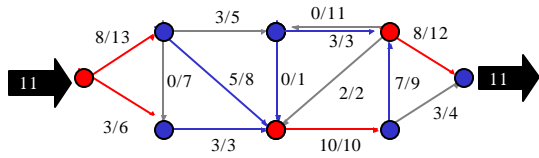


### Flow across (R,B)



### Flow across a cut

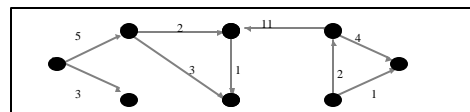
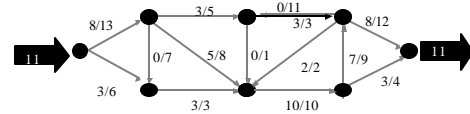
- Conservation of flow
- ↓
- The flow across any cut equals the network flow

### Flow across a cut

- Conservation of flow + max flow/min cut theorem
- ↓
- If flow is max then for minimum capacity cut (R,B):  $\sum f(\langle v,u \rangle) = 0$

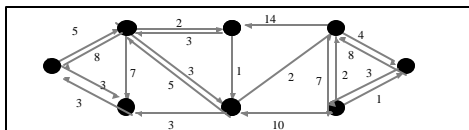
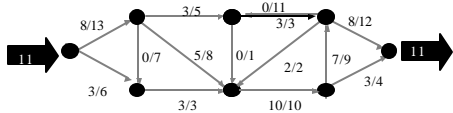
### Build residual graph

1. Add e if flow(e) < capacity(e)

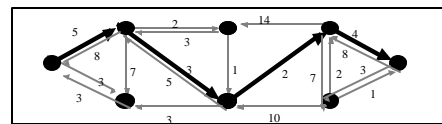
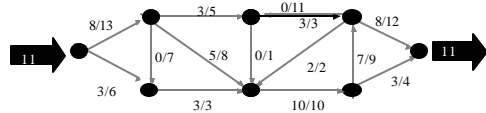


### Build residual graph

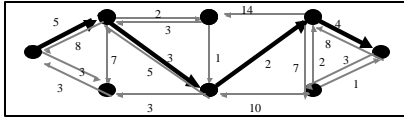
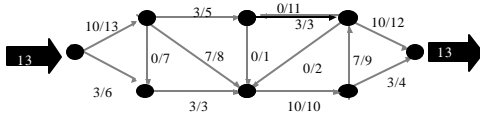
2. Add reverse(e) if flow(e) > 0



### Find s-t path in the residual graph



Augment the  $s$ - $t$  path in the network

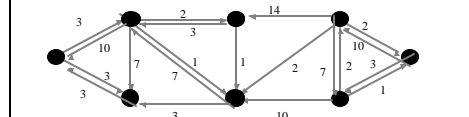
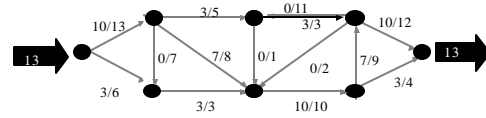


10/25/00

CS140(13)

43

And then ...  
Repeat until residual graph has no  $s$ - $t$  path



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CS140(13)

44

### Augmenting Path Method (Ford-Fulkerson)

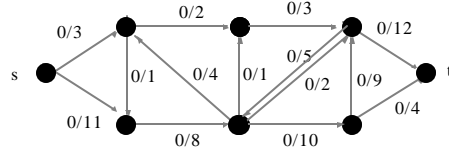
- Is it correct?
- Is it efficient?

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CS140(13)

45

### Exercise



10/25/00

CS140(13)

46