Ford Fulkerson Algorithm for Max Flow

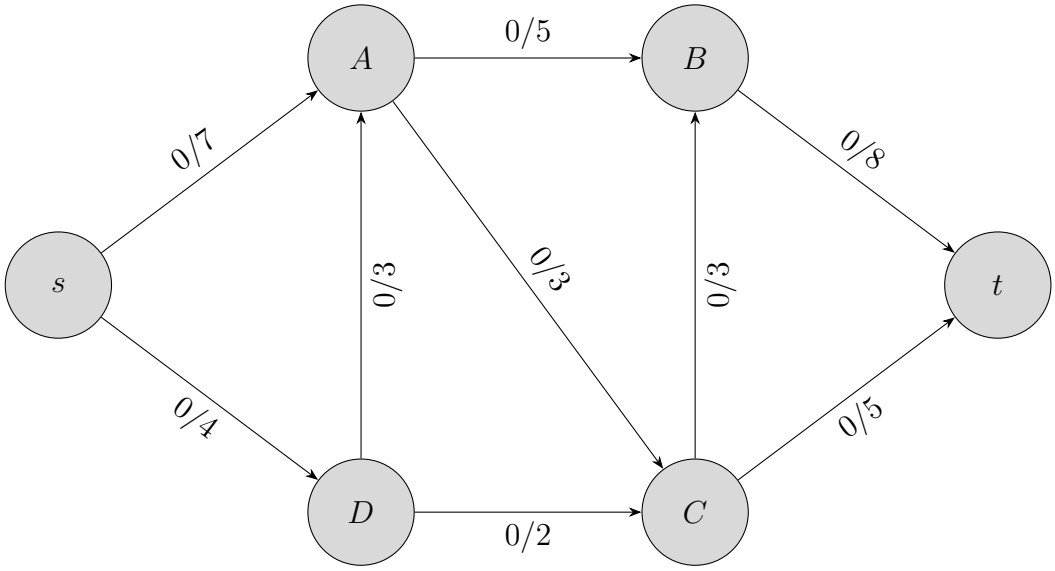
September 13, 2020

Contents

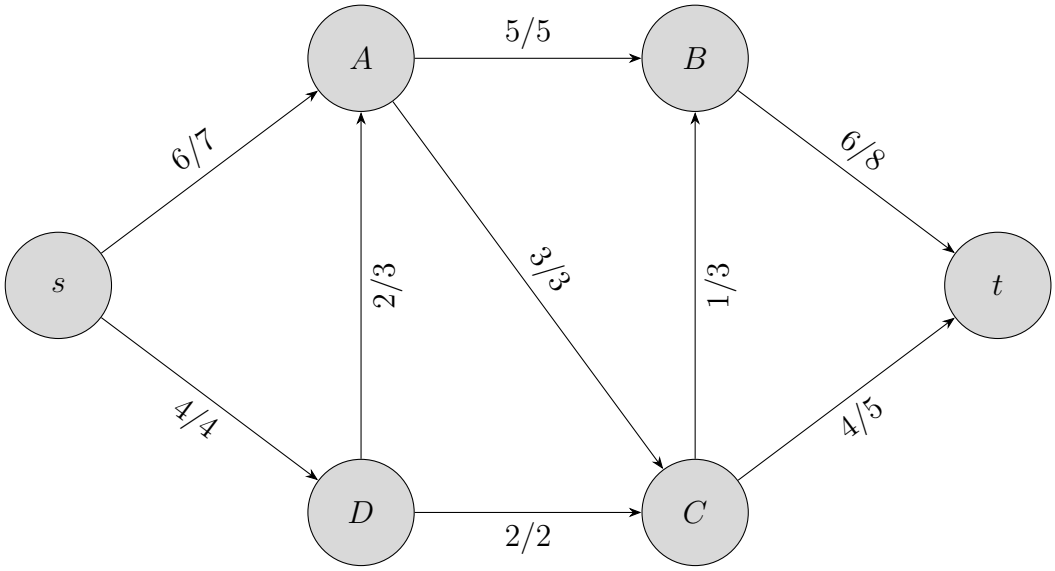
1 Maximum Flow

A Maximum-Flow is the flow of maximum possible value from source to sink.

