

# DEPTH-FIRST SEARCH:

## DFS (G)

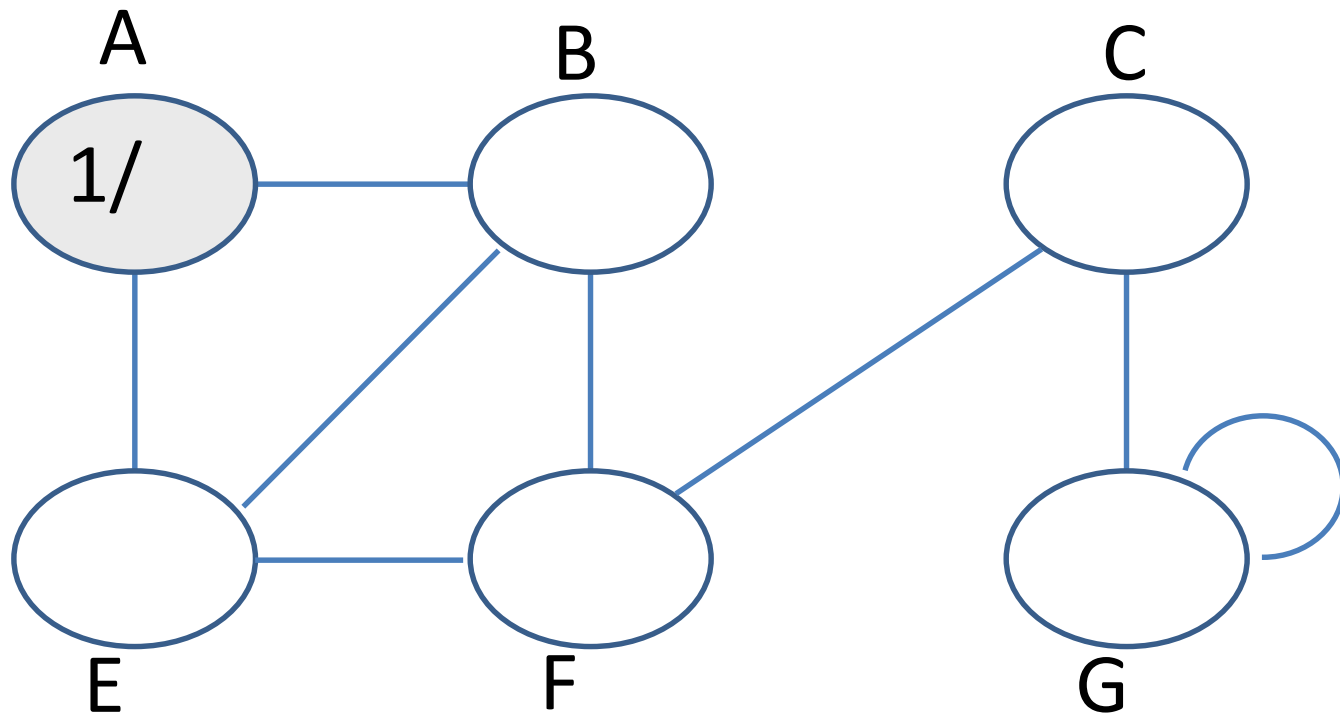
```
1  for each vertex  $u \in V[G]$ 
2      do color[u]  $\leftarrow$  WHITE
3      predecessor[u]  $\leftarrow$  NIL
4  time  $\leftarrow$  0
5  for each vertex  $u \in V[G]$ 
6      do if color[u] = WHITE
7          then DFS_VISIT (u)
```

## DFS\_VISIT (u)

```
1  color [u]  $\leftarrow$  GRAY           {White vertex u has just been discovered}
2  time  $\leftarrow$  time + 1
3  discovery_time[u]  $\leftarrow$  time
4  for each  $v \in \text{Adj}[u]$          {Explore edge (u,v) }
5      do if color [v] = WHITE
6          then predecessor[v]  $\leftarrow$  u
7              DFS_VISIT (v)
8  color [u]  $\leftarrow$  BLACK         {Blacken u; it is finished}
9  finishing_time[u]  $\leftarrow$  time  $\leftarrow$  time + 1
```

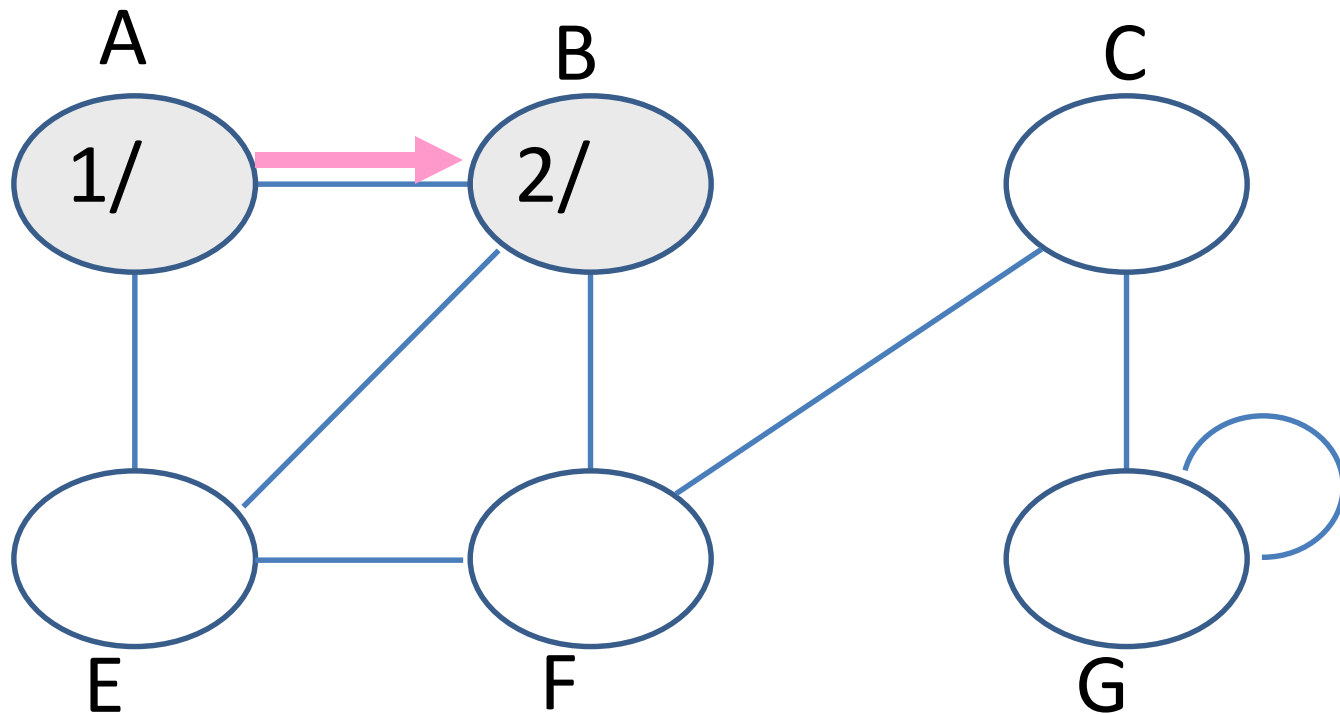
# DEPTH-FIRST SEARCH

(E1: Non Directed Graph)



