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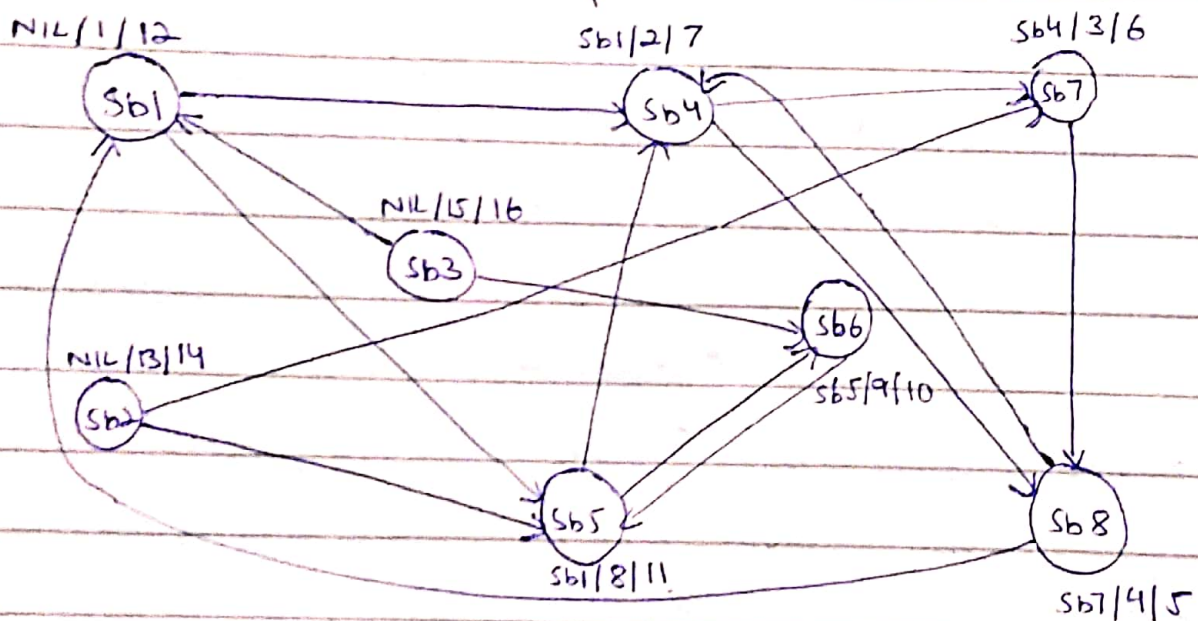
Section - F

AA

Assignment 5

Answer 1

Graph



→

Performing DFS_VISIT

→ Find_Subsection(G)

for each vertex $u \in G.V$

$u.color = white$

stack = NULL

time = 0

for each vertex $u \in G.V$

if $u.color == white$

DFS-VISIT(G, u)