2 Flow Network



3 Maximum-flow in the network



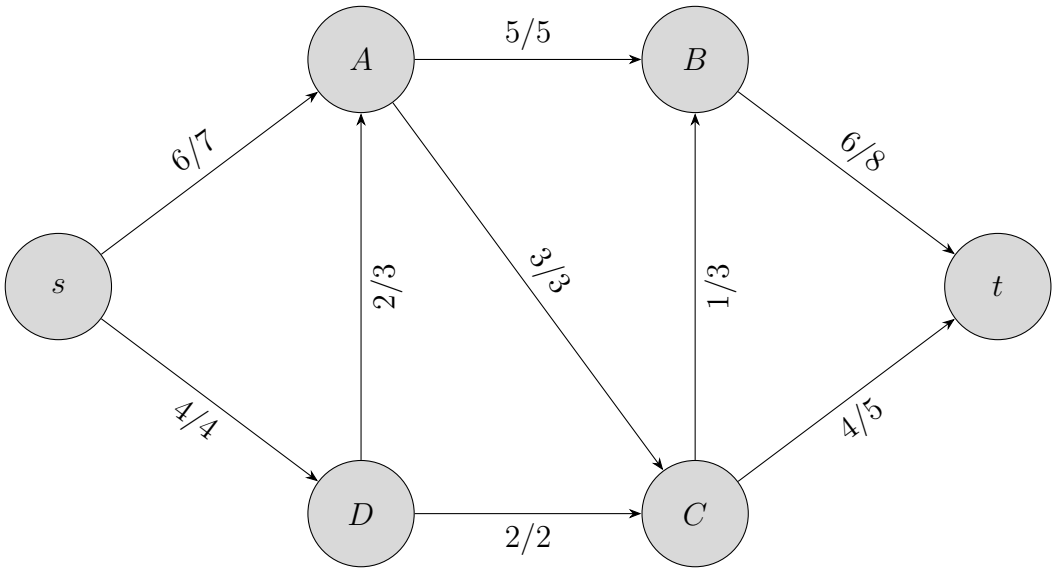


Figure 1: Original Graph

4 Reverse Edge & Residual Capacity

4.1 Residual Capacity

Residual Capacity of an edge is defined as the capacity minus flow.

4.2 Reverse Edge Residual Capacity

Residual Capacity of reverse edge is defined as the capacity of reverse edge minus flow in reverse edge.

If flow of edge (u, v) = x
Then flow of edge (v, u) = -x
Capacity of reverse edge = 0

