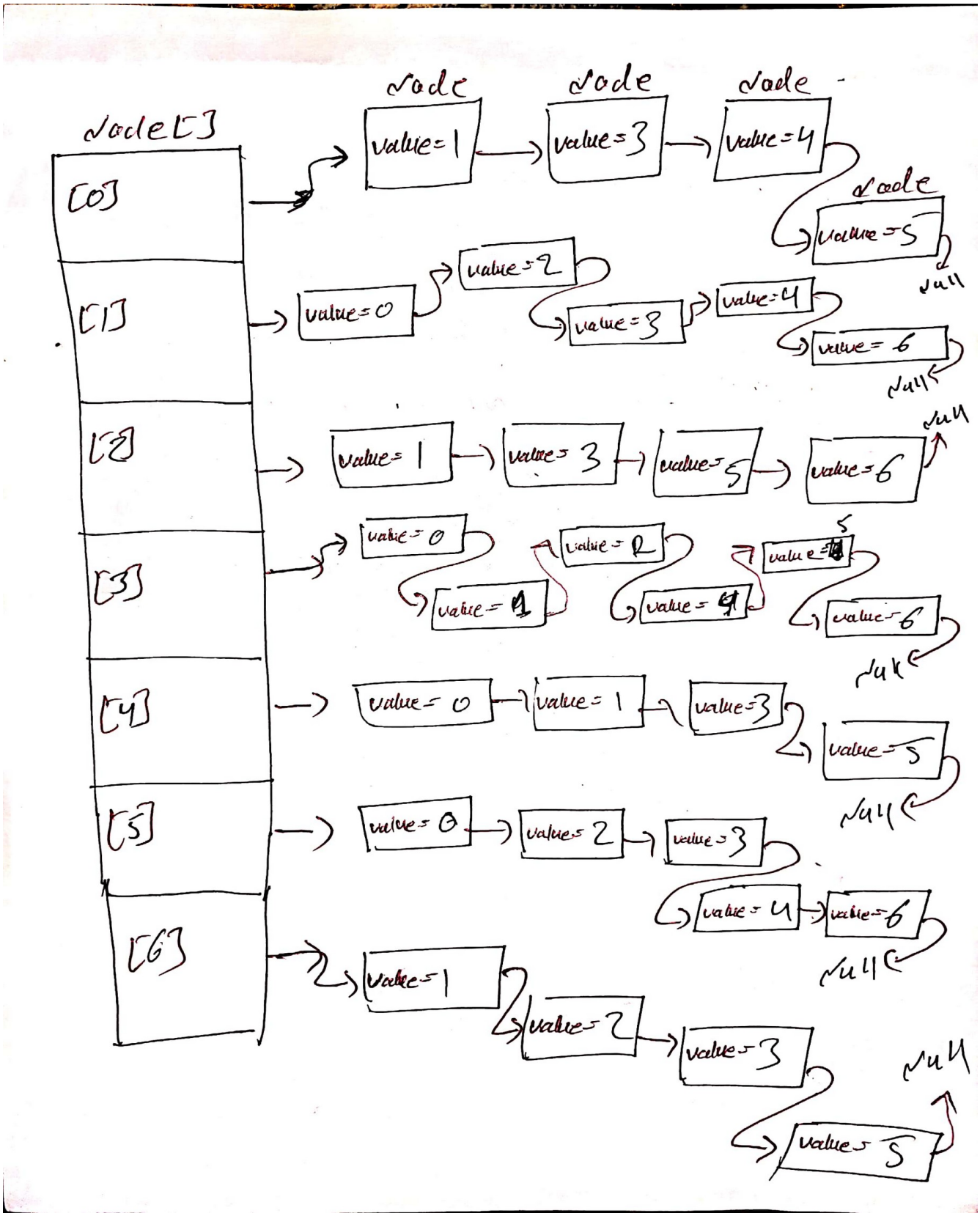
Q1:
adjacency lists:



Column

Rows

	[0]	[1]	[2]	[3]	[4]	[5]	[6]
[0]		1		1	1	1	
[1]	1		1	1	1		1
[2]		1		1		1	1
[3]	1	1	1		1	1	1
[4]	1	1		1		1	
[5]	1		1	1	1		1
[6]		1	1	1		1	

the |V| = n for above graph is 7 and the |E| = m for above graph is 17.

density of a graph:

$D = |E| / |V|^2$

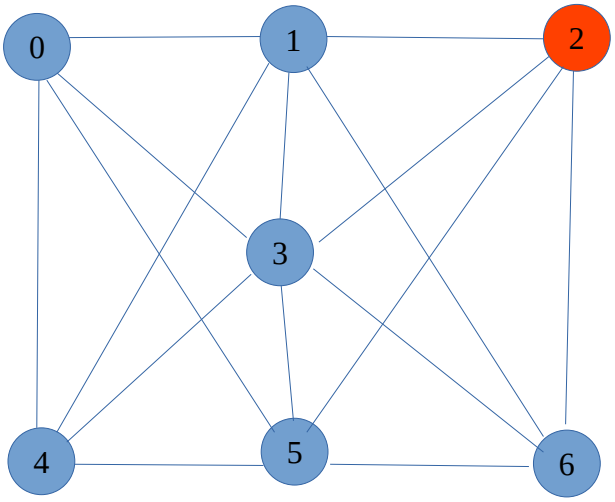
$|E| = 7$, $|V| = 17$, $|V|^2 = 289$ D = 7 / 289 = 0.0242

for this graph the adjacency matrix
representation is better since it is a dense graph.

DFS:

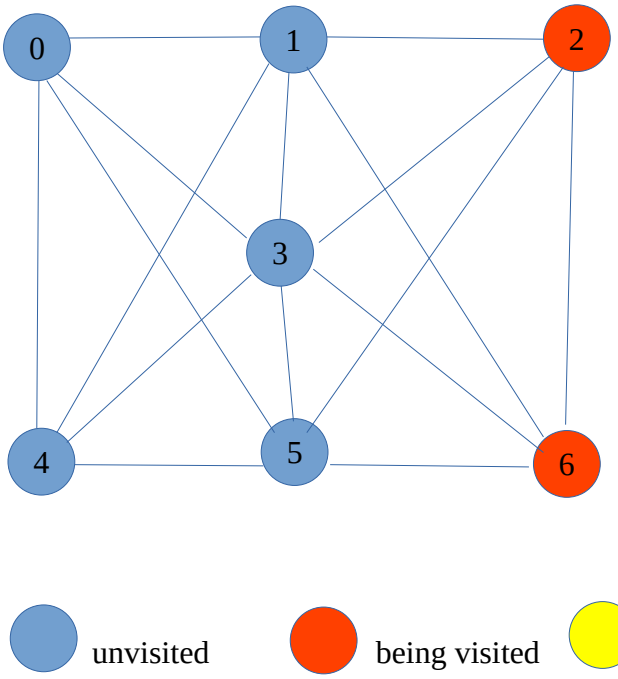
Discovery (Visit) order:
2

Finish order:



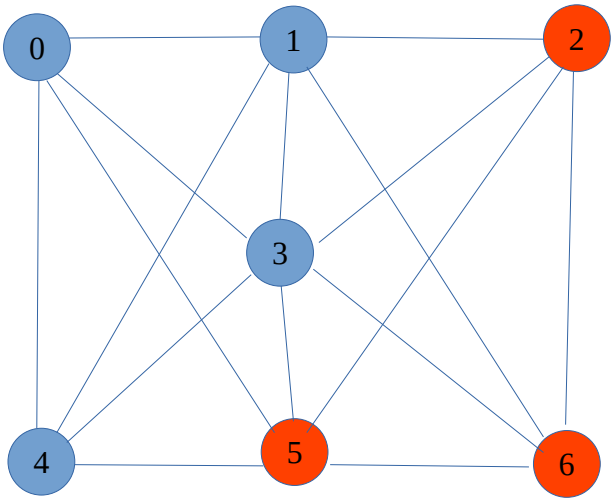
Discovery (Visit) order:
2,6

Finish order:



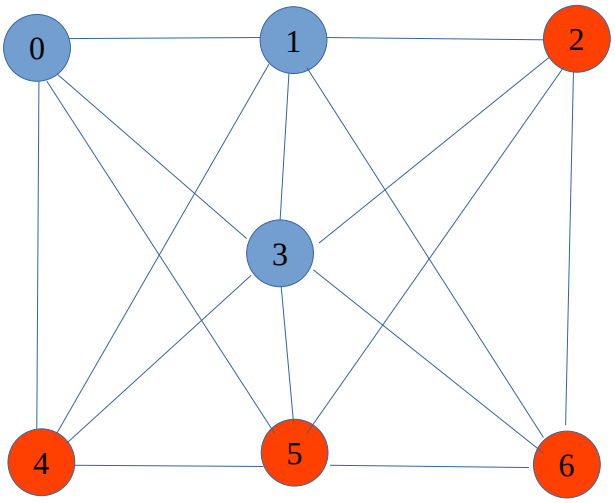
Discovery (Visit) order:
2,6,5

Finish order:



