

Graph traversal:

BFS

{ 'a' : ['b', 'c'],

'b' : ['c', 'd'],

'c' : ['d'],

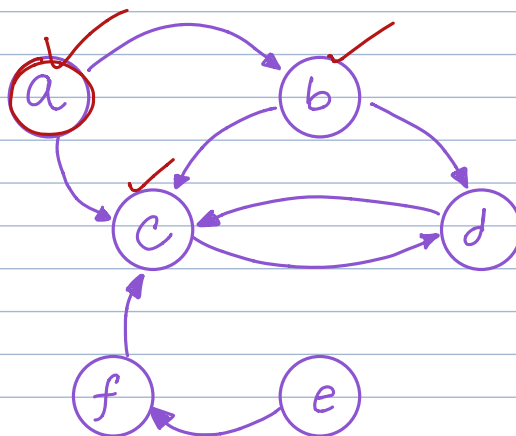
'd' : ['c'],

'e' : ['f'],

'f' : ['c']

}

[a, b, c, d]

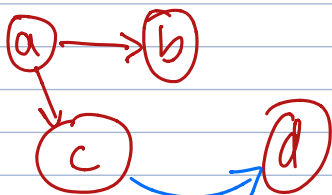
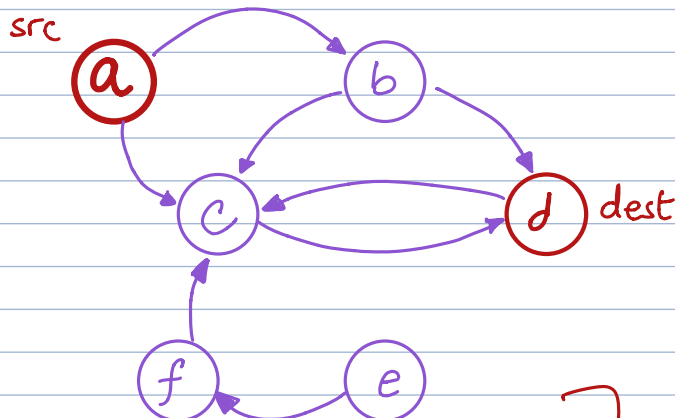


q = ['a']

loop:

current

check if 'a' is already visited
continue.



find(a, b)

find(b, b) → [b]

[a, b]

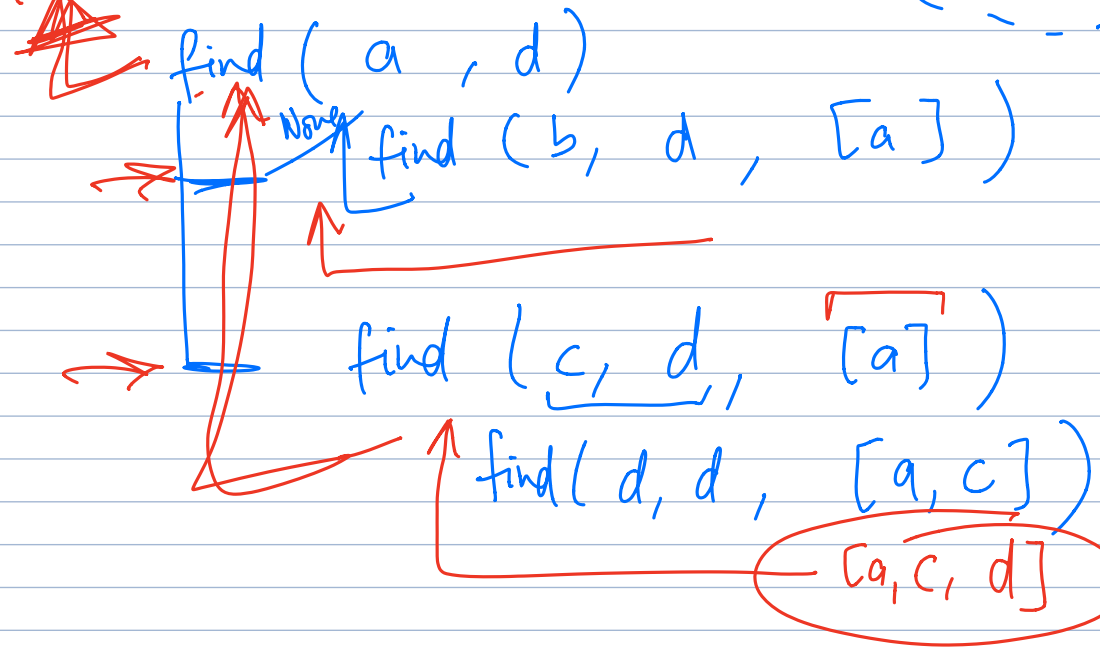
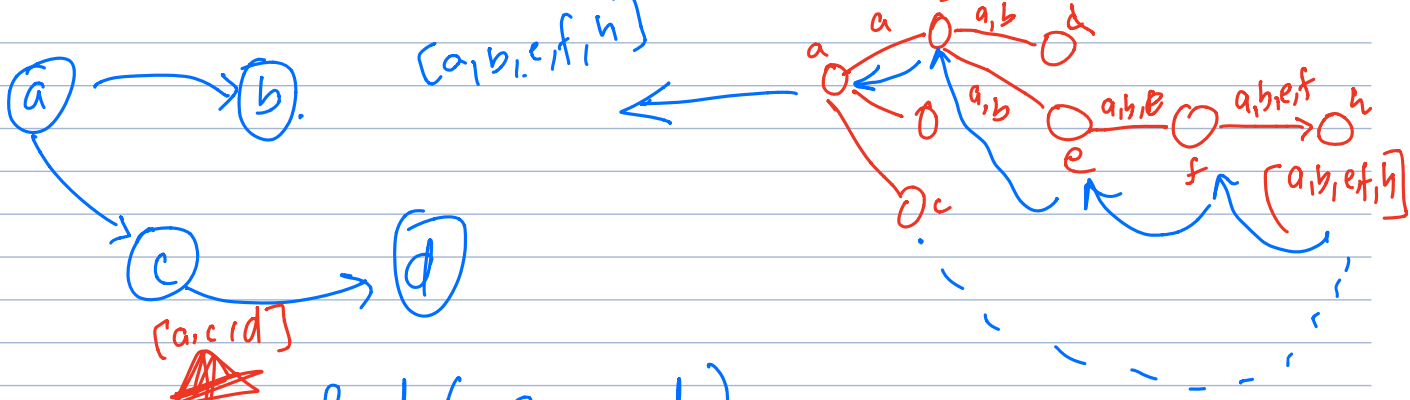
[a, b, d]