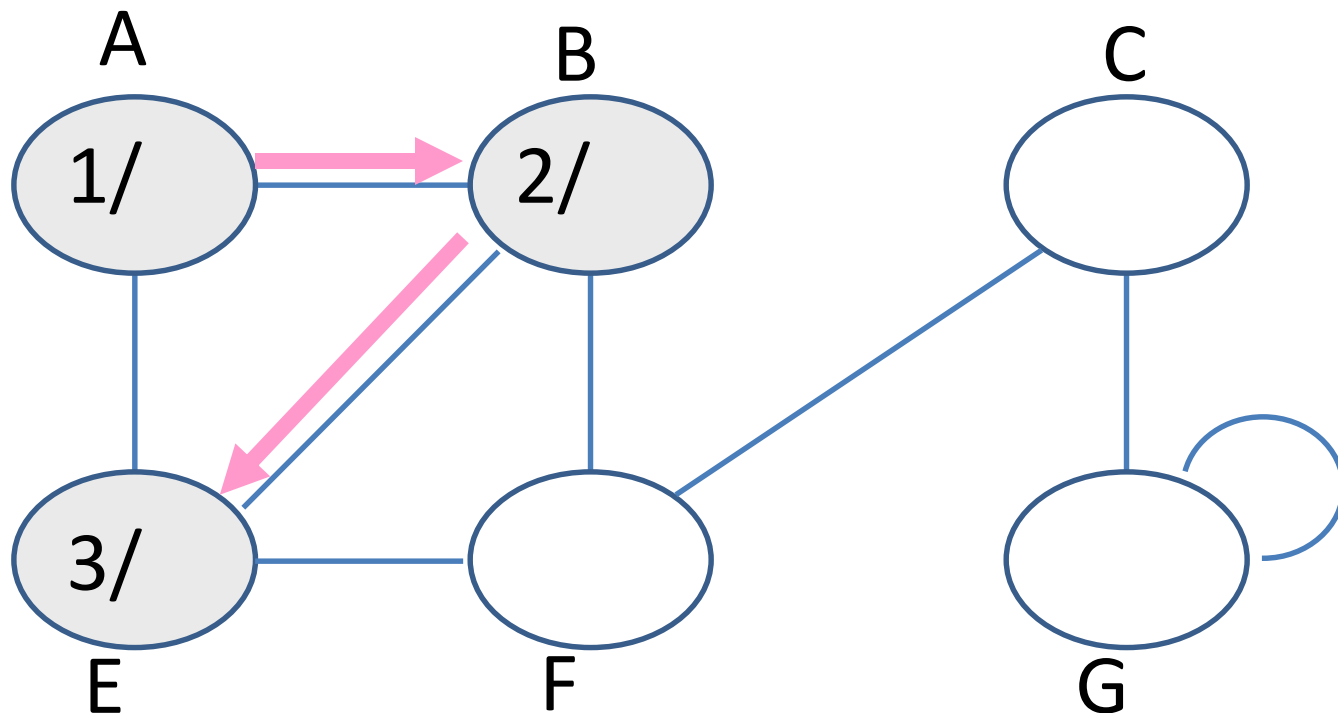
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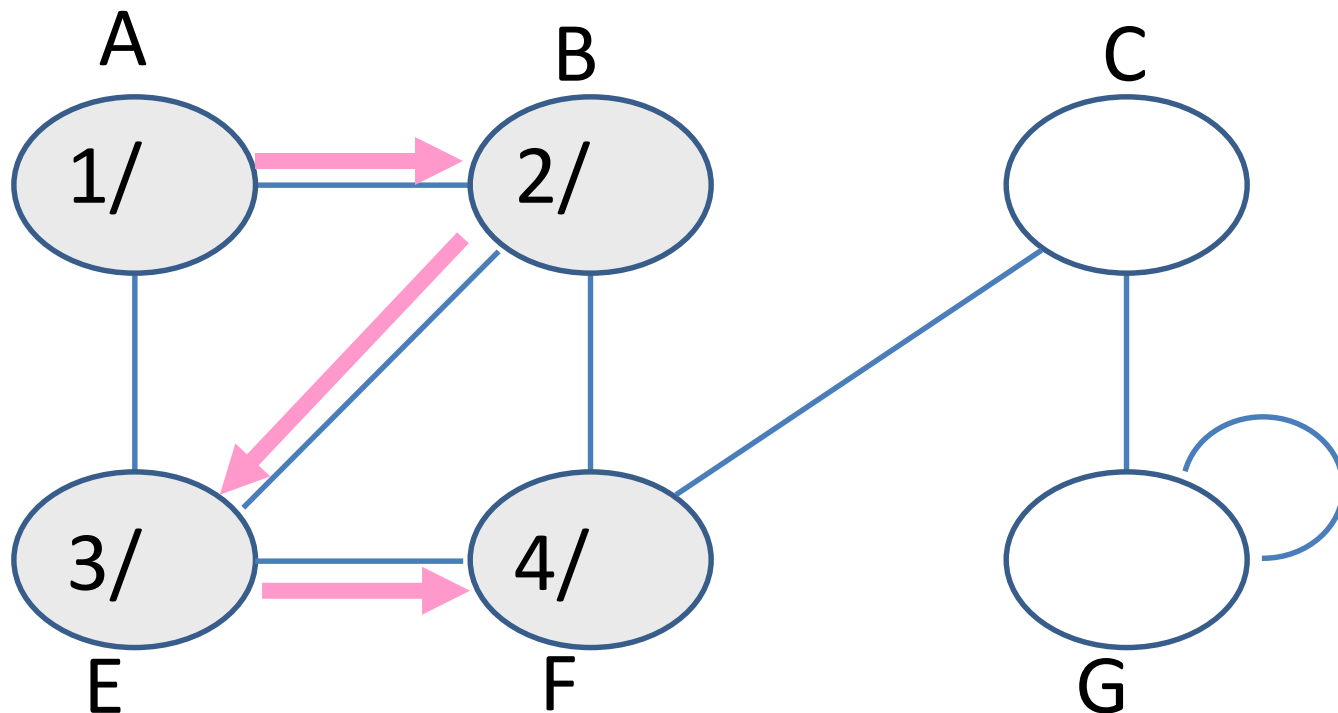
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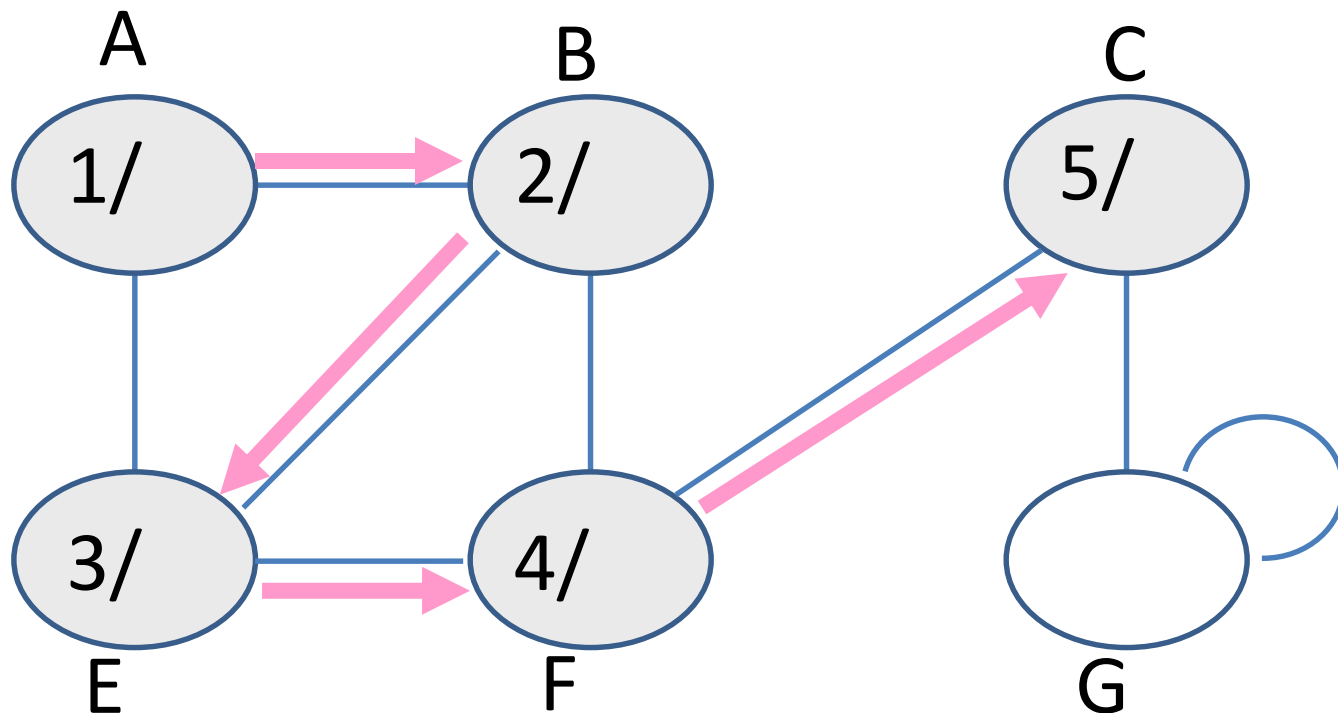
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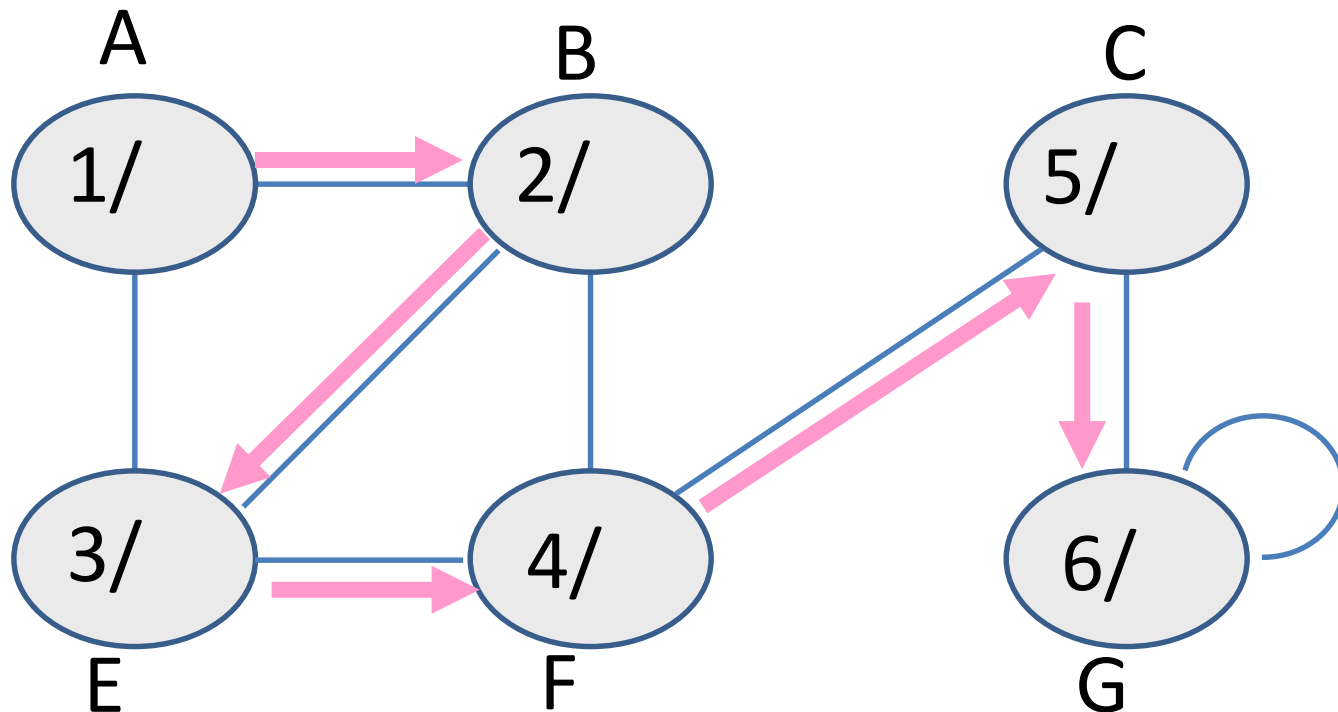
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(E1: Non Directed Graph)



