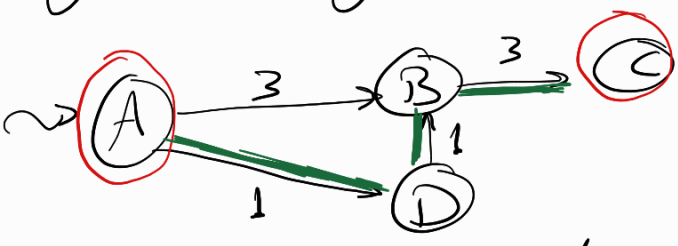
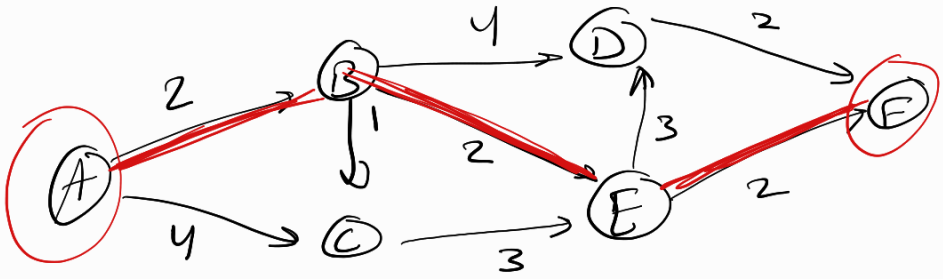
Dijkstra Algorithm ⟹



Visited	Unvisited
A	~~A~~
D	~~B~~
B	~~C~~
C	~~D~~

V	Dist	PrevV
A	0	
B	~~∞~~ ~~3~~ 2	~~A~~ D
C	~~∞~~ 5	B
⟹ D	~~∞~~ 1	A

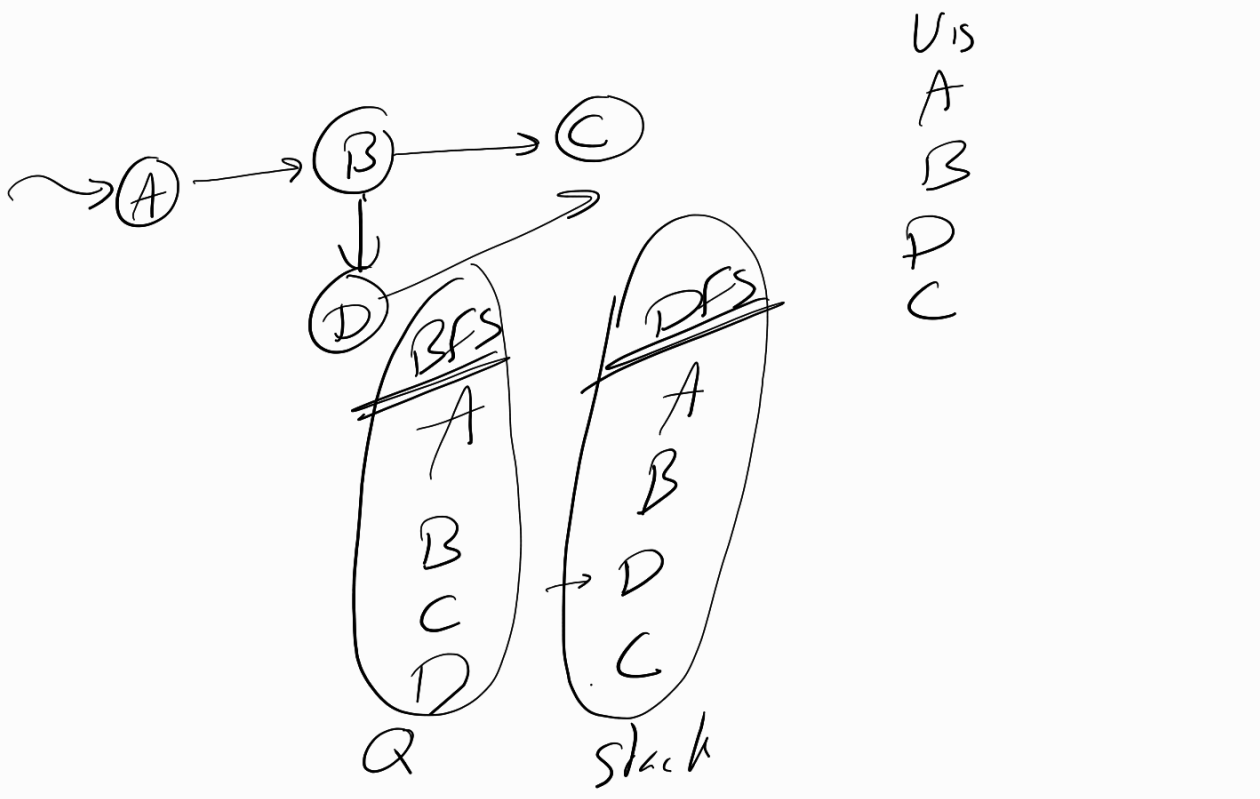
$A \xrightarrow{1} D \xrightarrow{1} B \xrightarrow{3} C$



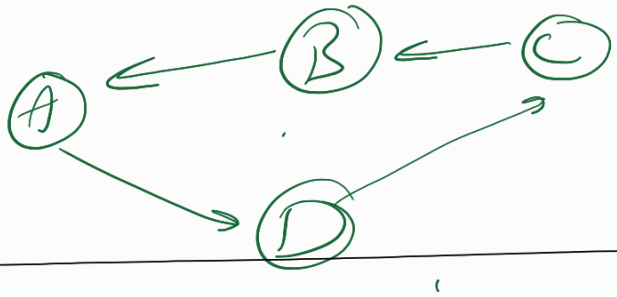
V	Dod	Prev V
A	0	
B	~~∞~~2	A
C	~~∞~~4 ~~3~~	~~A~~B
D	~~∞~~6	B
E	~~∞~~4	B
F	~~∞~~6	E