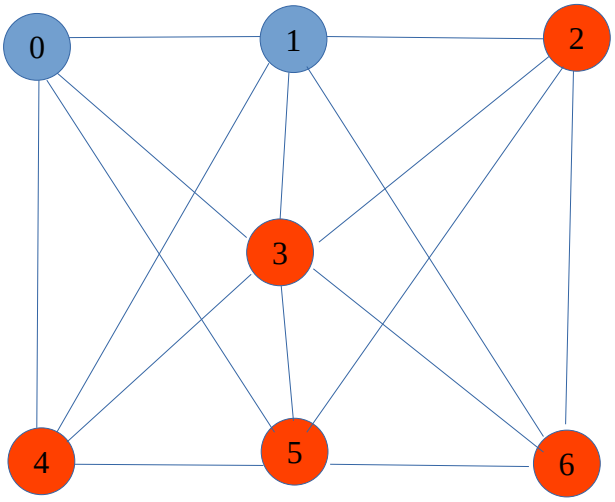
Discovery (Visit) order:
2,6,5,4

Finish order:



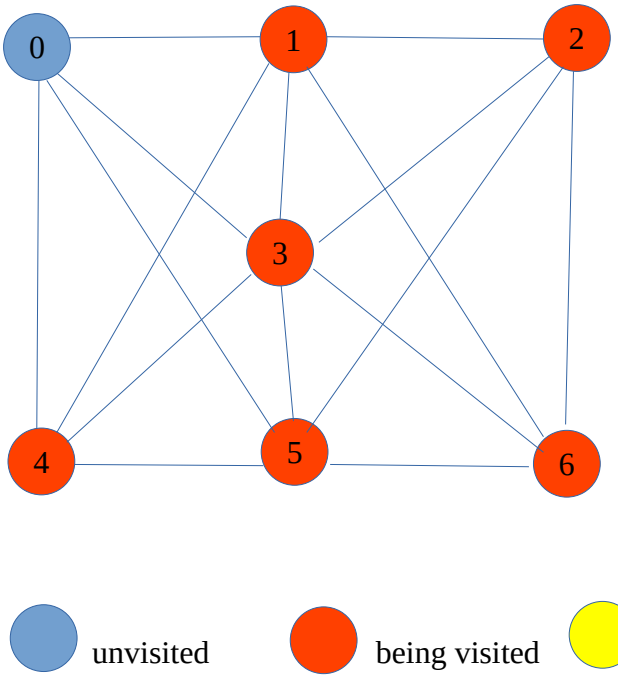
Discovery (Visit) order:
2,6,5,4,3

Finish order:



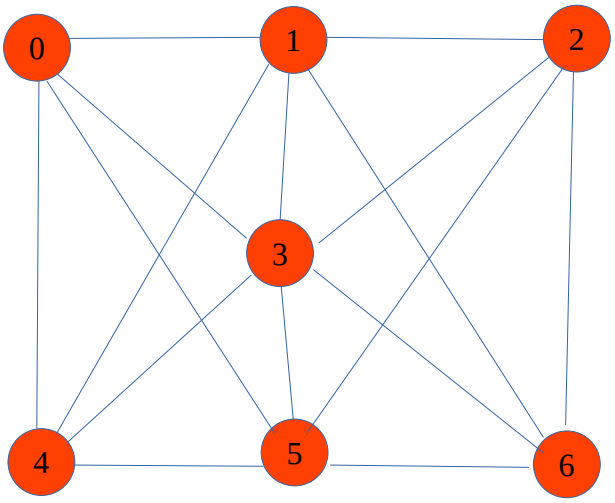
Discovery (Visit) order:
2,6,5,4,3,1

Finish order:



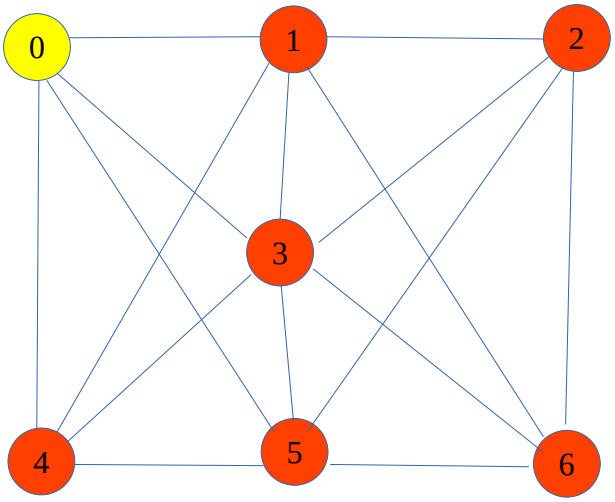
Discovery (Visit) order:
2,6,5,4,3,1,0

Finish order:



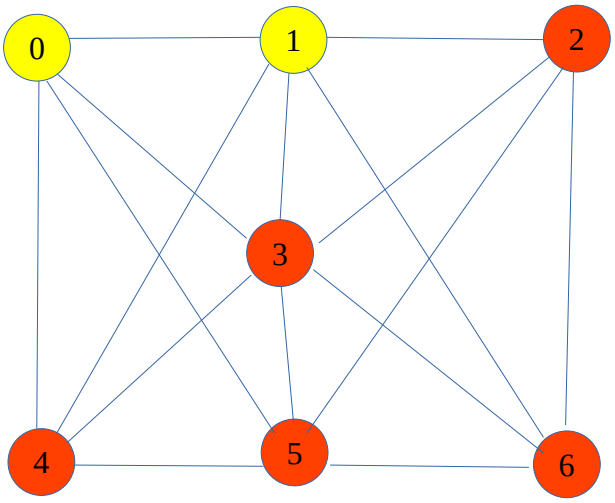
Discovery (Visit) order:
2,6,5,4,3,1

Finish order:
0



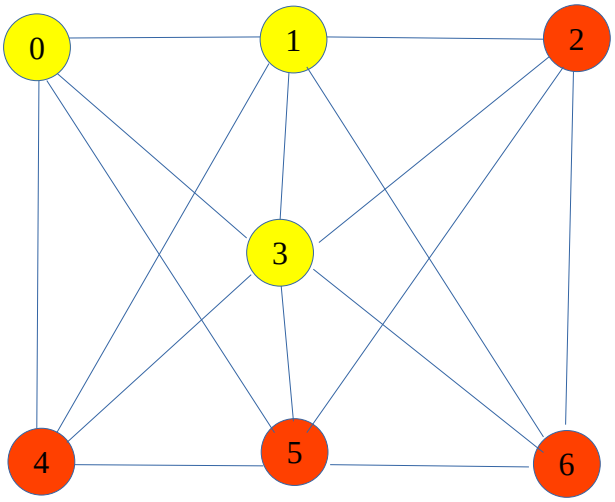
Discovery (Visit) order:
2,6,5,4,3

Finish order:
0,1



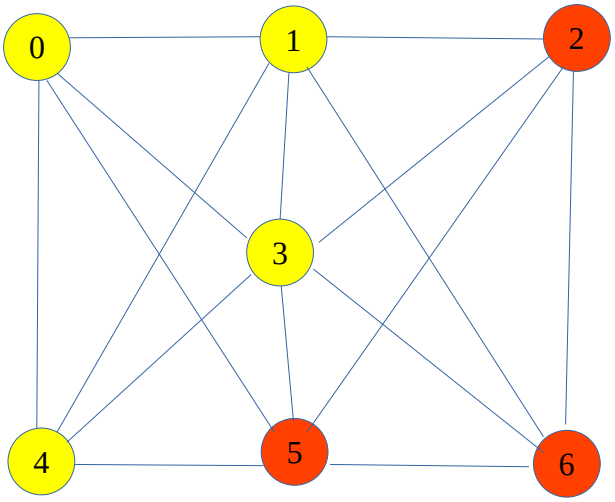
Discovery (Visit) order:
2,6,5,4

Finish order:
0,1,3



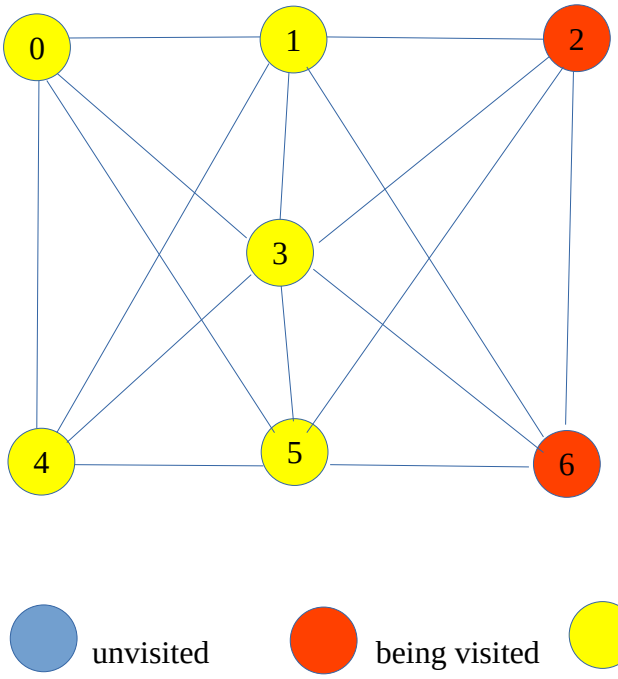
Discovery (Visit) order:
2,6,5

Finish order:
0,1,3,4



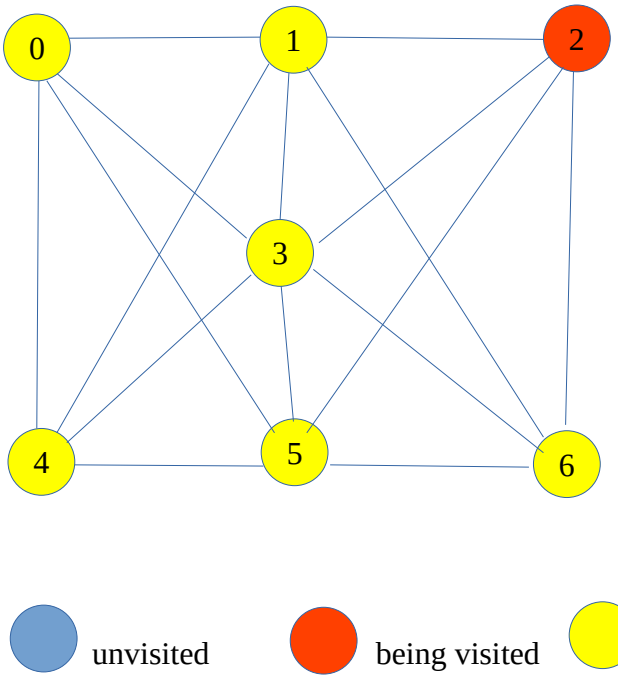
Discovery (Visit) order:
2,6

Finish order:
0,1,3,4,5



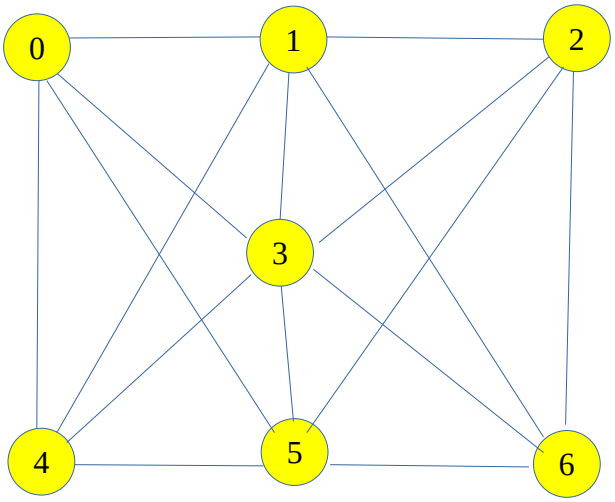
Discovery (Visit) order:
2

Finish order:
0,1,3,4,5,6



Discovery (Visit) order:

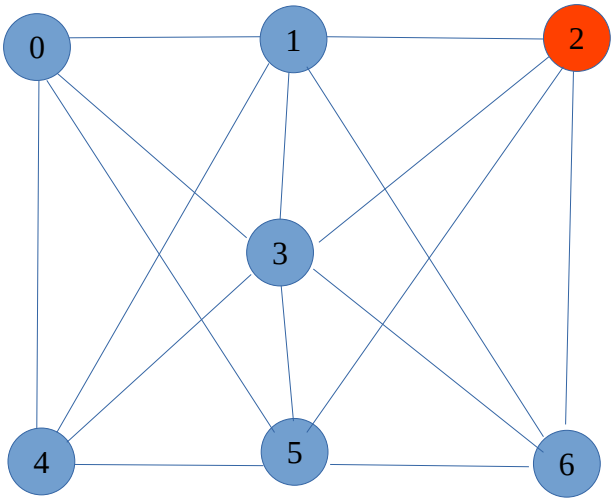
Finish order:
0,1,3,4,5,6,2



BFS:

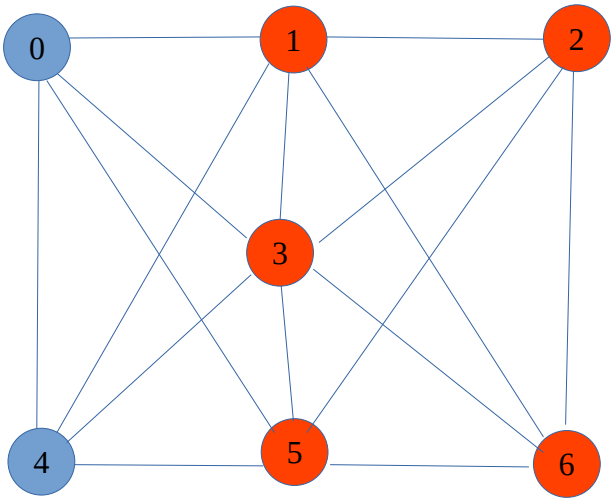
Queue:

Visit sequence:
2



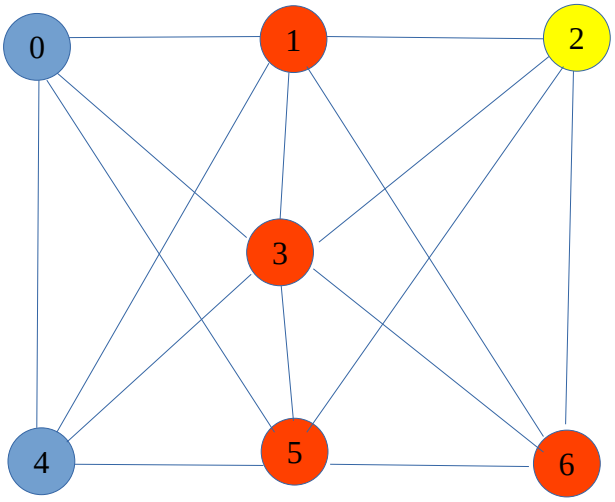
Queue:

6,5,3,1
Visit sequence:
2



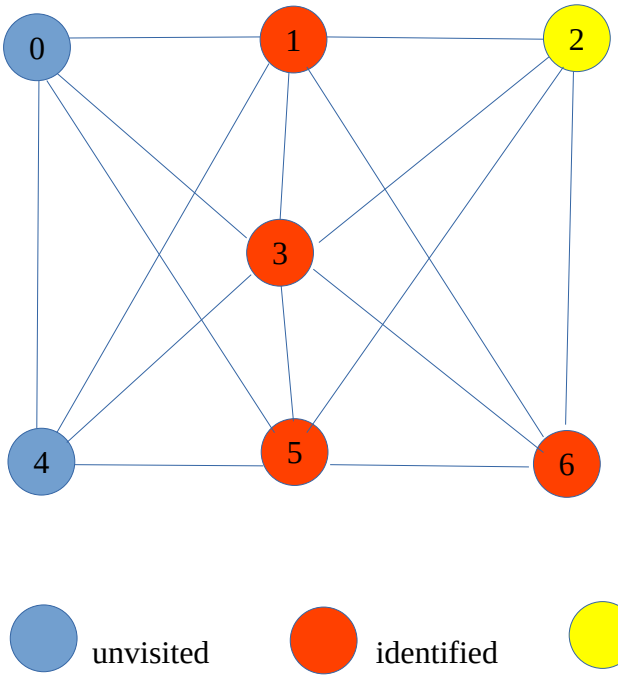
Queue:

6,5,3,1
Visit sequence:
2



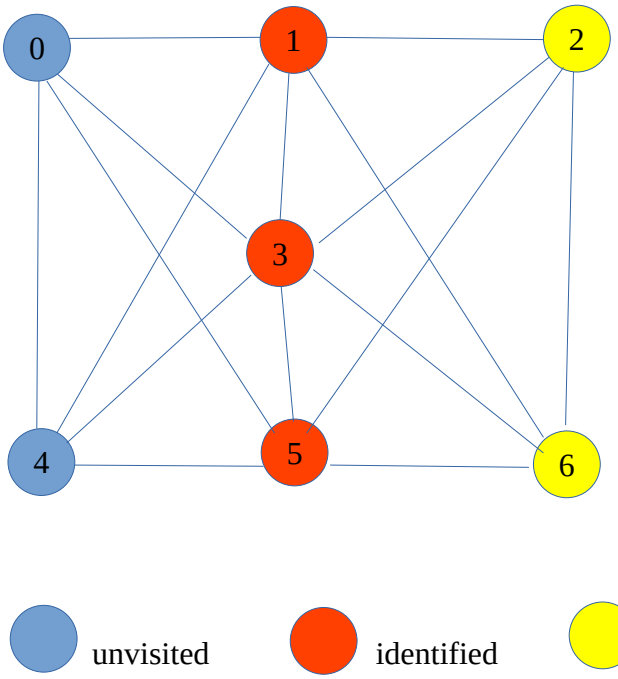
Queue:

5,3,1
Visit sequence:
2,6



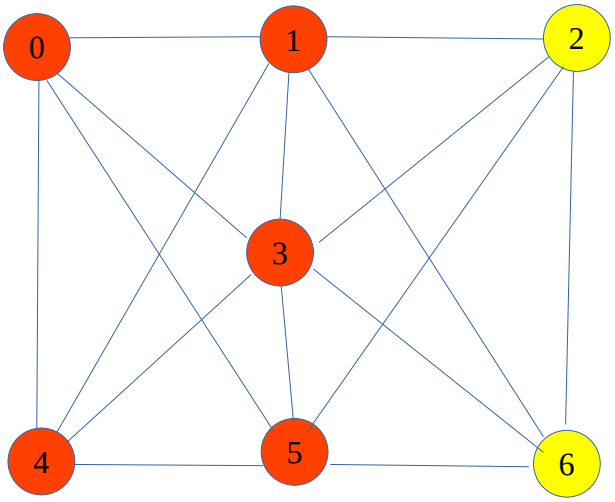
Queue:

5,3,1
Visit sequence:
2,6



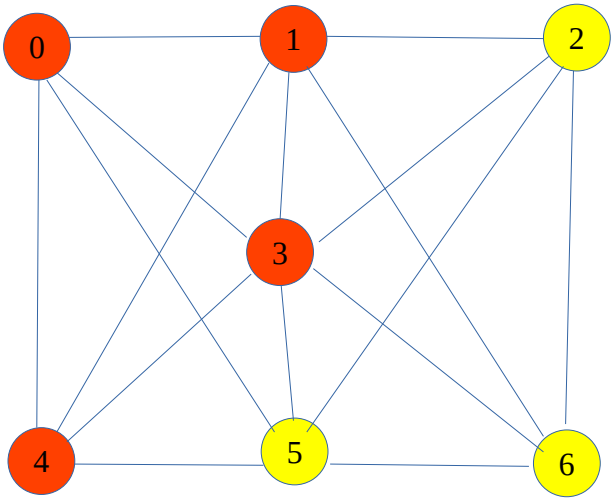
Queue:

3,1,4,0
Visit sequence:
2,6,5



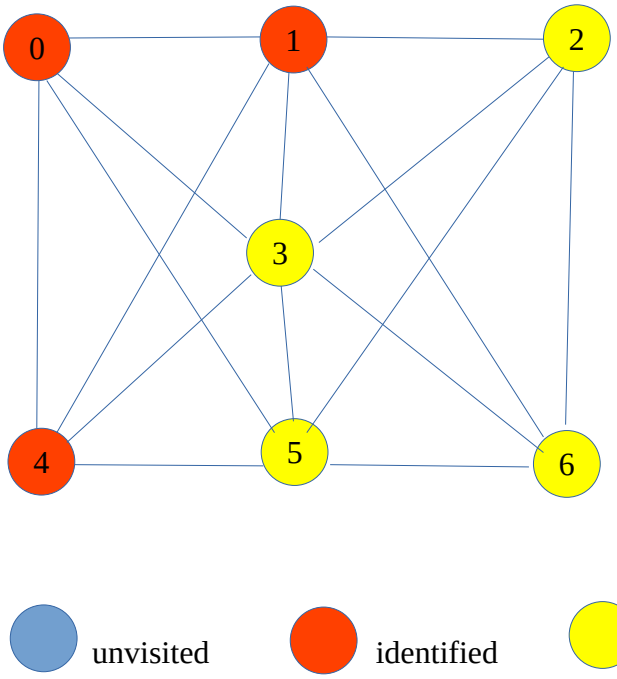
Queue:

3,1,4,0
Visit sequence:
2,6,5



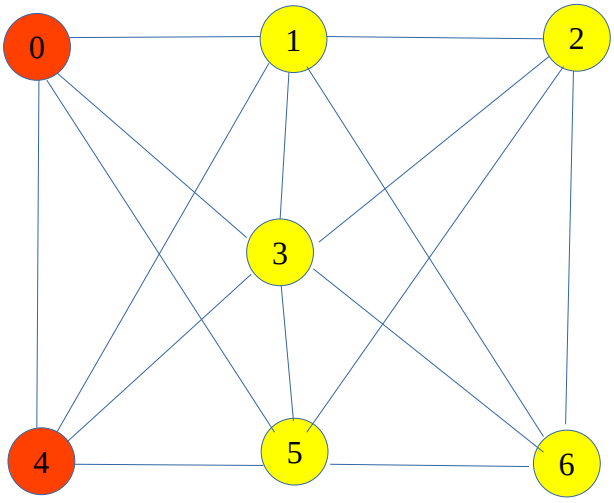
Queue:

1,4,0
Visit sequence:
2,6,5,3



Queue:

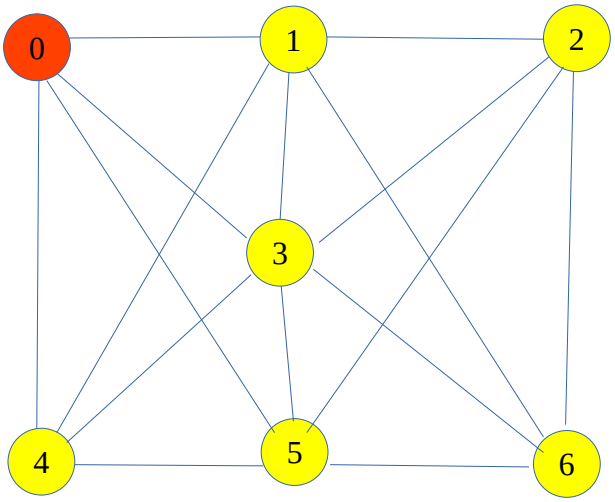
4,0
Visit sequence:
2,6,5,3,1



Queue:

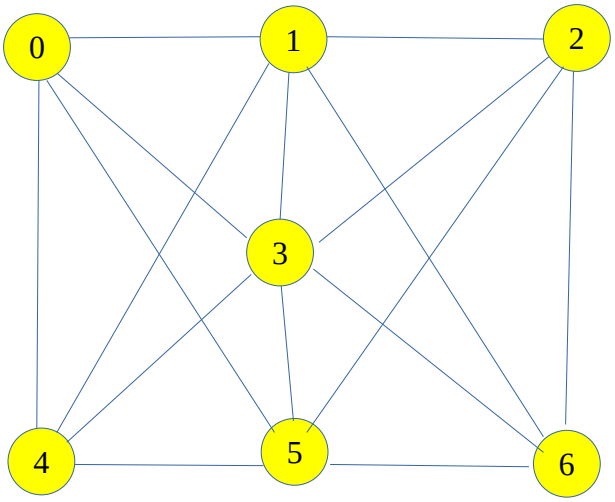
0

Visit sequence:
2,6,5,3,1,4

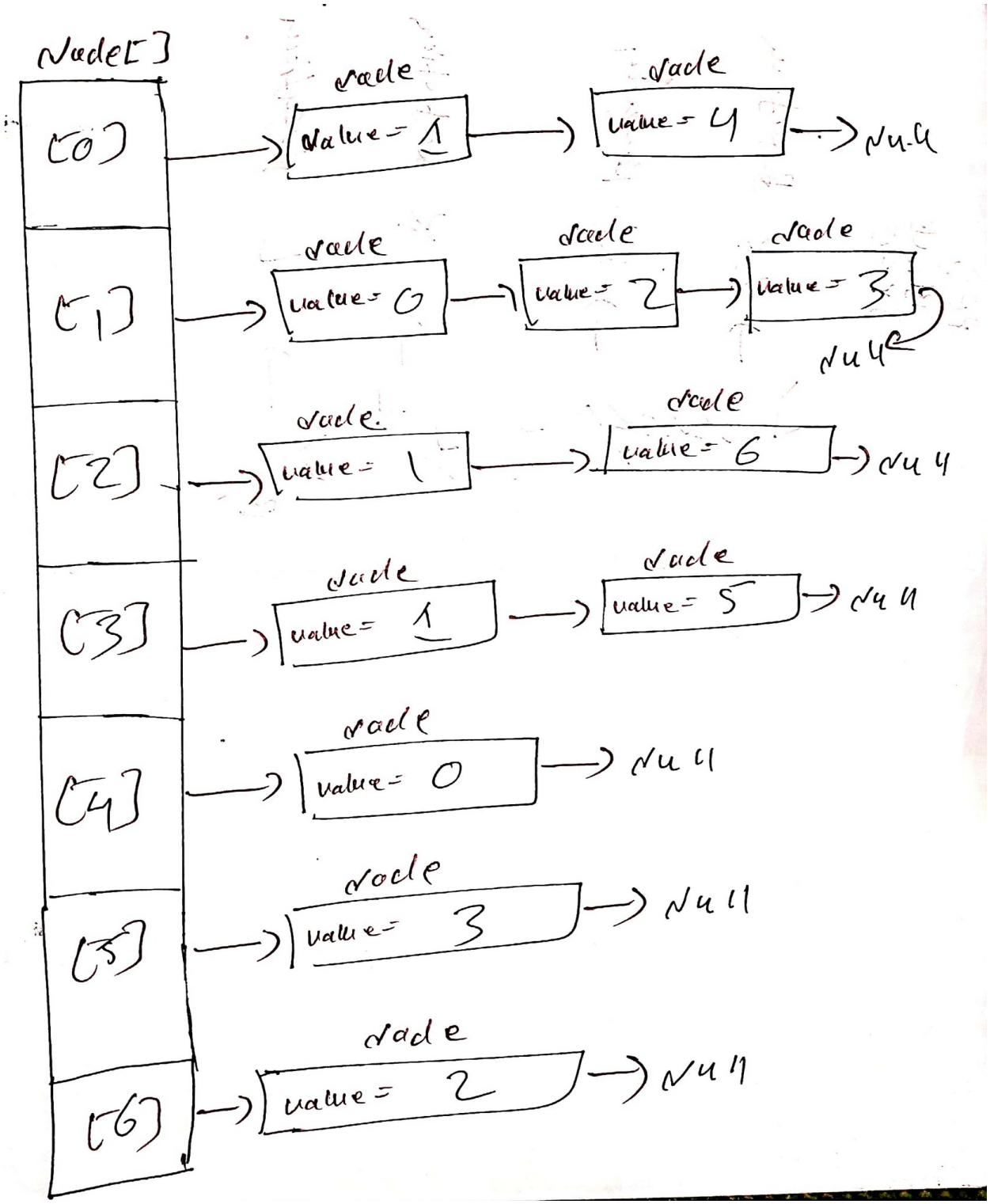


Queue:

Visit sequence:
2,6,5,3,1,4,0



FOR SECOND GRAPH:
ADJECENCY LIST:



ADJECENCY MATRIX:

column

rows	[0]	[1]	[2]	[3]	[4]	[5]	[6]
[0]		1			1		
[1]	1		1	1			
[2]		1					1
[3]		1				1	
[4]	1						
[5]				1			
[6]			1				

the |V| = n for above graph is 6 and the |E| = m for above graph is 7.

density of a graph:

$D = |E| / |V|^2$

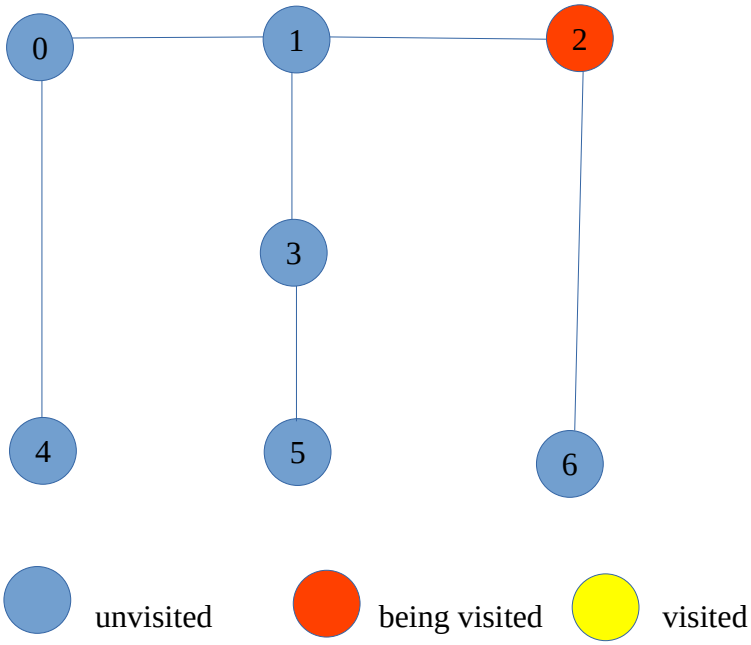
$|E| = 6$, $|V| = 7$, $|V|^2 = 49$ $D = 6 / 49 = 0.1224$

for this graph the adjacency list
representation is better since it is a sparse graph.

DFS:

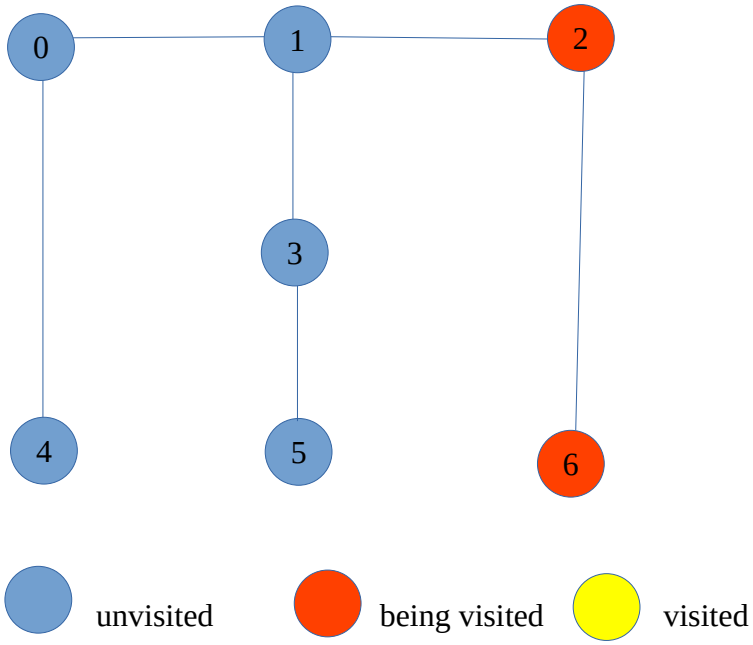
Discovery (Visit) order:
2

Finish order:



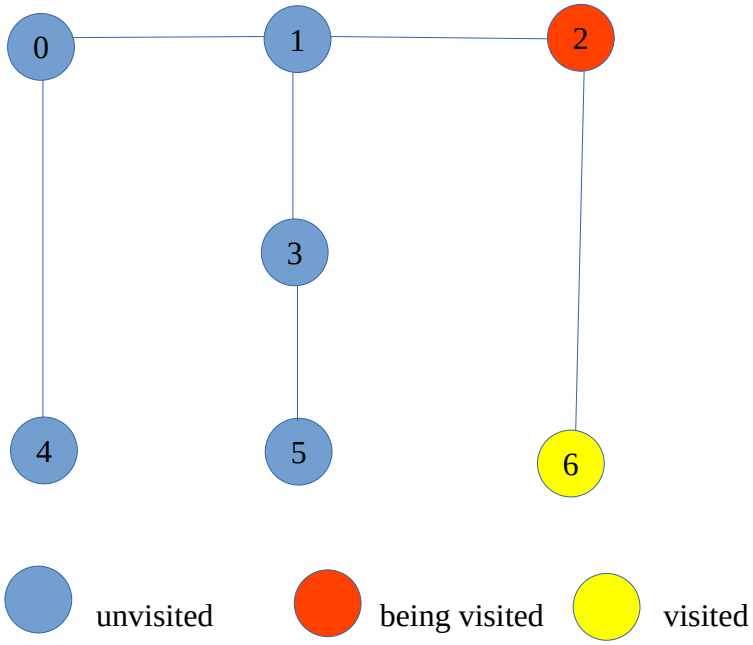
Discovery (Visit) order:
2,6

Finish order:



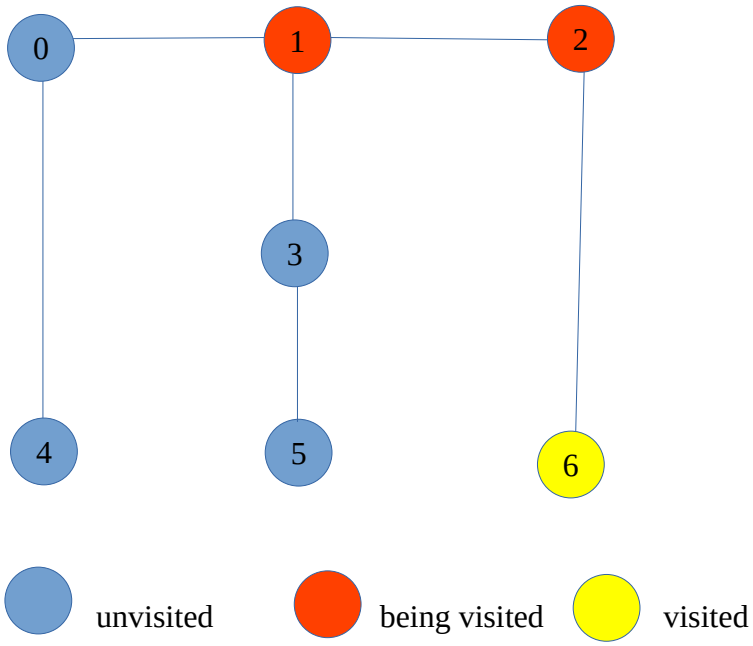
Discovery (Visit) order:
2

Finish order:
6



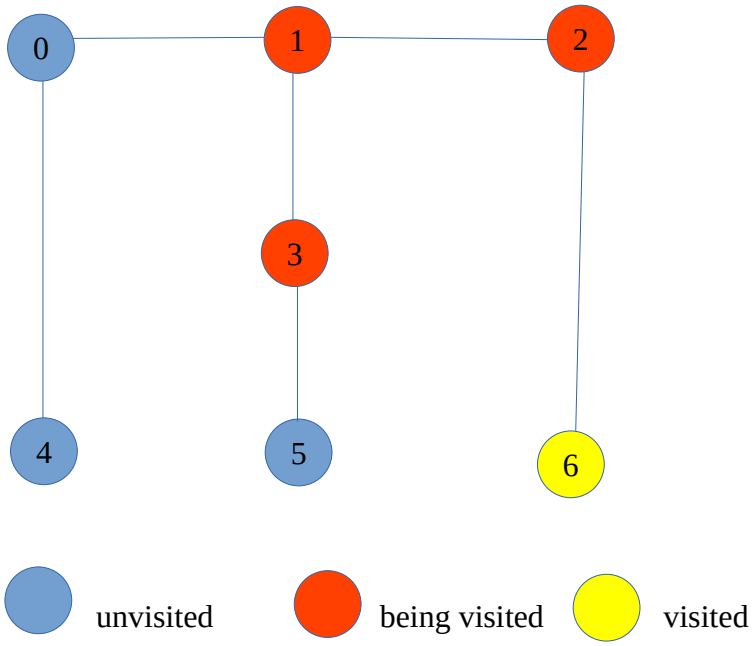
Discovery (Visit) order:
2,1

Finish order:
6



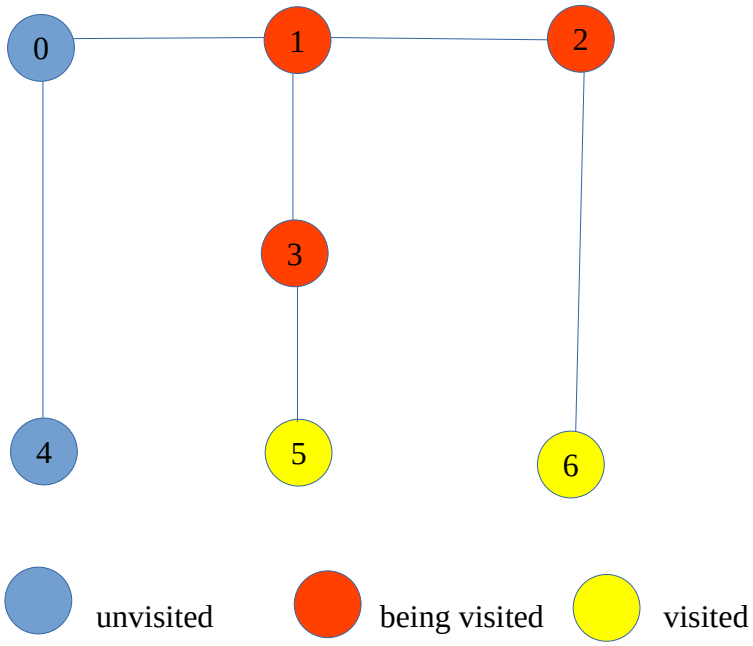
Discovery (Visit) order:
2,1,3

Finish order:
6



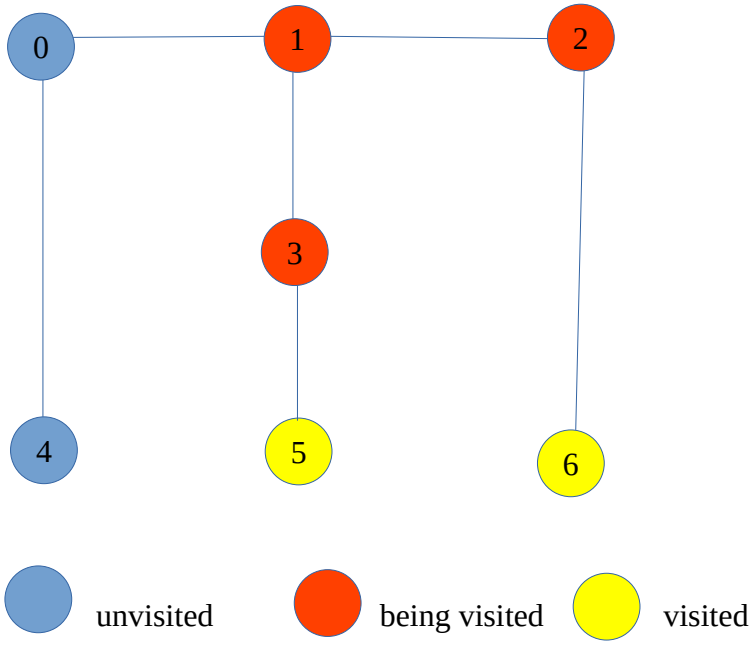
Discovery (Visit) order:
2,1,3,5

Finish order:
6



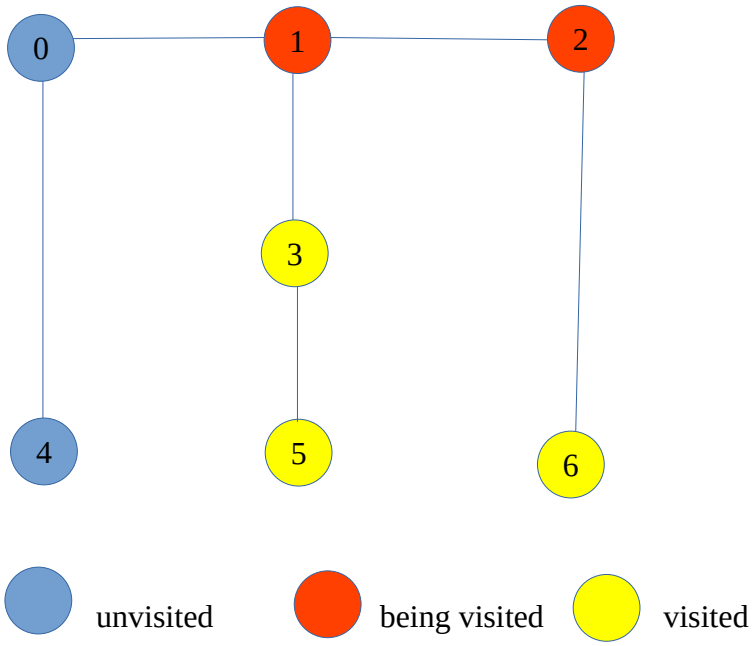
Discovery (Visit) order:
2,1,3

Finish order:
6,5



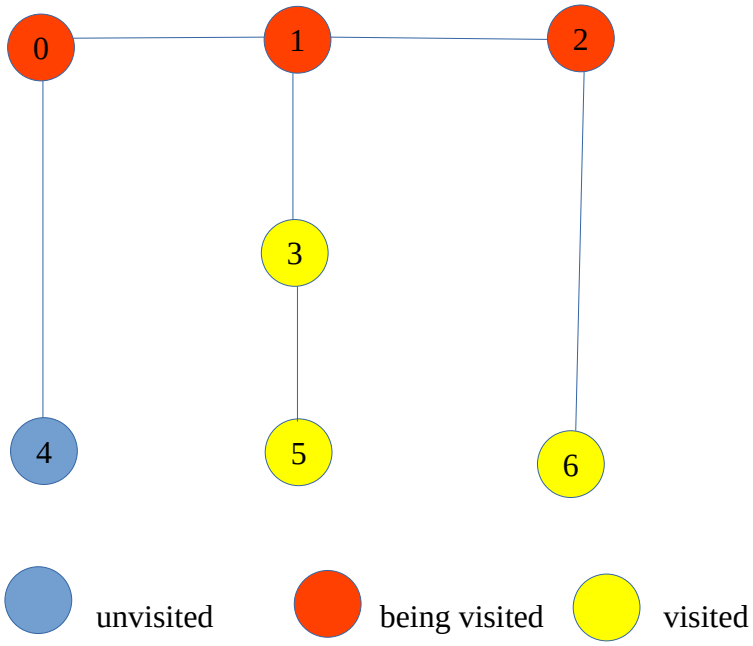
Discovery (Visit) order:
2,1

Finish order:
6,5,3



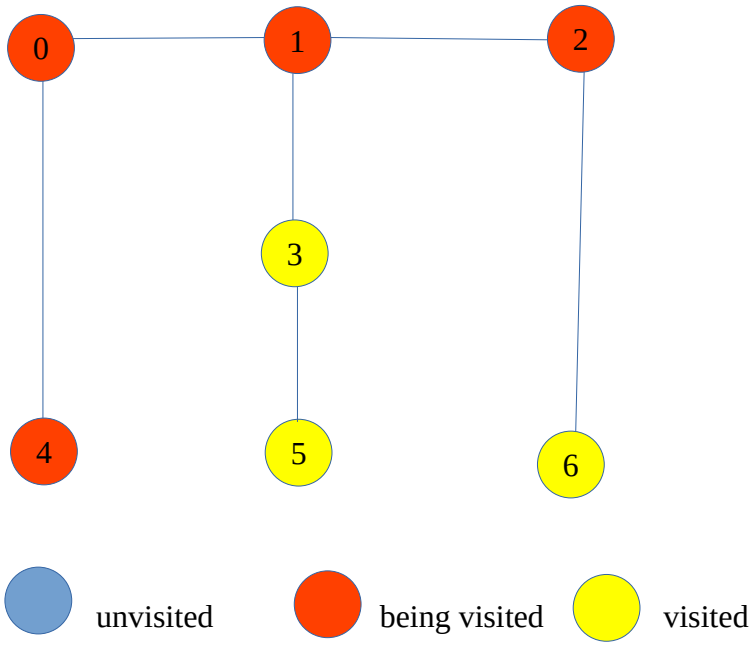
Discovery (Visit) order:
2,1,0

Finish order:
6,5,3



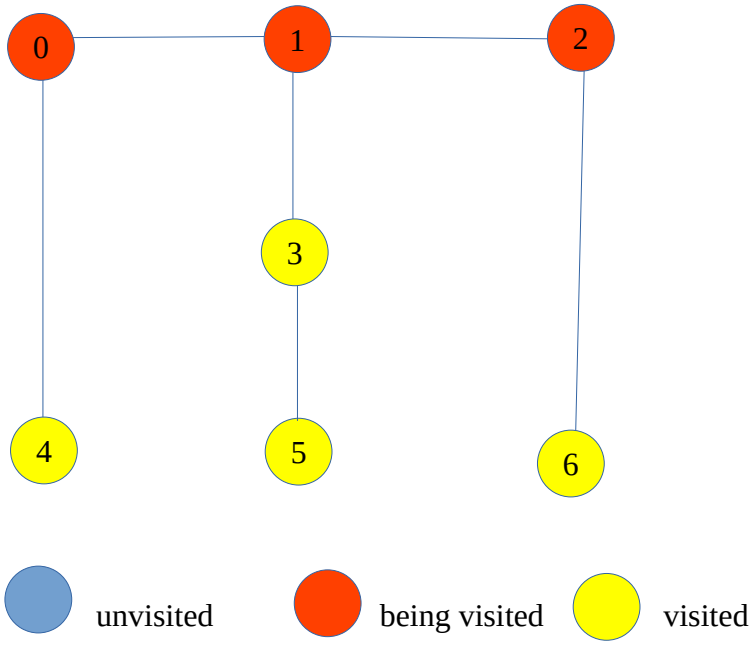