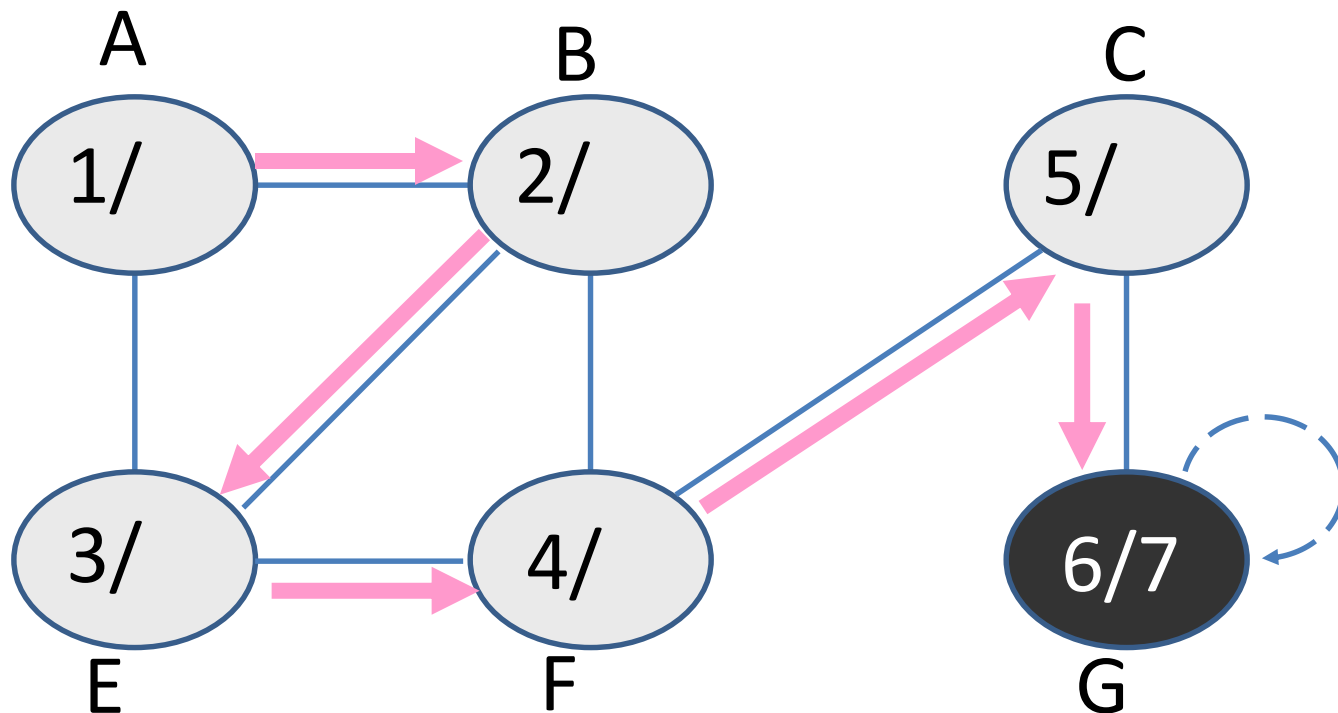
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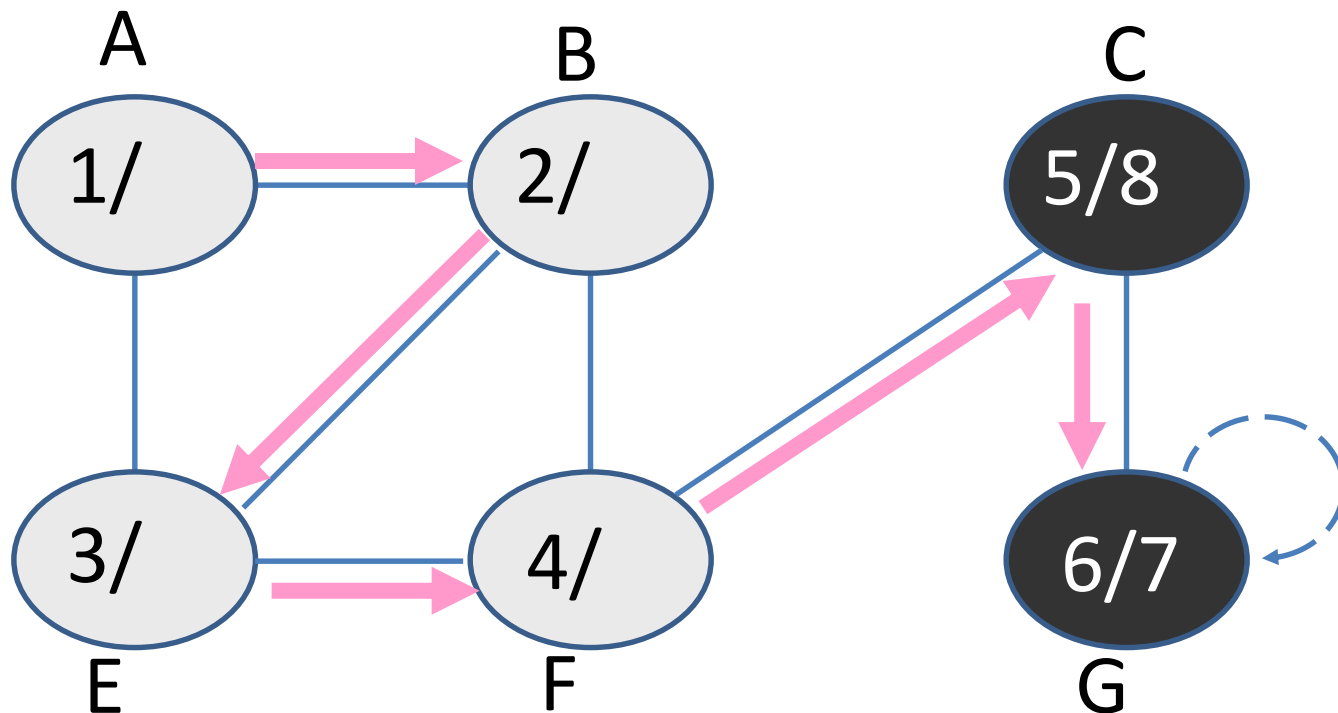
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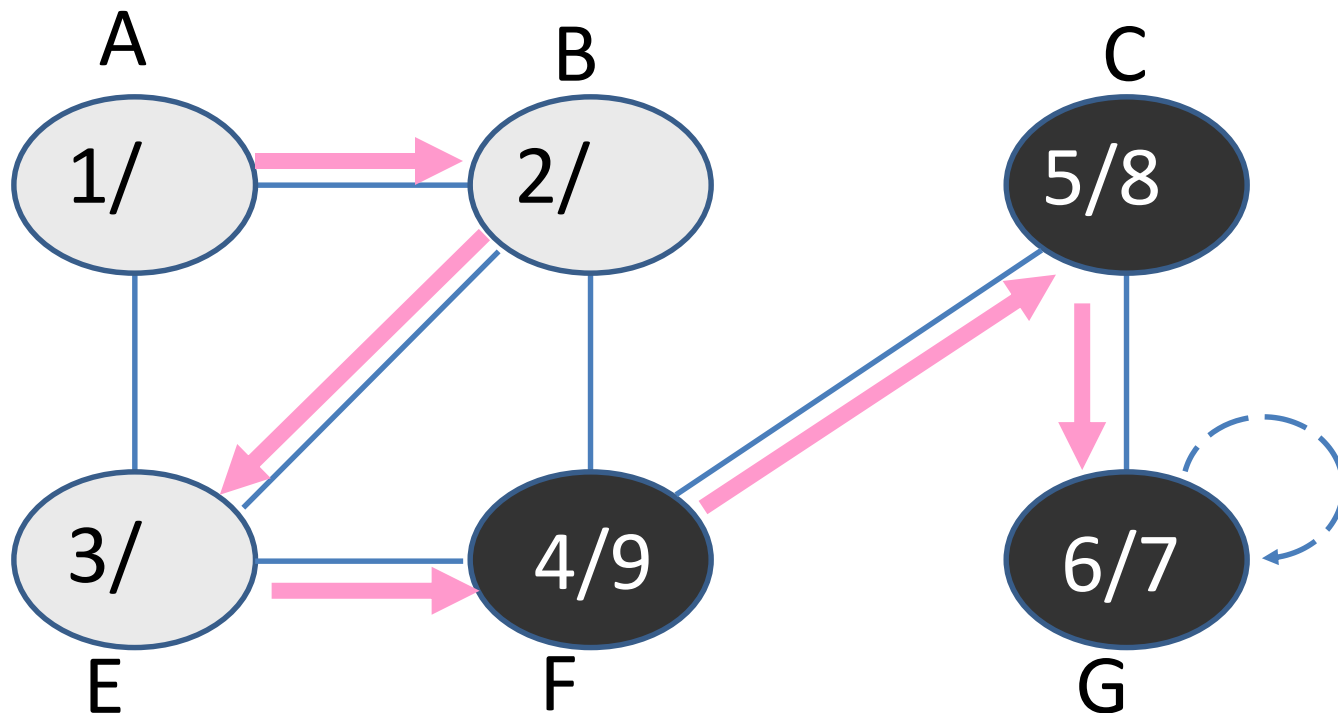
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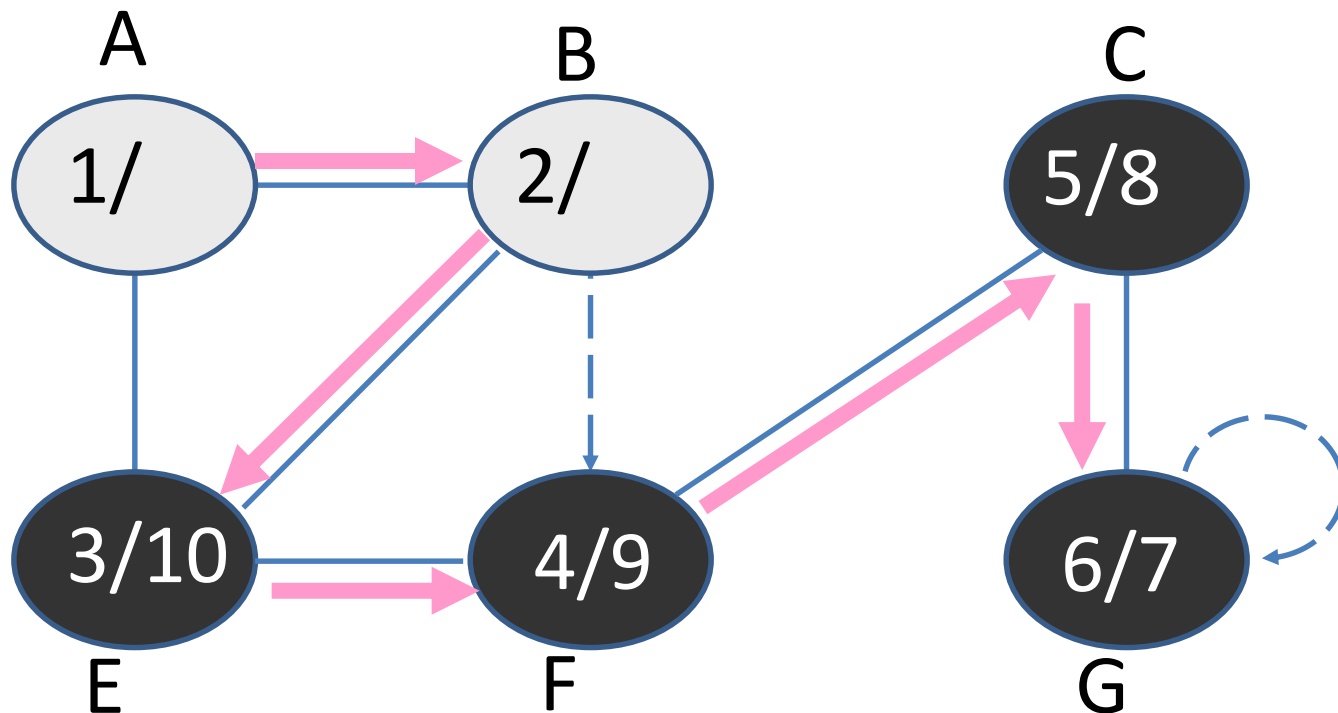
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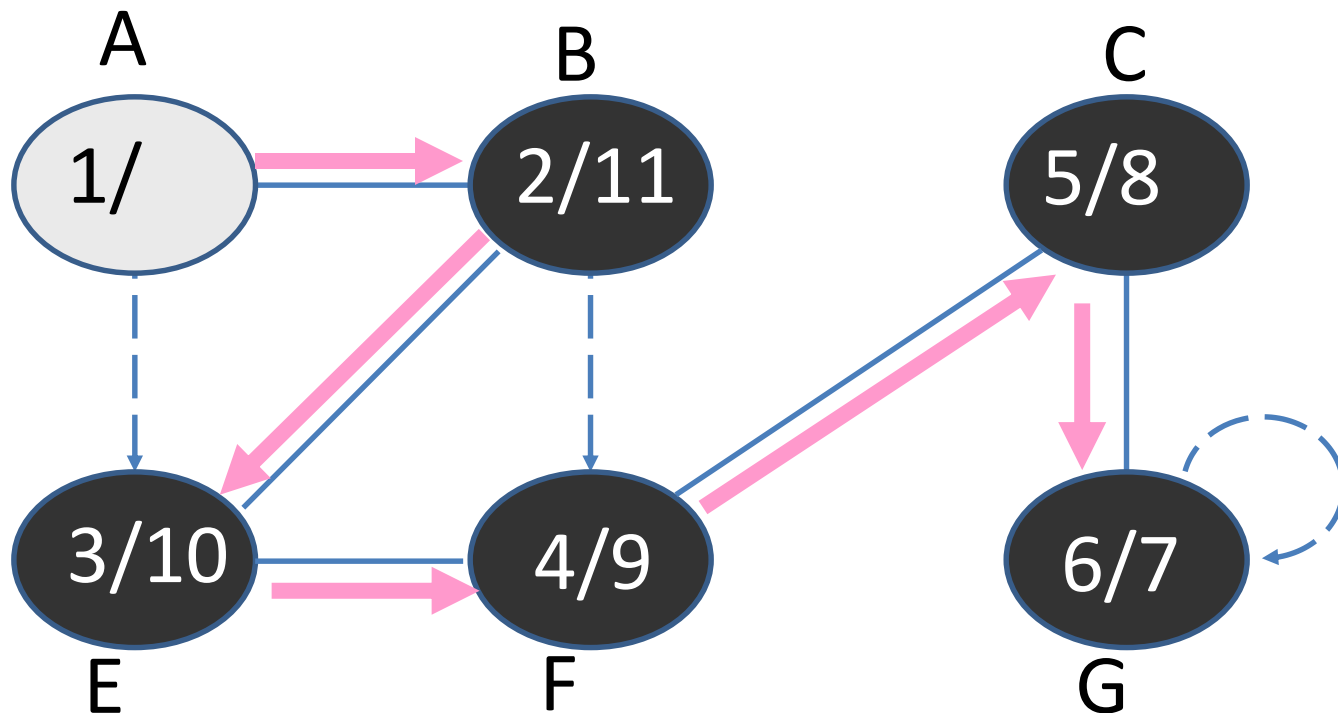
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(E1: Non Directed Graph)