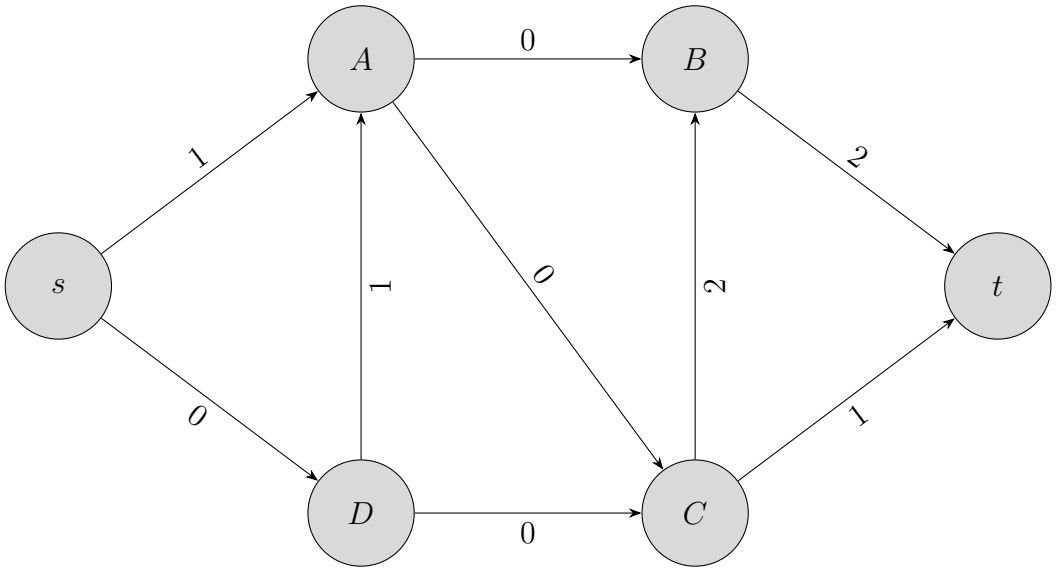


Figure 2: Residual Capacity

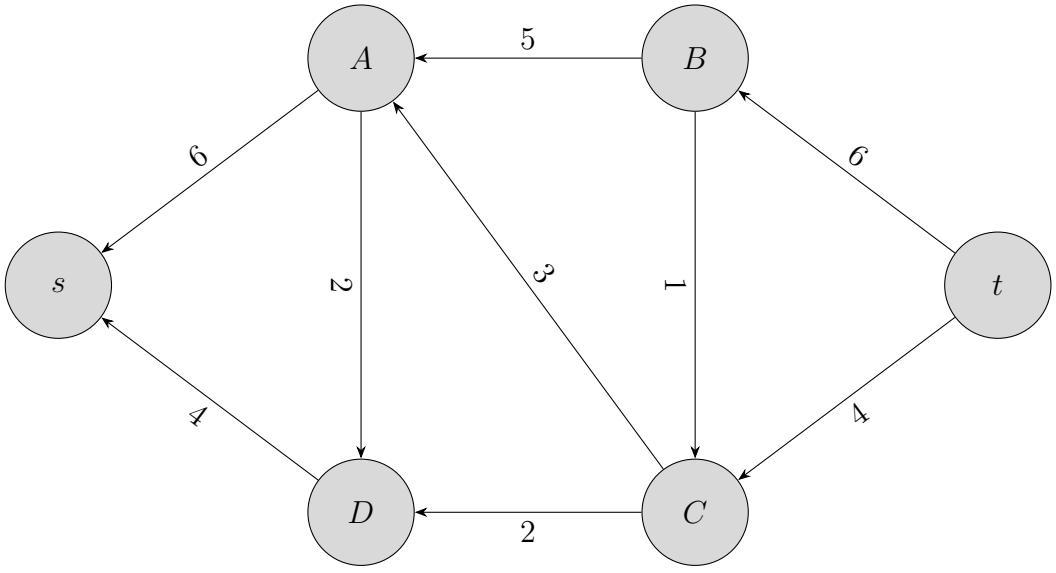
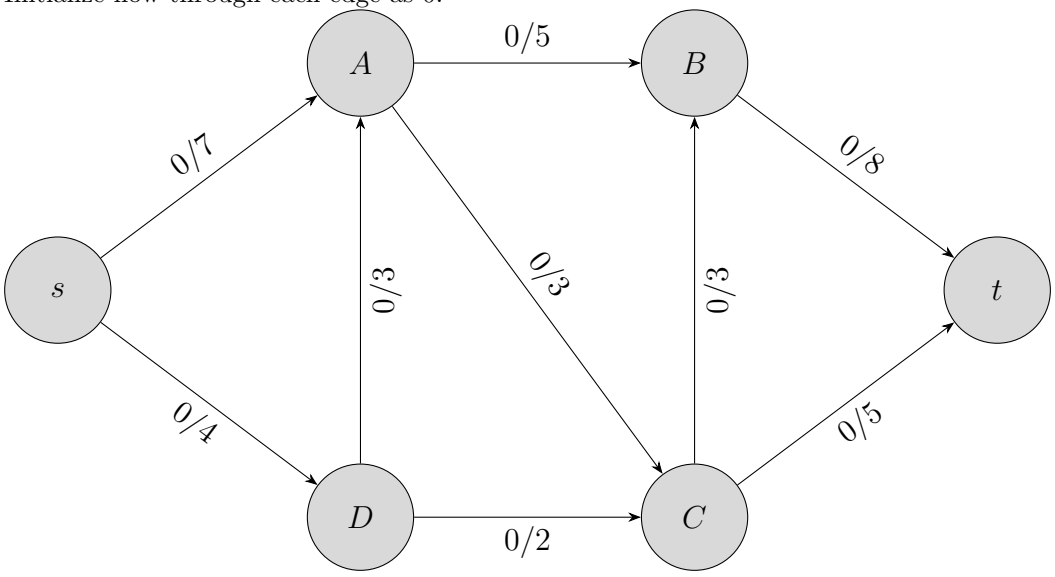


Figure 3: Reverse Edge Residual Capacity

5 Ford - Fulkerson Method

1. Initialize flow through each edge as 0.



2. find an augmenting path from s to t.