Discovery (Visit) order:
2,1,0,4

Finish order:
6,5,3



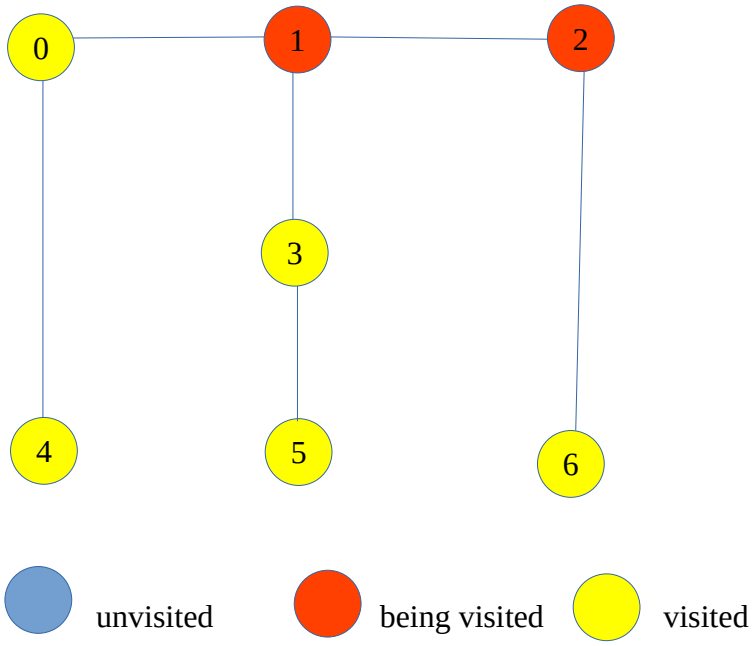
Discovery (Visit) order:
2,1,0

Finish order:
6,5,3,4



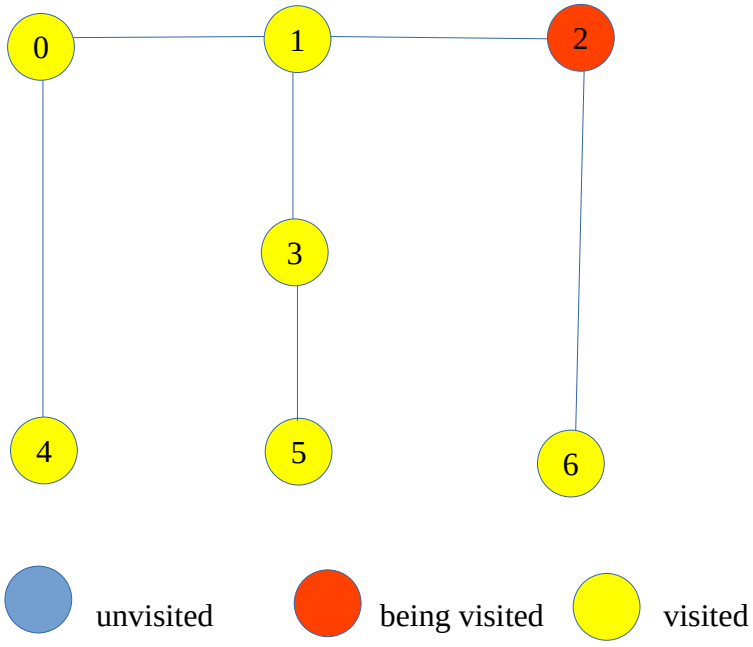
Discovery (Visit) order:
2,1

Finish order:
6,5,3,4,0



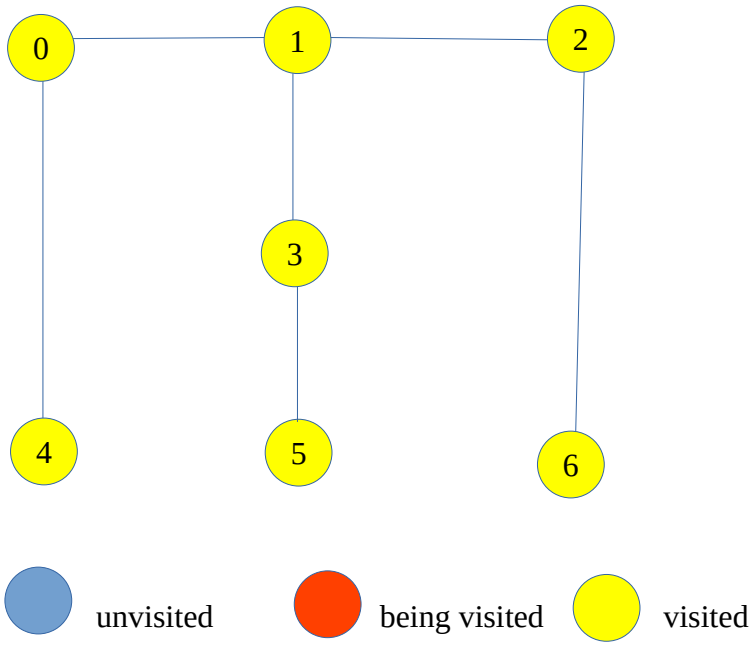
Discovery (Visit) order:
2

Finish order:
6,5,3,4,0,1



Discovery (Visit) order:

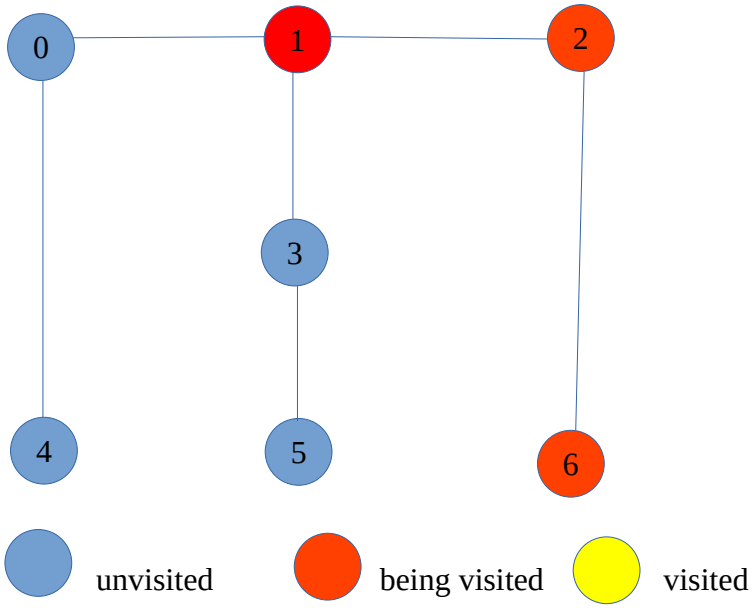
Finish order:
6,5,3,4,0,1,2



BFS:

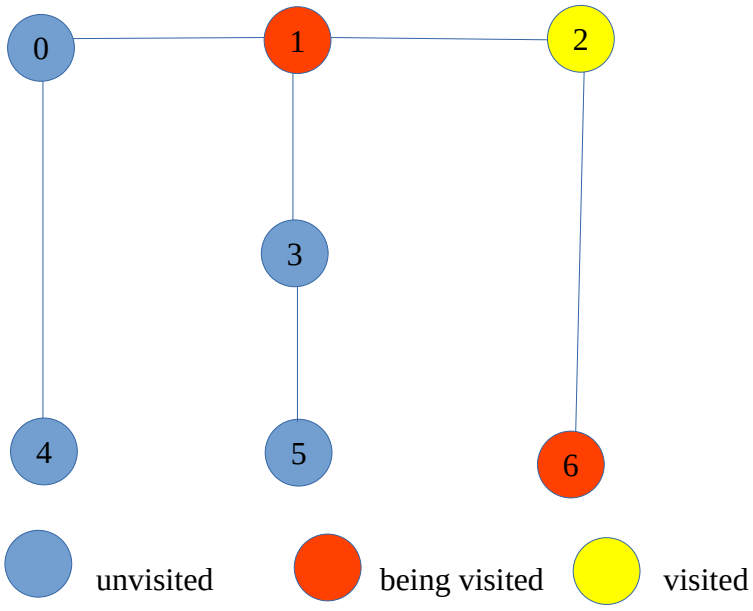
QUEUE:

6,1
VISIT SEQUENCE:
2



QUEUE:
1

VISIT SEQUENCE:
2,6



QUEUE:
1

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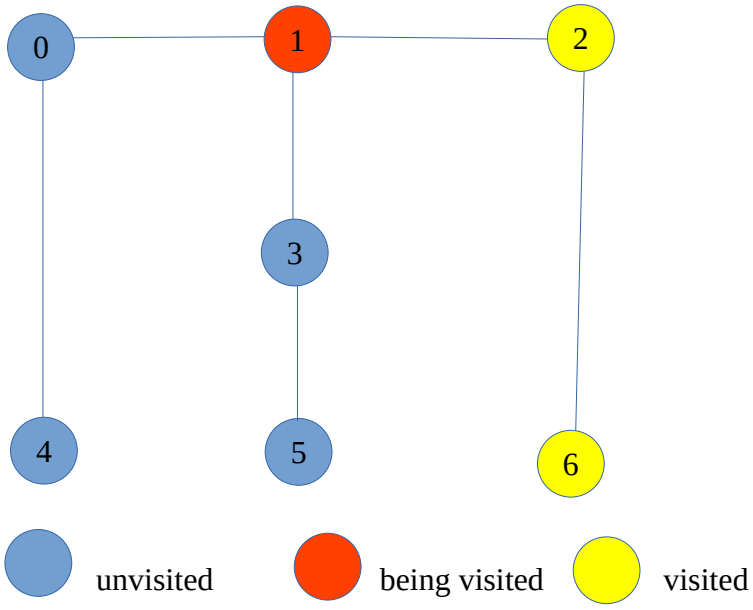