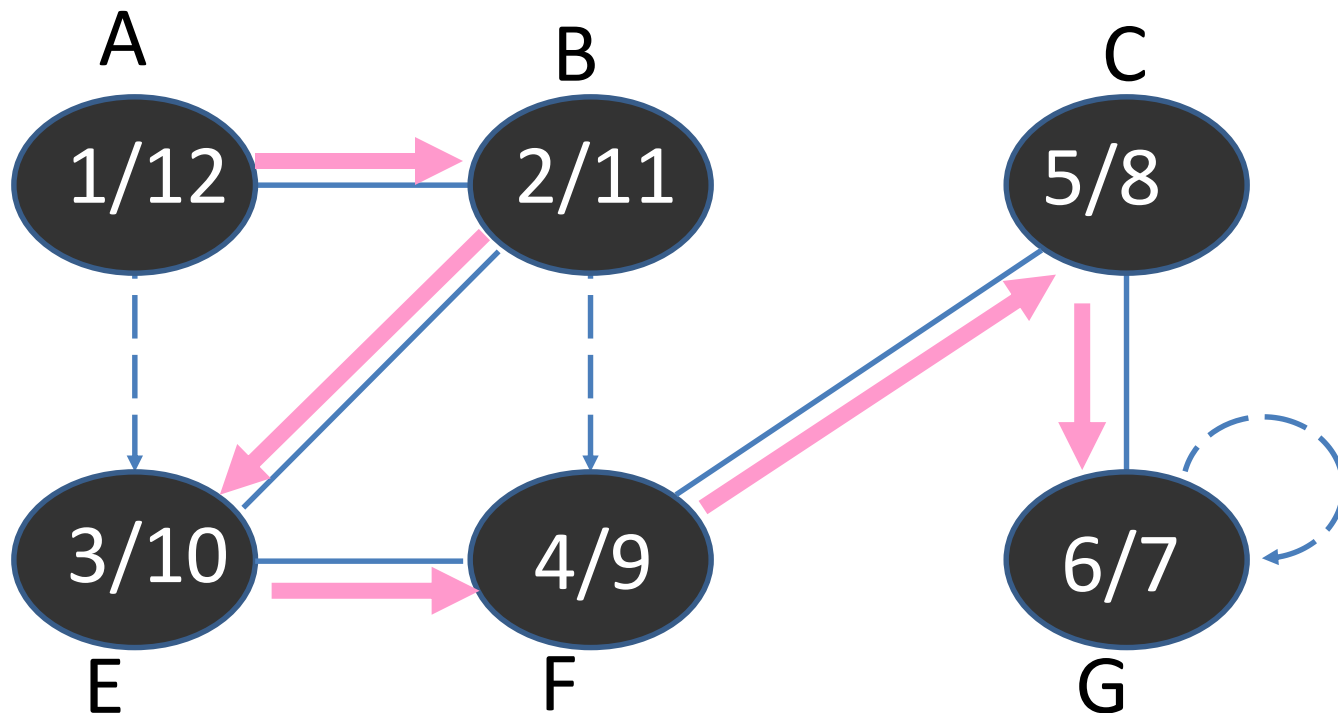
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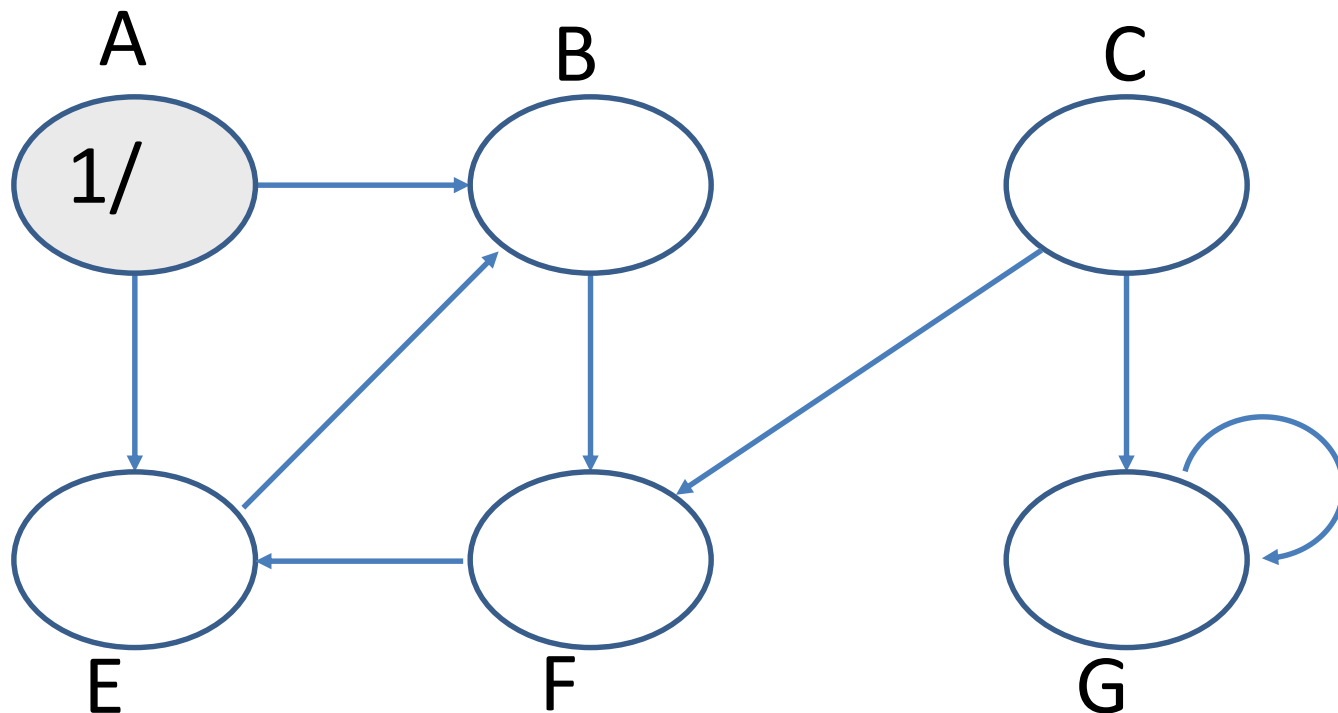
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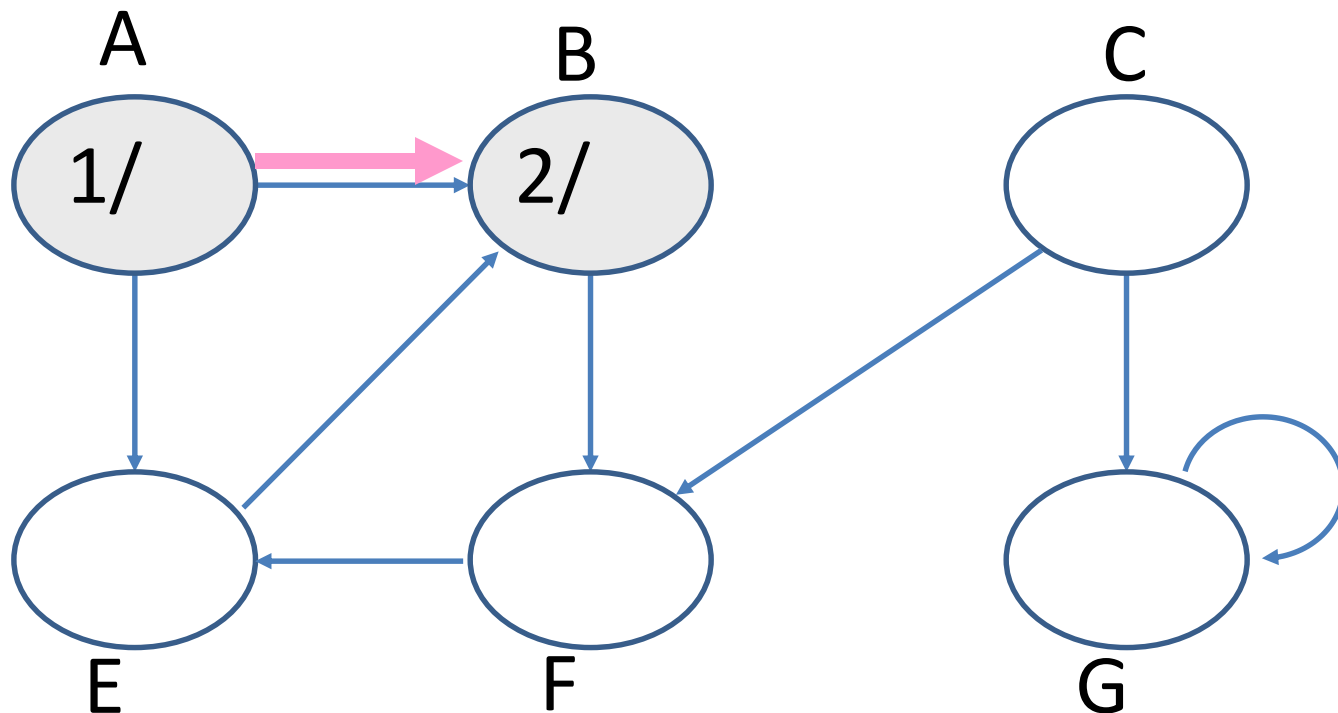
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## (E2: Directed Graph)