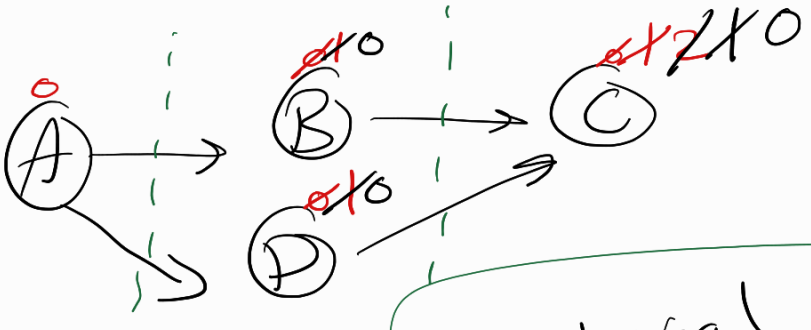
Visited 4✓	Unvisited 4✓
A	~~A~~
B	~~B~~
C	~~C~~
E	~~D~~
D	~~E~~
F	~~F~~

A $\xrightarrow{2}$ B $\xrightarrow{2}$ E $\xrightarrow{2}$ F



Cycle — Visited: A D C B



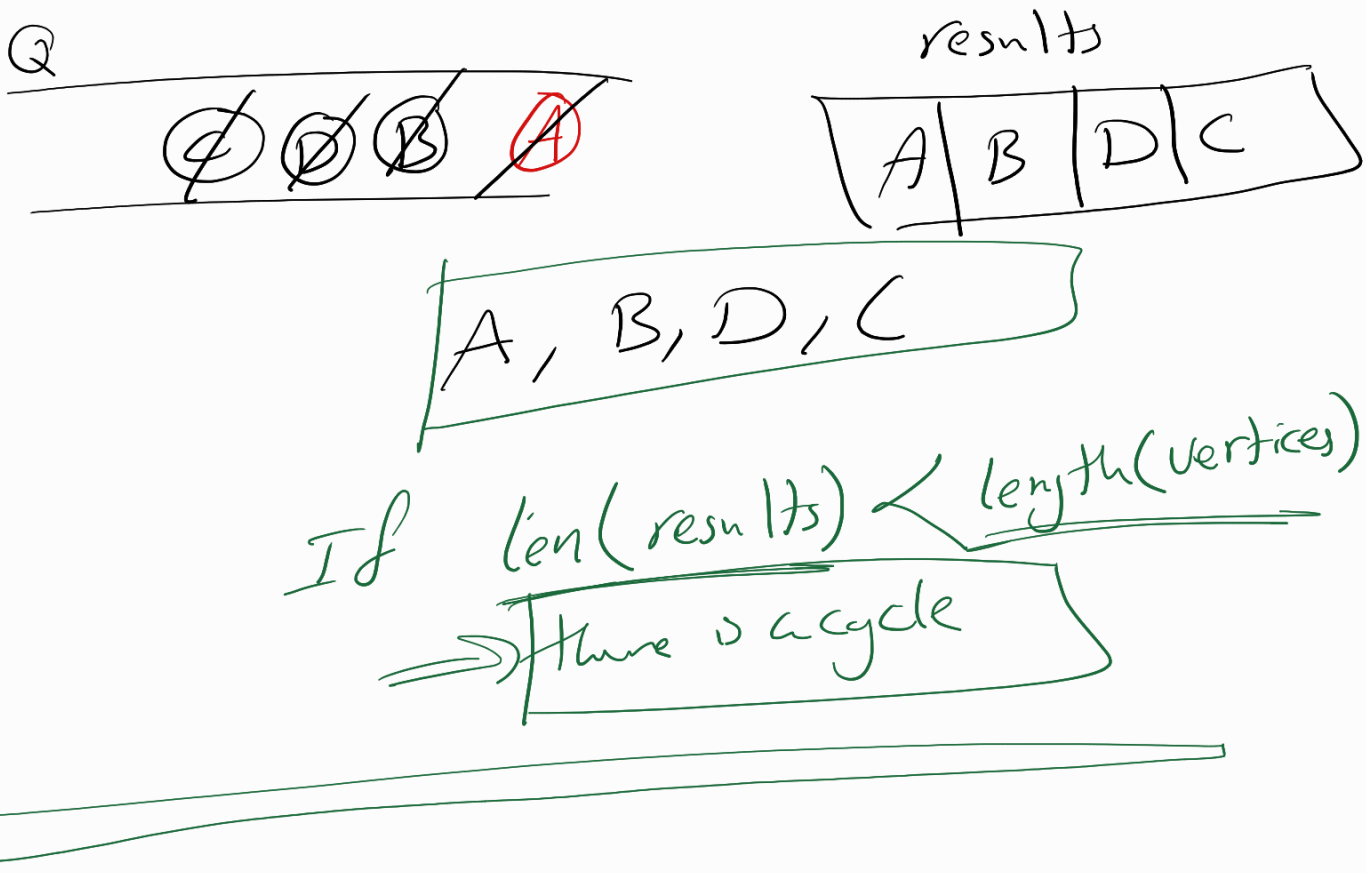


Kahn Algorithm ⟹ Topological order

① Initilize the levels. (Zero for all vertices)

② for each vertex add one to the level of all edges.

③ Add level zero to Q


Q
C D B A
results
A B D C
A, B, D, C
If len(results) < length(vertices)
⇒ there is a cycle