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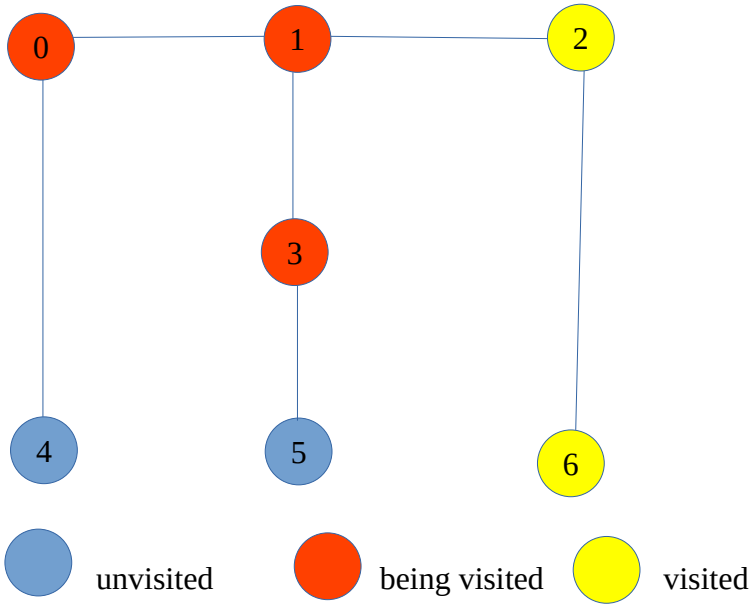

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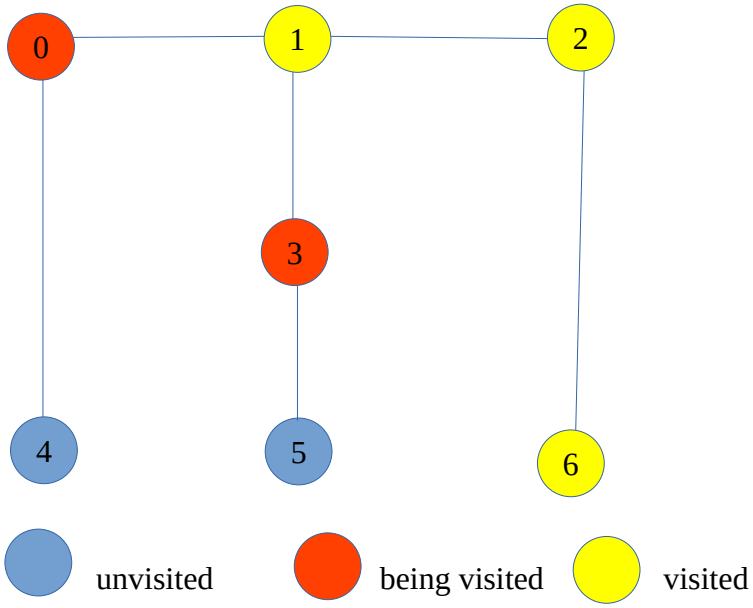

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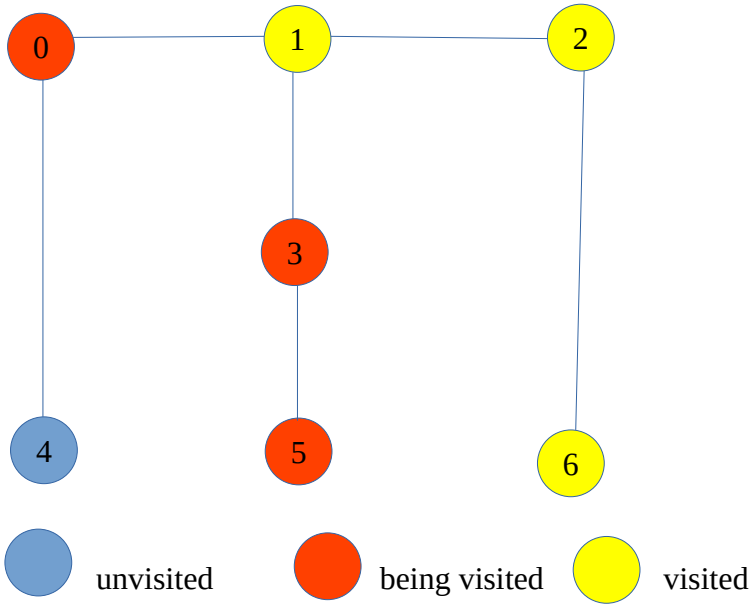

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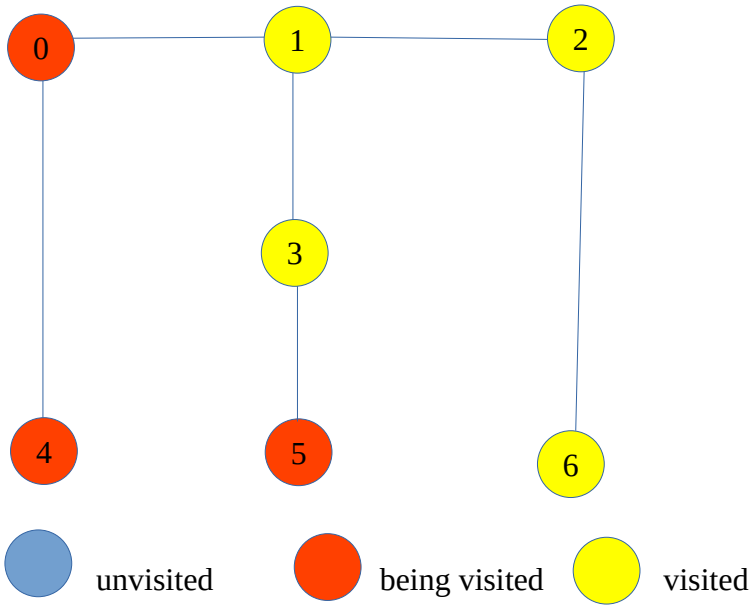

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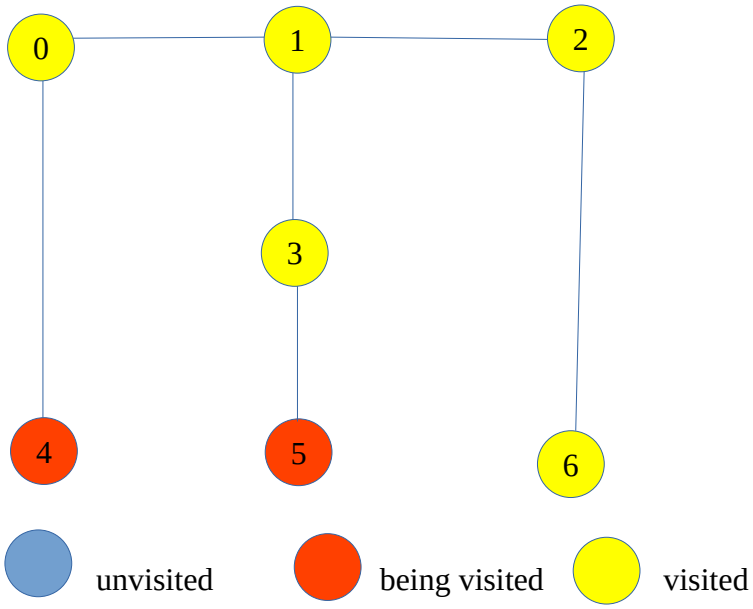

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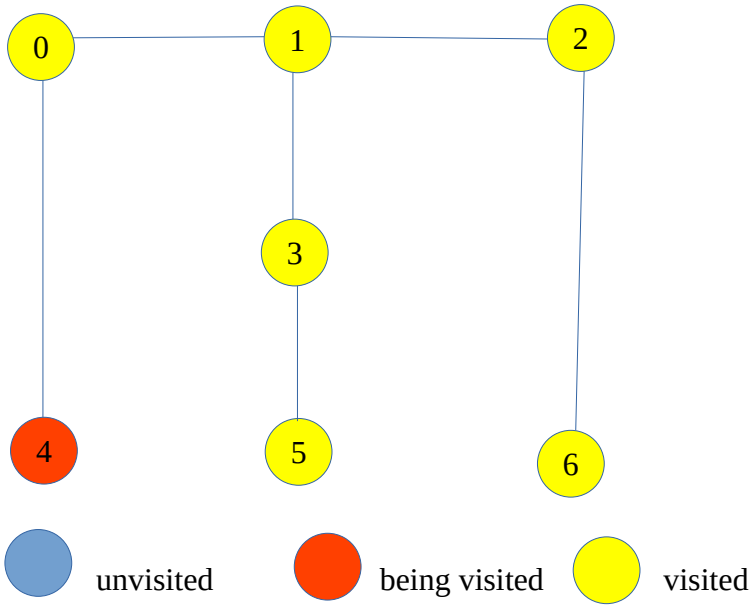

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