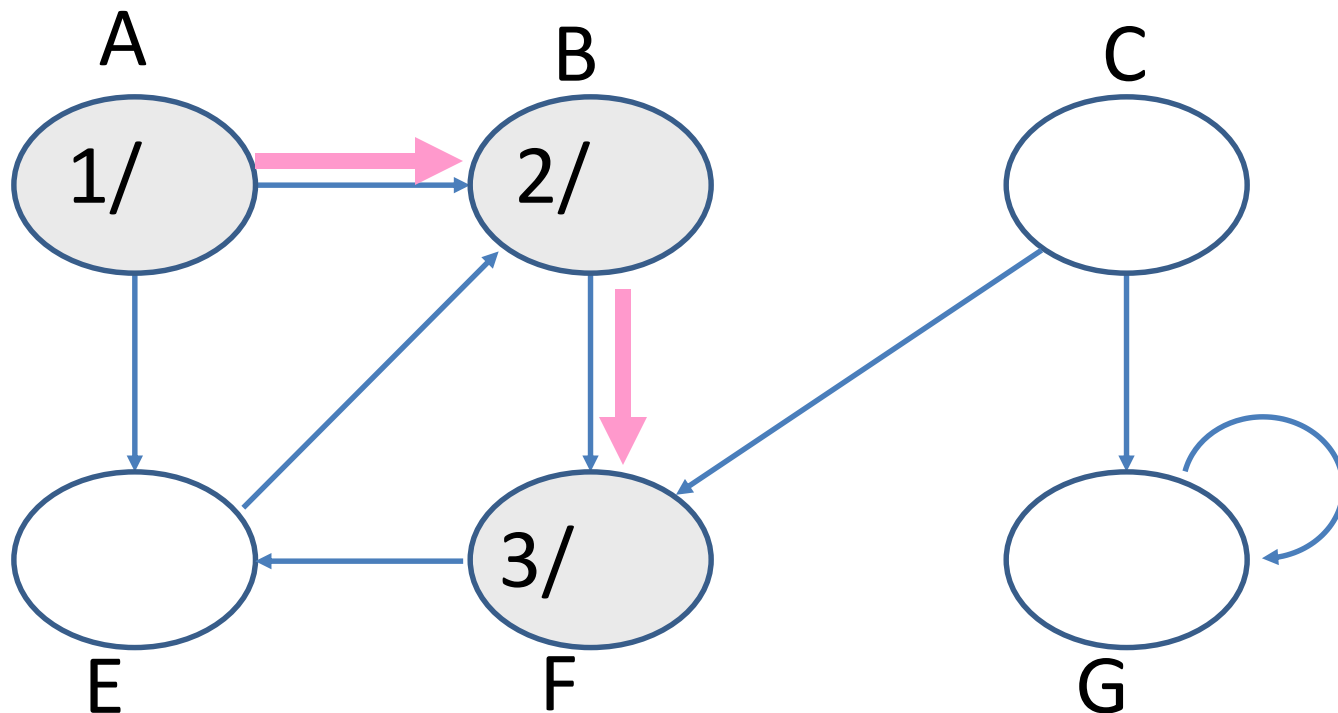
# DEPTH-FIRST SEARCH

## (E2: Directed Graph)



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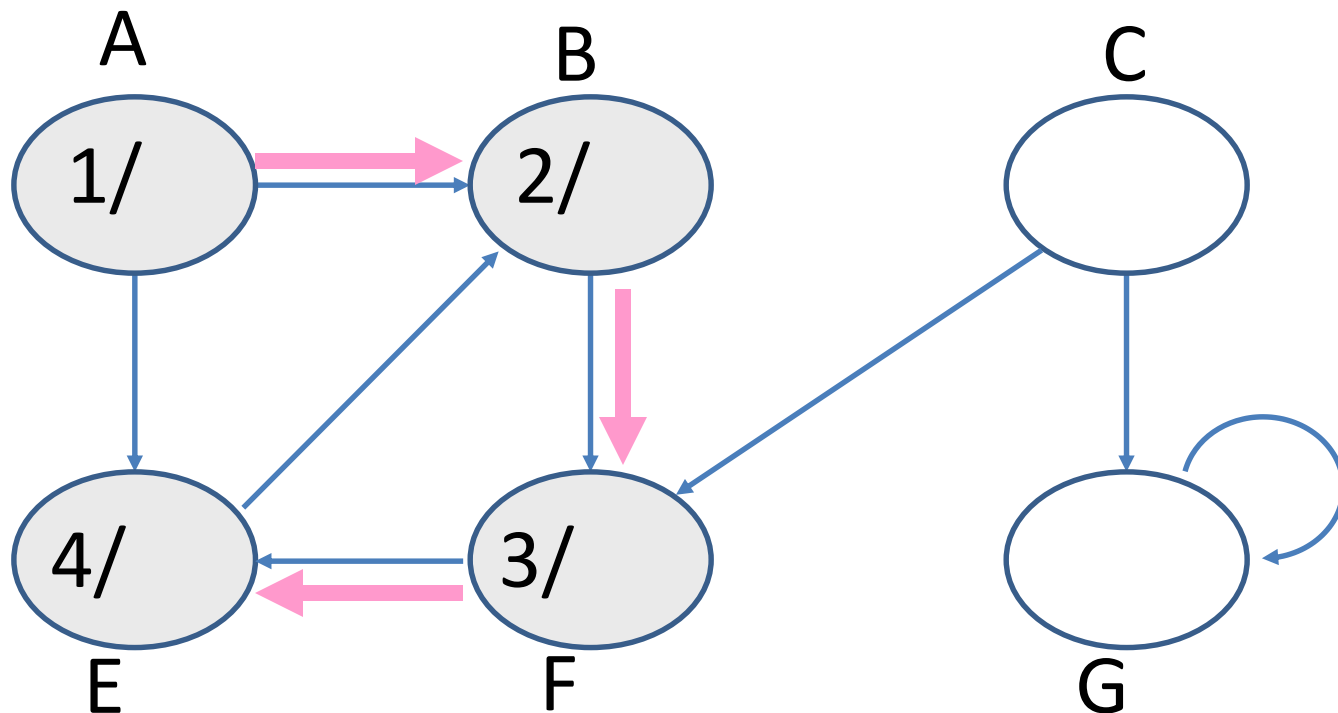
## (E2: Directed Graph)