find(a, d)

find(b, d, [a])

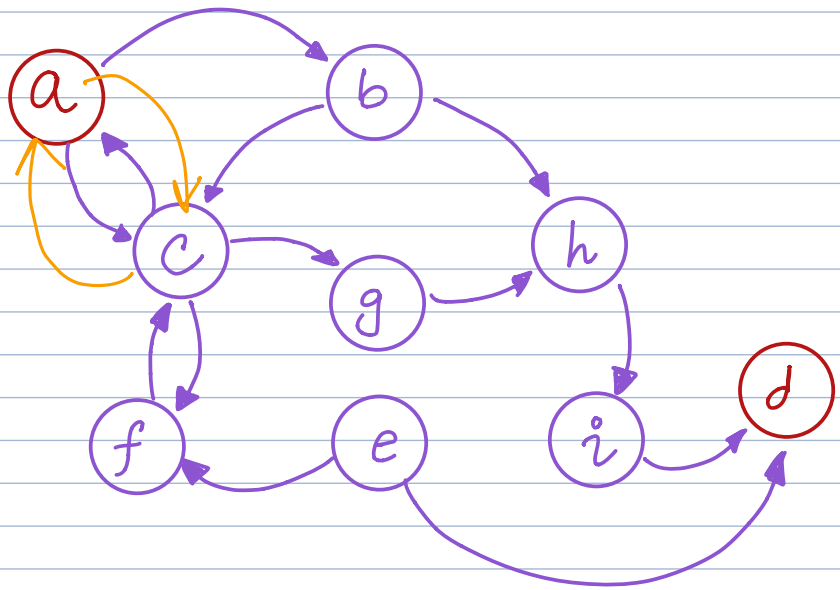
find(d, d, [a, b])

[a, b, d]



a : [c, b]

c : [a, g, f]



[a, c, g, h, i, d]

find(a, d, [])

find(c, d, [a])

~~now~~ find(a, d, [a, c])

None

find(g, d, [a, c])

find(h, d, [a, c, g])

find(i, d, [a, c, g, h])

find(d, d, [a, c, g, h, i])

[a, c, g, h, i, d]

all paths $[a, b, c, d]$,
 $[a, b, d]$
 $[a, c, d]$

find(a, d, [])

↳ f(b, d, [a])

↳ f(c, d, [a, b])

↳ f(d, d, [a, b, c])

[a, b, c, d]

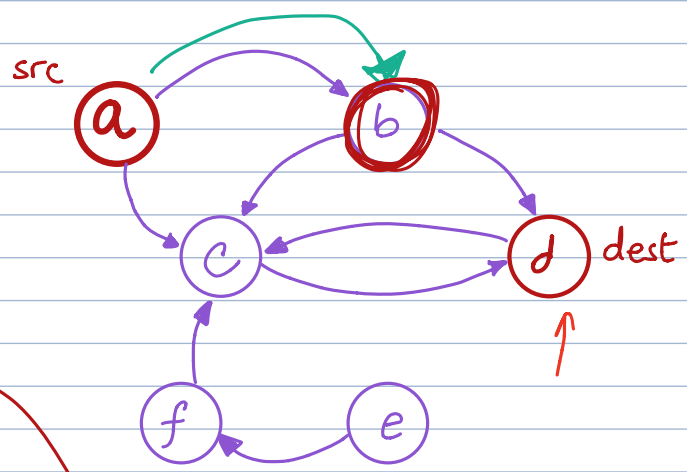
f(d, d, [a, b])

[a, b, d]

f(c, d, [a])

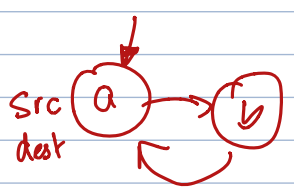
f(d, d, [a, c])

[a, c, d]



→ all_paths = $[a, b, c, d]$

= $\begin{bmatrix} [a, b, c, d] \\ [a, b, d] \end{bmatrix}$



→ repeated sub-problems

