Algorithm Engineering

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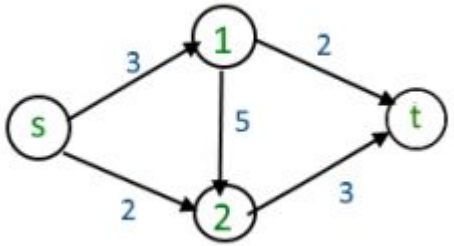
Min Cut Max Flow

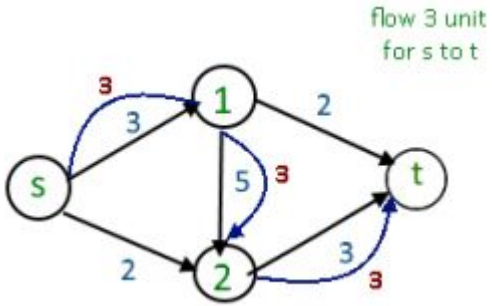
Problem

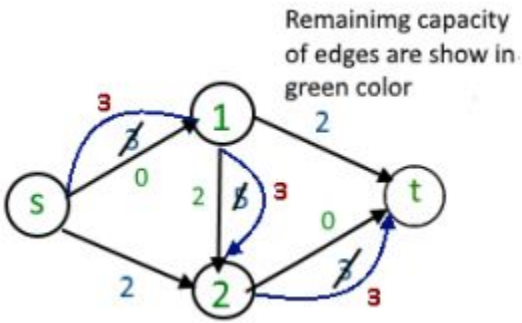
You are given a directed graph with n intersections (nodes) and m one-way roads (edges). Each road u → v has an integer capacity c meaning it can carry c units of traffic. You want to disrupt traffic from a source intersection s to a destination intersection t by closing some roads.

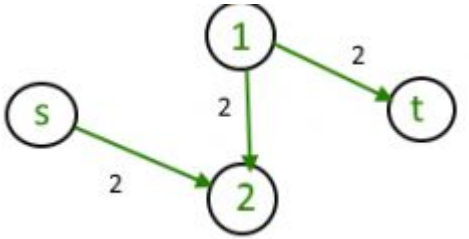
Find the minimum total capacity of roads you must close so that no path remains from s to t. Also output one such set of roads.

But Maximum Flow is 5

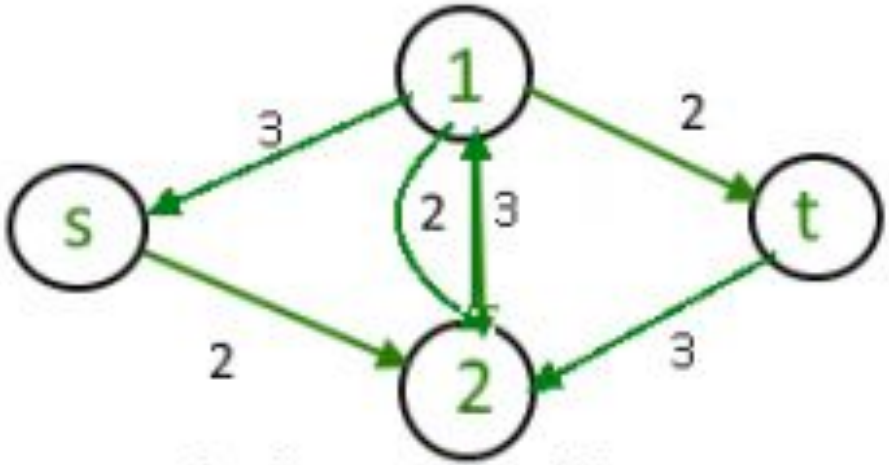






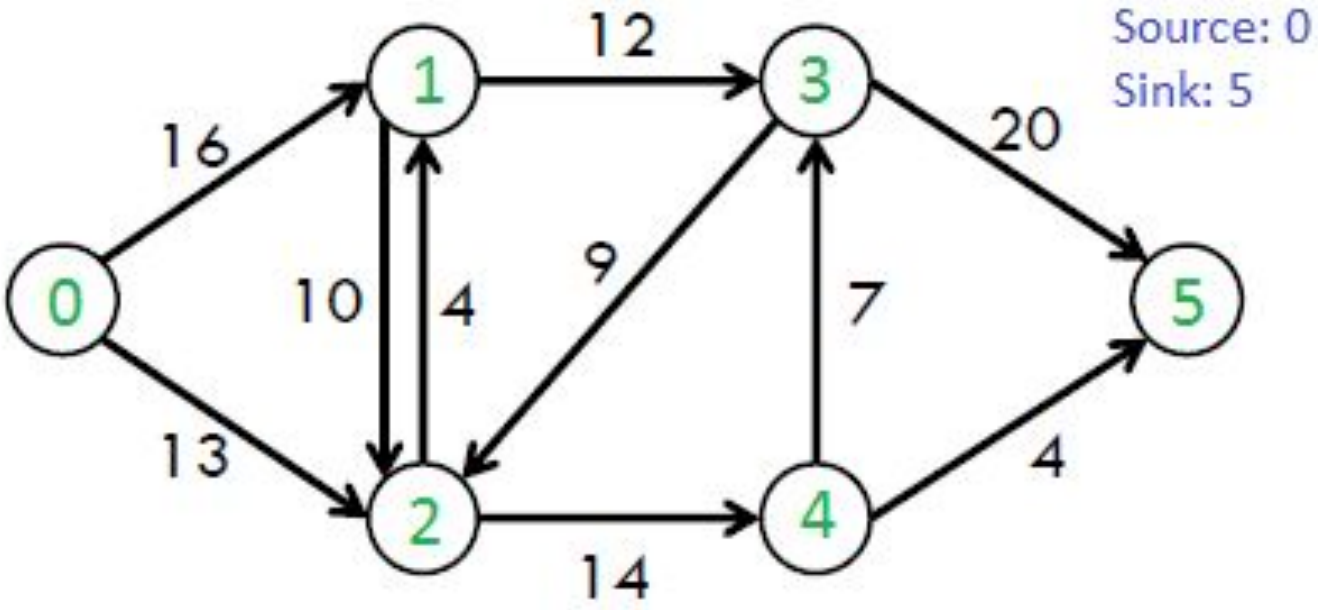


Residual Graph



residual network of flow

Ford Fulkerson To The Rescue



Edmonds Karp

The basic difference between ford fulkerson and edmonds karp is the way they choose the augmenting paths, the former can use any tree traversal algorithm where the latter choose only BFS, so that it gets only the shortest path in respect to the number of edges.