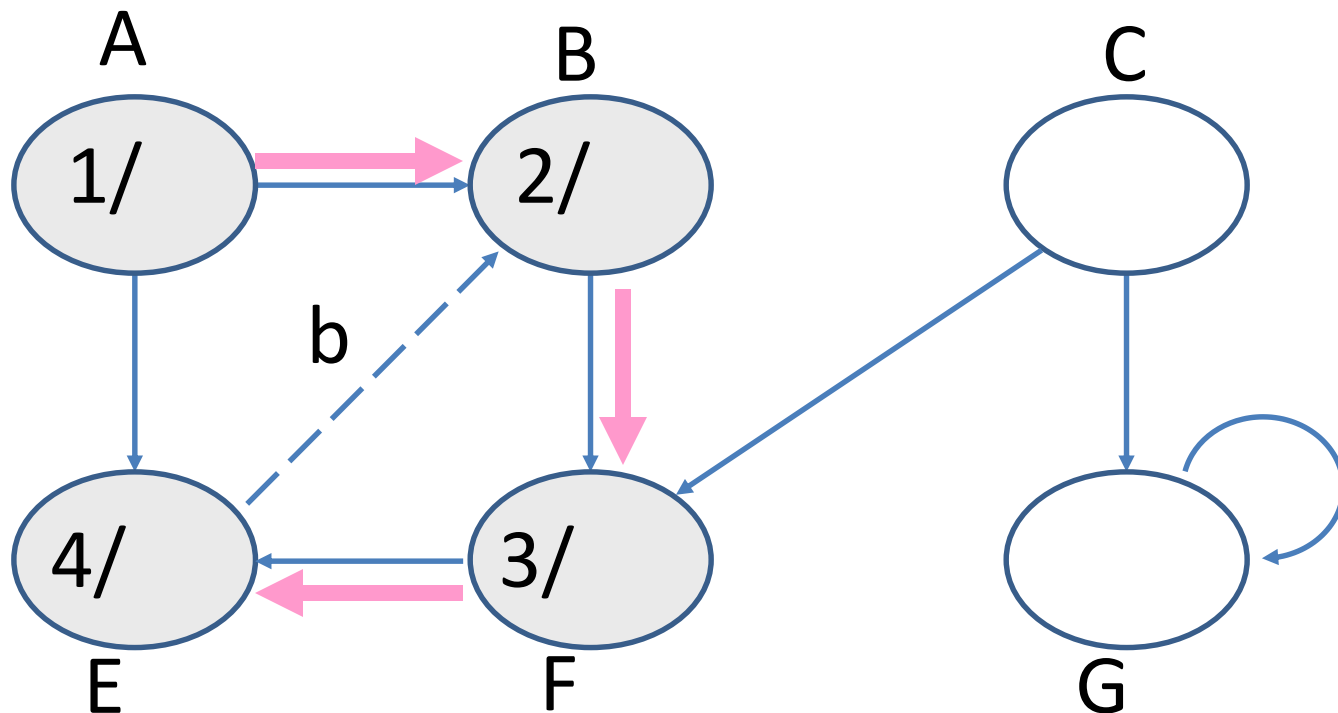
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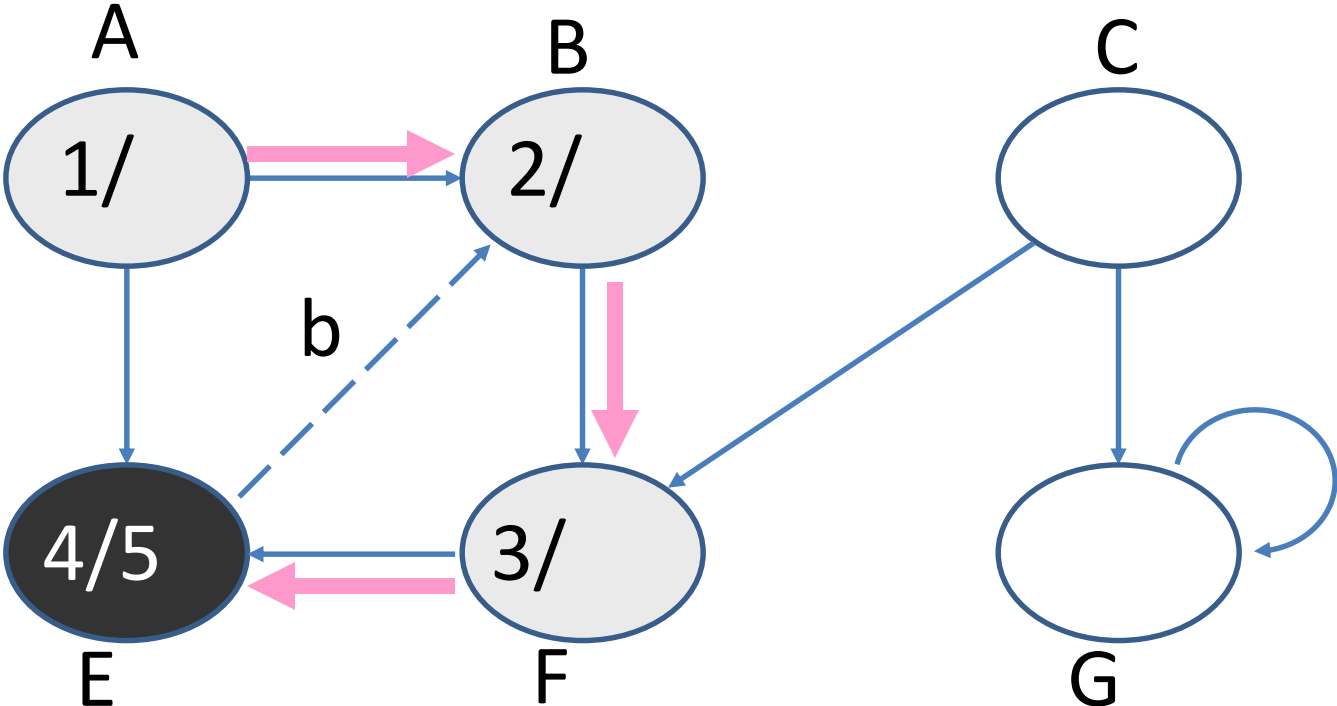


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## (E2: Directed Graph)

