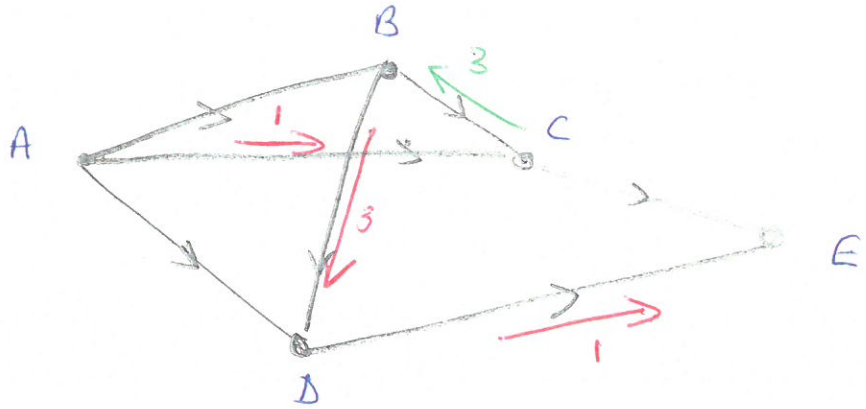
② Complete forward residuals



③ Complete back residual

Note: the red and green values for each edge will = capacity of edge.

④ Now see if you can travel from source to sink along ANY arrow



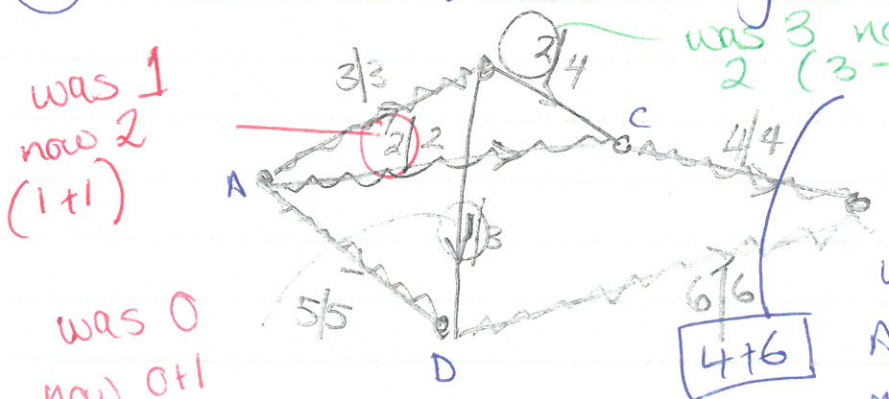
You can see in this example that there IS a path A-C-B-D-E

This path can handle another 1 unit of flow as limited by A-C and D-E

so send 1 along that path.
Traveling along the backward residual means you REDUCE the forward flow by the required amount

In other words, you put too much alon that path initially.

(5) Alter the flows on your residual graph.



You can see that A-C and D-E are now at capacity.
so min cut = 10