$\text{max_finish_time} = \text{stack.top}$

for each vertex $u \in G.V$

$u.\text{color} = \text{white}$

$\text{DFS_VISIT}(G, w)$

for each vertex $u \in G.V$

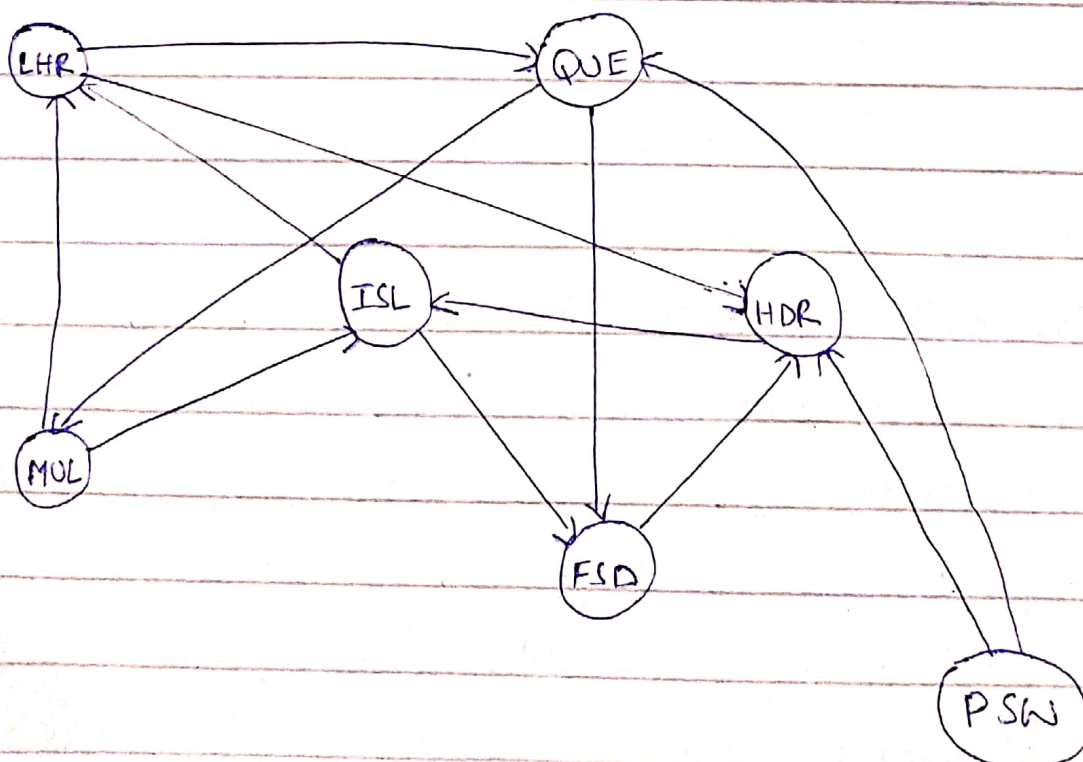
if $u.\text{color} == \text{white}$

subsection not found

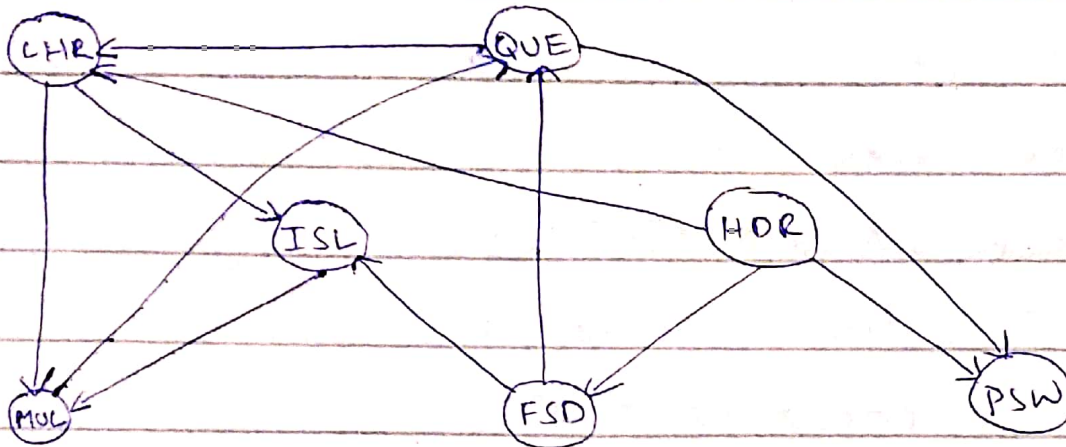
max_finish_time is the subsection

Answer 2

Graph



→ Taking transpose + DFS_VISIT



DFS_VISIT($G.transpose, u$)

time = time + 1

$u.start = time$

$u.color = grey$

for each $v \in G.transpose.Adj[u]$

if $v.color == white$

DFS_VISIT($G.transpose, v$)

$u.color = black$

time = time + 1

$u.finish = time$

stack.push(u)

→ Performing DFS-VISIT on the original graph

DFS-VISIT(G, u)

$u.start = time$

$u.color = grey$

for each $v \in G.Adj[u]$

if $v.color == white$

DFS-VISIT(G, v)

$u.color = black$

→ Finding Bzones

SCC(G)

for each vertex $u \in G.V$

$u.parent = NIL$

$u.color = white$

stack = NULL

time = 0

for each vertex $u \in G.transpose.V$

if $u.color == white$

DFS-VISIT($G.transpose, u$)

bool arr[V]

for each index $u \in arr$

$u = false$

time = 0

while stack not empty

u = stack.pop

if arr[u] == false

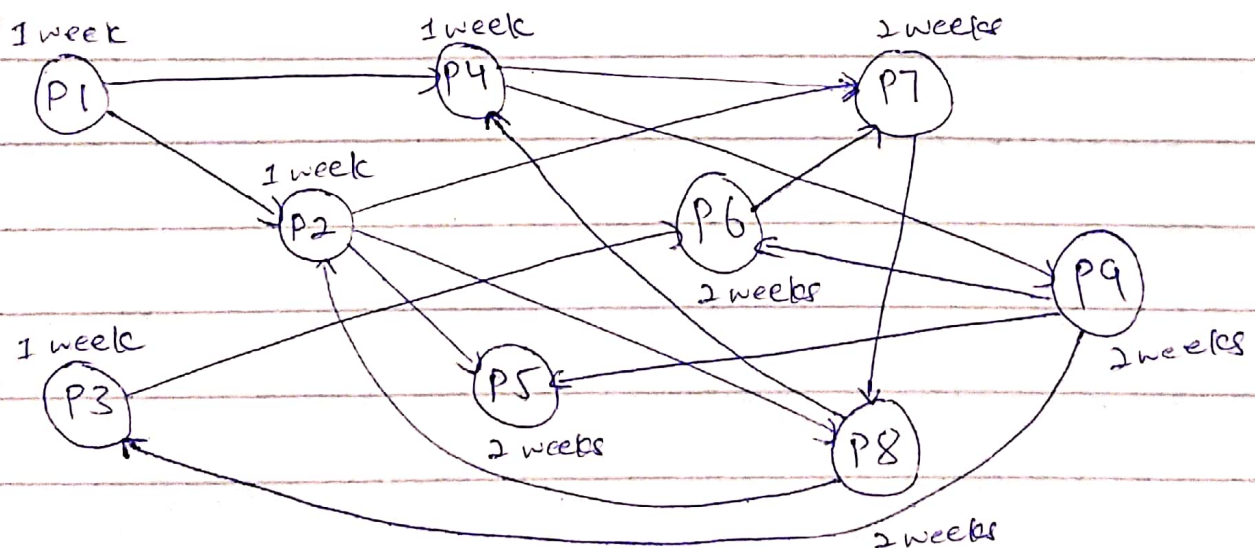
time = time + 1

DFS-VISIT(G, u)

arr[u] = true.

Answer 3

Graph and time



→ P1 = 2 weeks

→ P2 = 6 weeks

→ P3 = 2 weeks

→ P4 = 4 weeks

→ P5 = 3 weeks

$P_6 = 2 \text{ weeks}$

$P_7 = 2 \text{ weeks}$

$P_8 = 2 \text{ weeks}$

$P_9 = 5 \text{ weeks}$

Total time = 28 weeks.