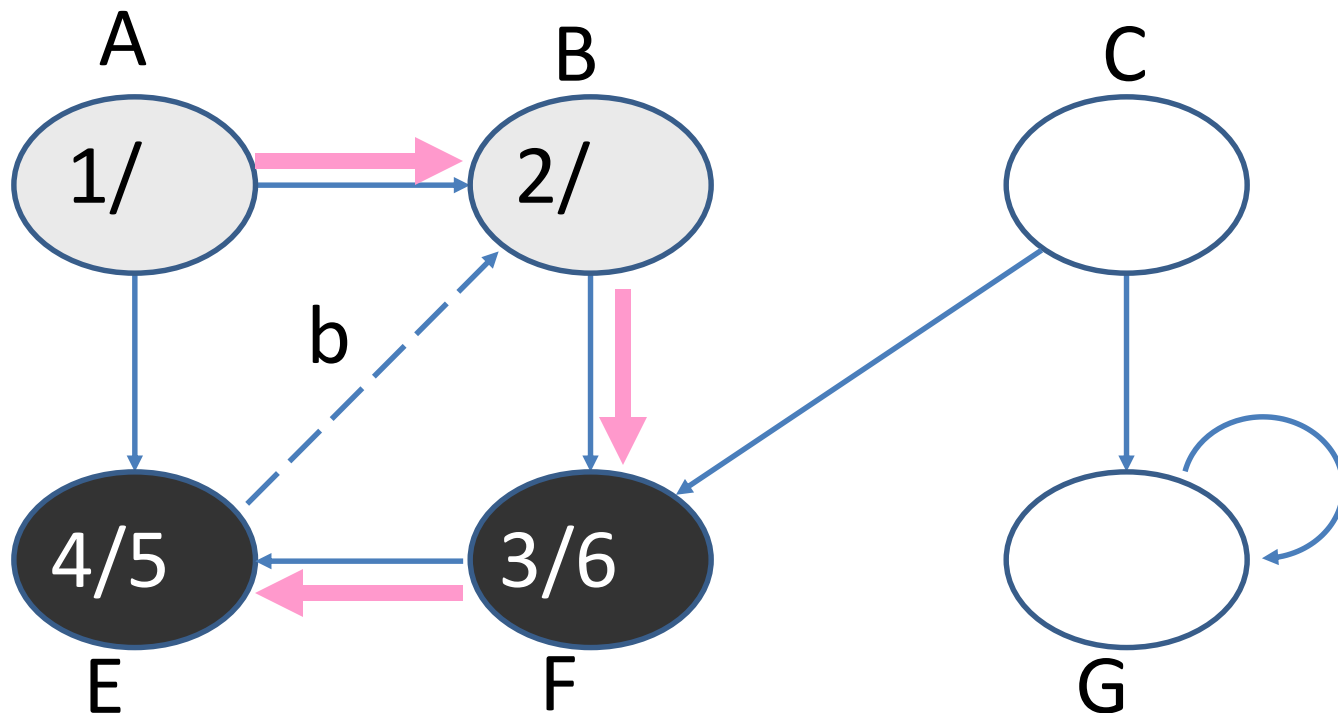


## (E2: Directed Graph)

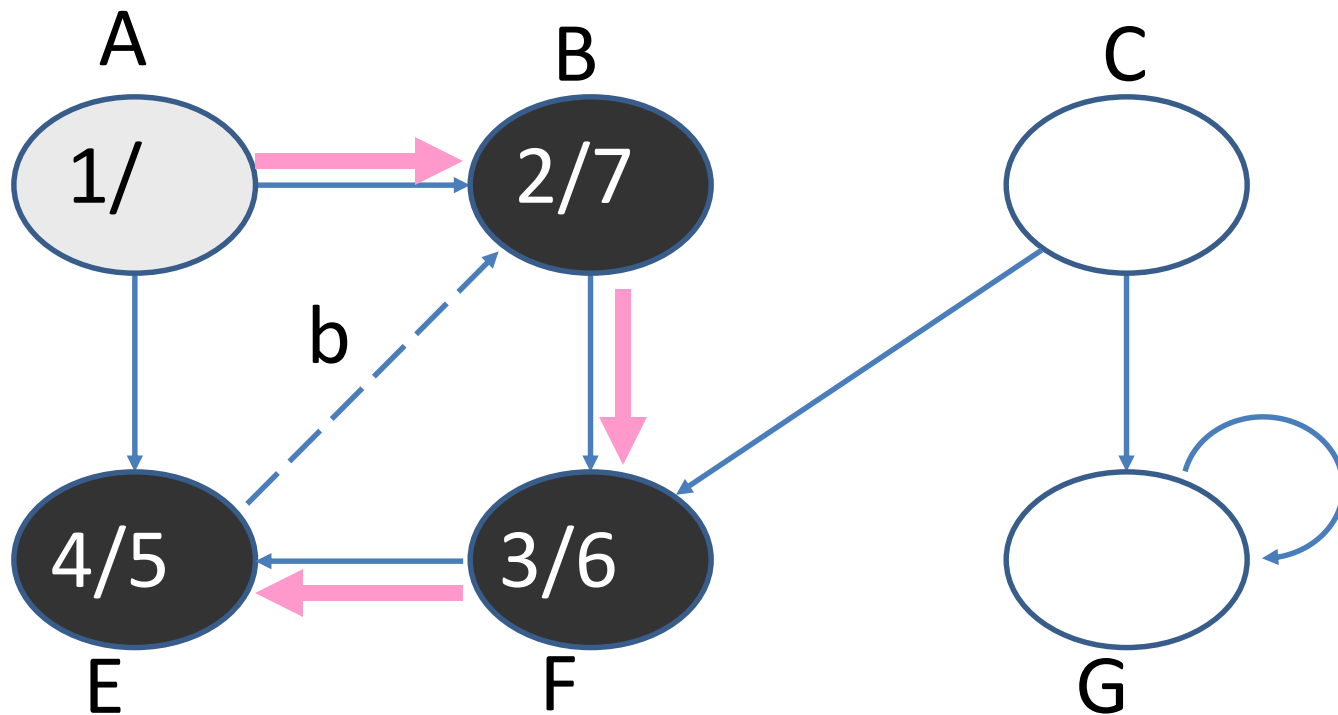


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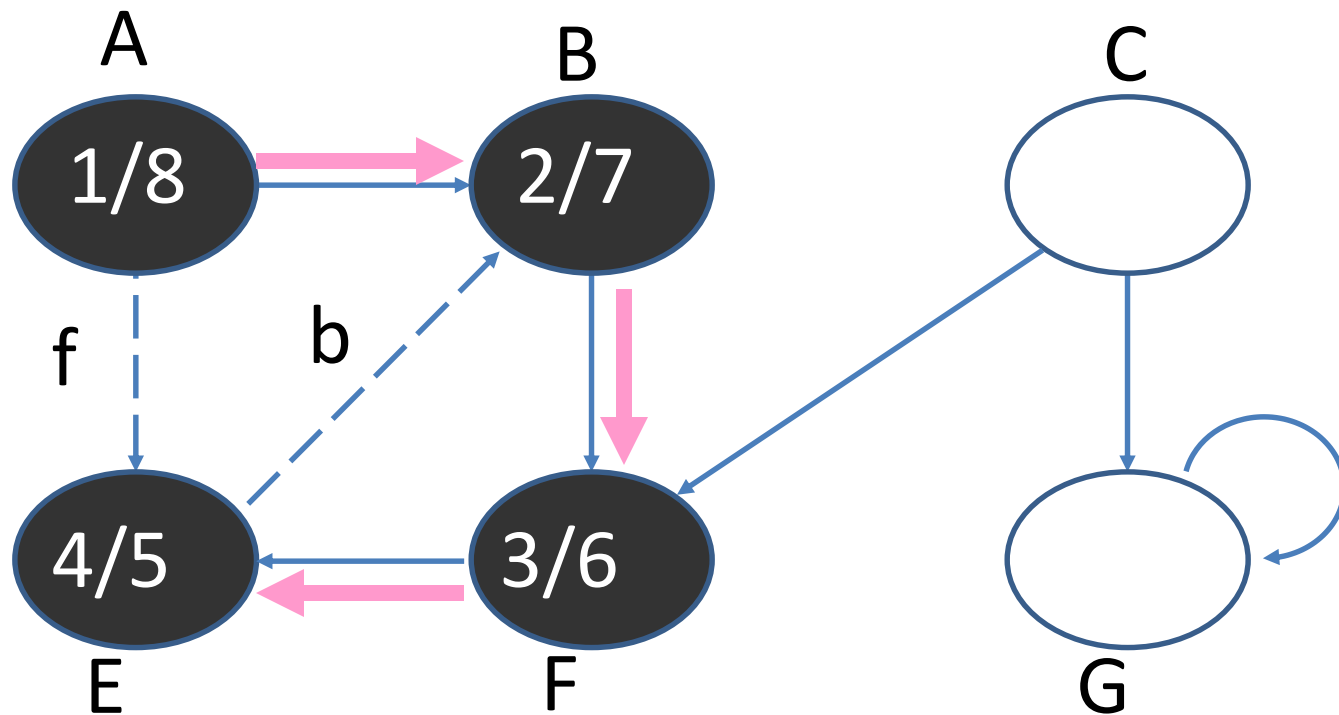
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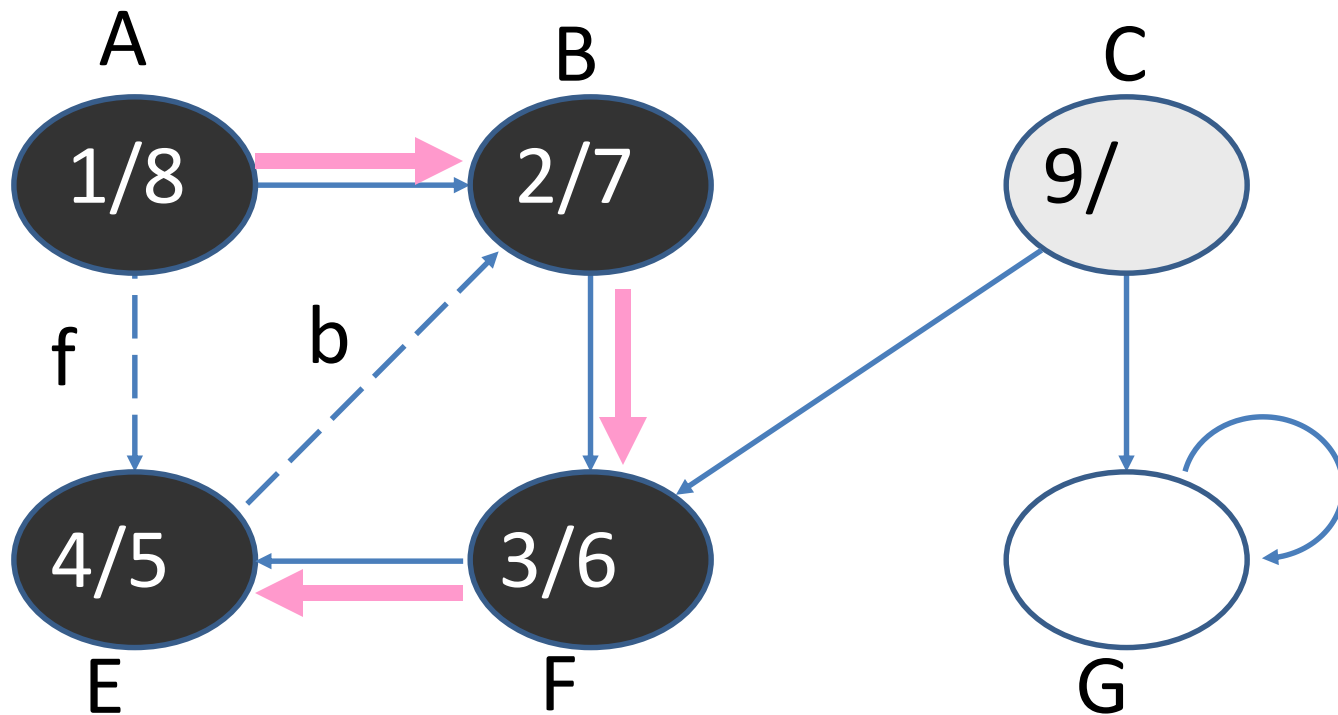
