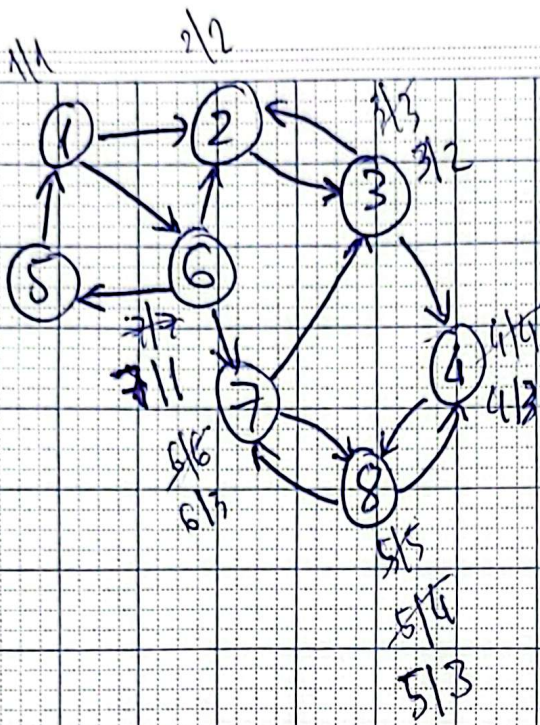


Exg.



a)  $n = 8$ ,  $m = 14$

	1	2	3	4	5	6	7	8
1	0	1	0	0	0	1	0	0
2	0	0	1	0	0	0	0	0
3	0	1	0	1	0	0	0	0
4	0	0	0	0	0	0	0	1
5	1	0	0	0	0	0	0	0
6	0	1	0	0	1	0	1	0
7	0	0	1	0	0	0	0	1
8	0	0	0	1	0	0	1	0

b)

$SCC(1)$

$num[1] = min\_num[1] = k = 1; k++ = 2;$

$push[s] = \{1\}, on\_stack[1] = 1$

$L = \{2, 6\}$

for ( $k \leftarrow 1$ )

$\exists (num[2] < 0) \checkmark$

$SCC(2)$

$num[2] = 2, min\_num[2] = 2, on\_stack = 1, k++ = 3$

$S = \{2, 6\}, \{1, 2\}, L = \{3\}$

for ( $k \leftarrow 2$ )

$SCC(3)$

$num[3] = min\_num[3] = 3, on\_stack = 1, k++ = 4$

(TP)



$$S = \{1, 2, 3\}, L = \{2, 4\}$$

for (L)

$$\{ \text{for } 2 \in S \rightarrow \min_{\text{min}}^{(3)} = \min(\min(3), \min(2)) = 2$$

SCC(4)

$$\{ \min[4] = \min[4] = 4, \text{ans}[4] = 1, k++ = 5$$

$$S = \{1, 2, 3, 4\}, L = \{8\}$$

for (k ∈ L)

$$\{ 4 \in S \rightarrow \min[8] = \min(\min(8), \min(4)) =$$

SCC(8)

$$\{ \min[8] = \min[8] = 5, \text{ans}[8] = 1, k++ = 6$$

$$S = \{1, 2, 3, 4, 8\}, L = \{4, 7\}$$

for (k ∈ L)

$$\{ 4 \in S \rightarrow \min[8] = \min(\min(8), \min(4)) = 4$$

SCC(7)

$$\{ \min[7] = \min[7] = 6, \text{ans}[7] = 1, k++ = 7$$

$$S = \{1, 2, 3, 4, 8, 7\}, L = \{3, 8\}$$

for (L)

$$\{ 3 \in S \rightarrow \min[7] = \min(\min(7), \min(3)) = 3$$

$$\{ 8 \in S \rightarrow \min[7] = \min(\min(7), \min(8)) = 3$$

$$\{ \text{if } (\min[7] \neq \min[7]) \rightarrow \text{continue}$$

$$\{ (\min[8] \neq \min[8]) \rightarrow \text{continue}$$

$$\{ \min[7] \neq \min[7] \rightarrow \text{cont.}$$

$$\{ \min[8] = \min(\min(8), \min[7]) = 3$$



scc(2) scc(3) scc(4) scc(8)

$\Rightarrow \text{num}[8] \neq \text{min}[8] \rightarrow \text{cont}$

$\text{min}[4] = \min(\text{min}[4], \text{min}[8]) = 3$

$\Rightarrow \text{num}[4] \neq \text{min}[4] \rightarrow \text{cont}$

$\text{min}[3] = \min(\text{min}[3], \text{min}[4]) = 2$

$\Rightarrow \text{num}[3] \neq \text{min}[3] \rightarrow \text{cont}$

$\text{min}[2] = \min(\text{min}[2], \text{min}[3]) = 2$

$\Rightarrow \text{num}[2] = \text{min}[2]$

✓

$\begin{cases} \text{pop} \{7, 8, 4, 3, 2\} \\ S = \{1\} \end{cases}$

scc(1)

scc(6)

$\text{num}[6] = \text{min\_num}[6] = 7, \text{on\_stack} = 1, \text{LH} = 8$

$S = \{1, 6\}; L = \{2, 5, 7\}$

for ( $\vec{k} \in 6$ )

2 ✓

scc(5)

$\text{num}[5] = \text{min}[5] = 8, \text{LH} = 9$

$S = \{1, 6, 5\}, L = \{1\}$

for ( $\vec{k} \in 5$ )

$1 \in S \rightarrow \text{min}[5] = \min(\text{min}[5], \text{num}[1]) = 1$

$\Rightarrow (\text{num}[5] \neq \text{min}[5]) \rightarrow \text{cont}$

TP

7 ✓



$sec(4)$   
 $sec(6)$   
 $sec(5)$

Ngày ..... tháng ..... năm .....

$$min[6] = min(min[6], min[5]) = 1$$

$\Rightarrow min[6] \neq min[6] \rightarrow cont$

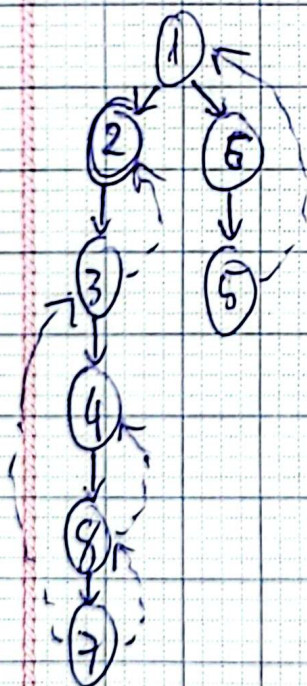
$$min[1] = min(min[1], min[6]) = 1$$

$$\Rightarrow min[1] == min[1]$$

$\checkmark$ 

$$\begin{cases} pop = \{6, 5, 1\} \\ S = \{\} \end{cases}$$

c) Vẽ cây



d) Bộ phận liên thông mạnh