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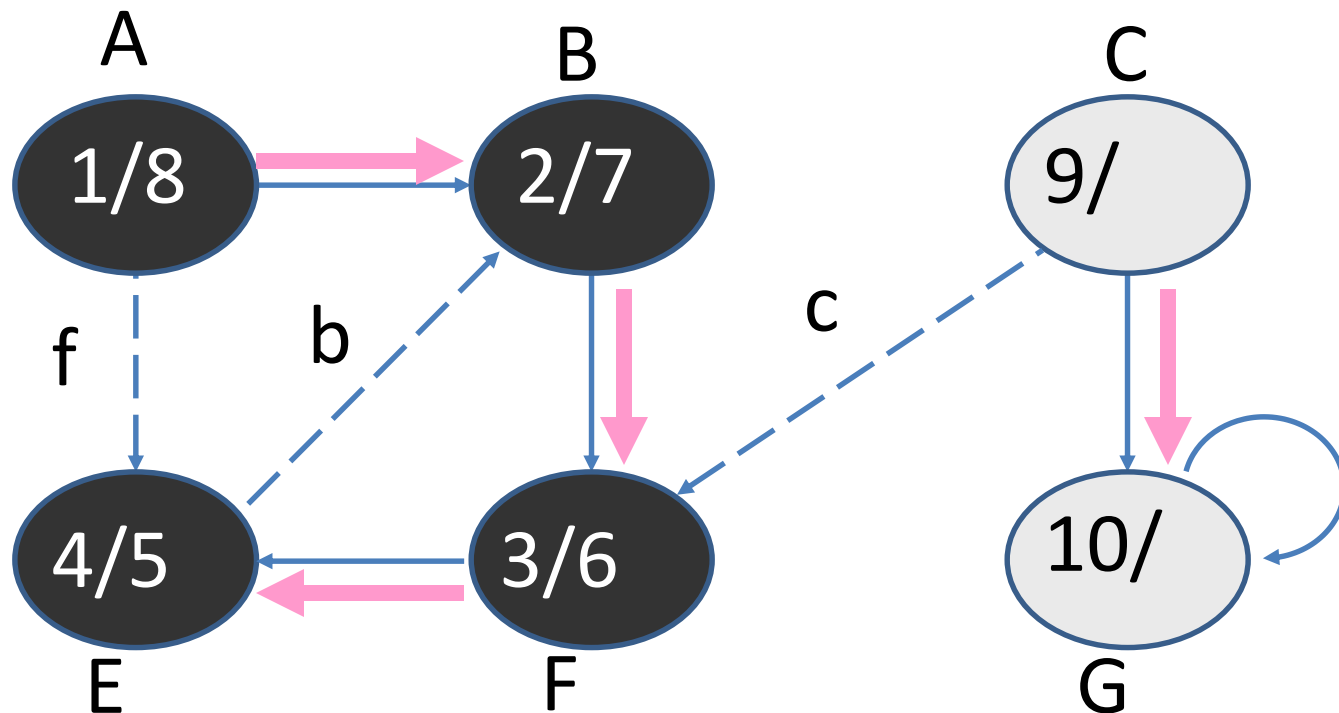
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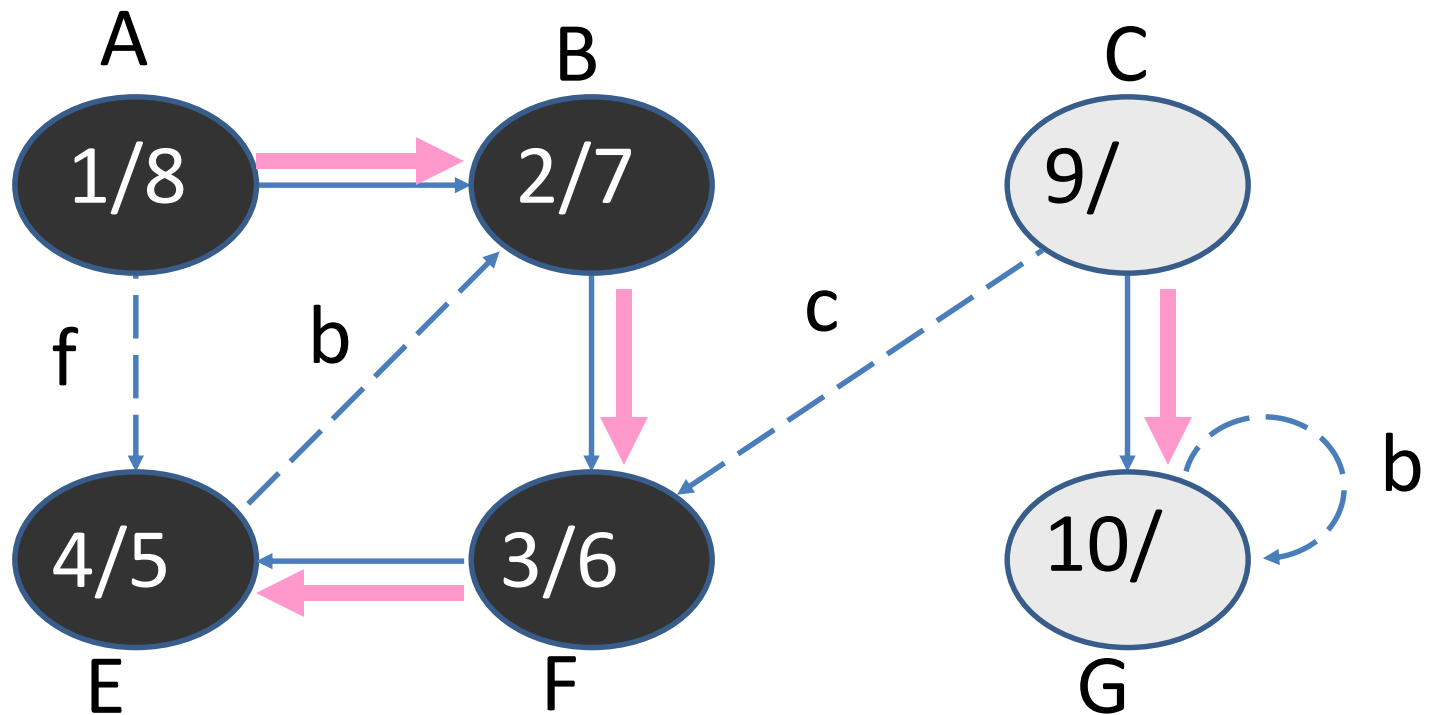


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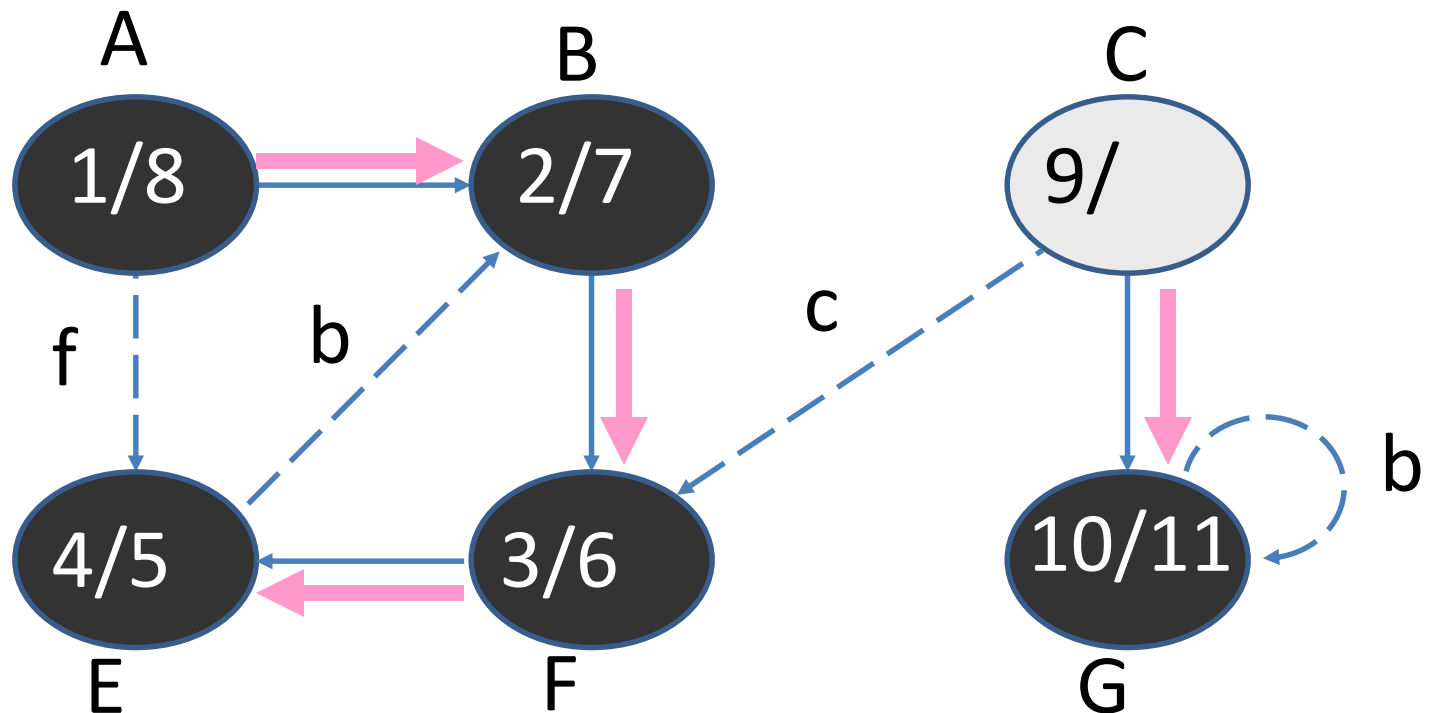




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