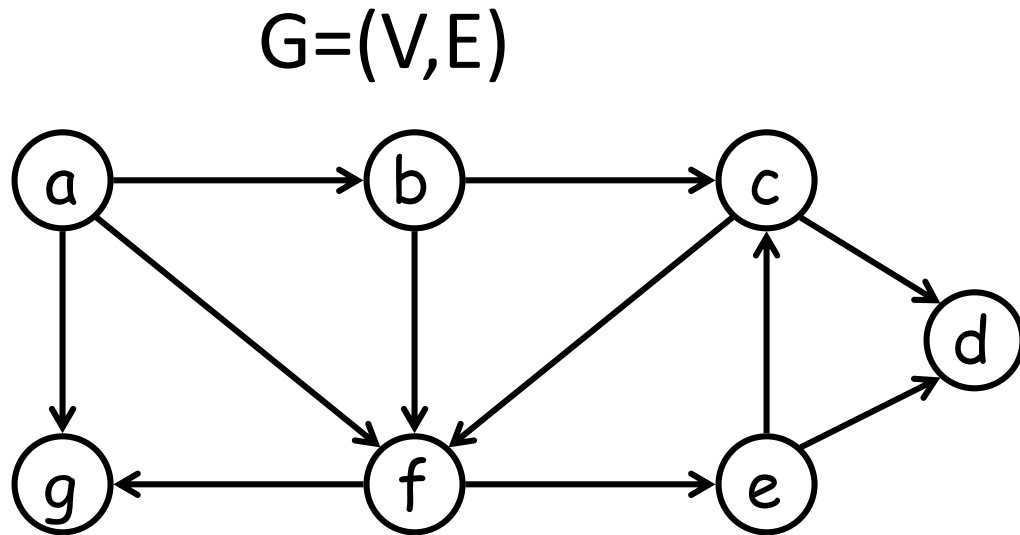


סריקת גרף

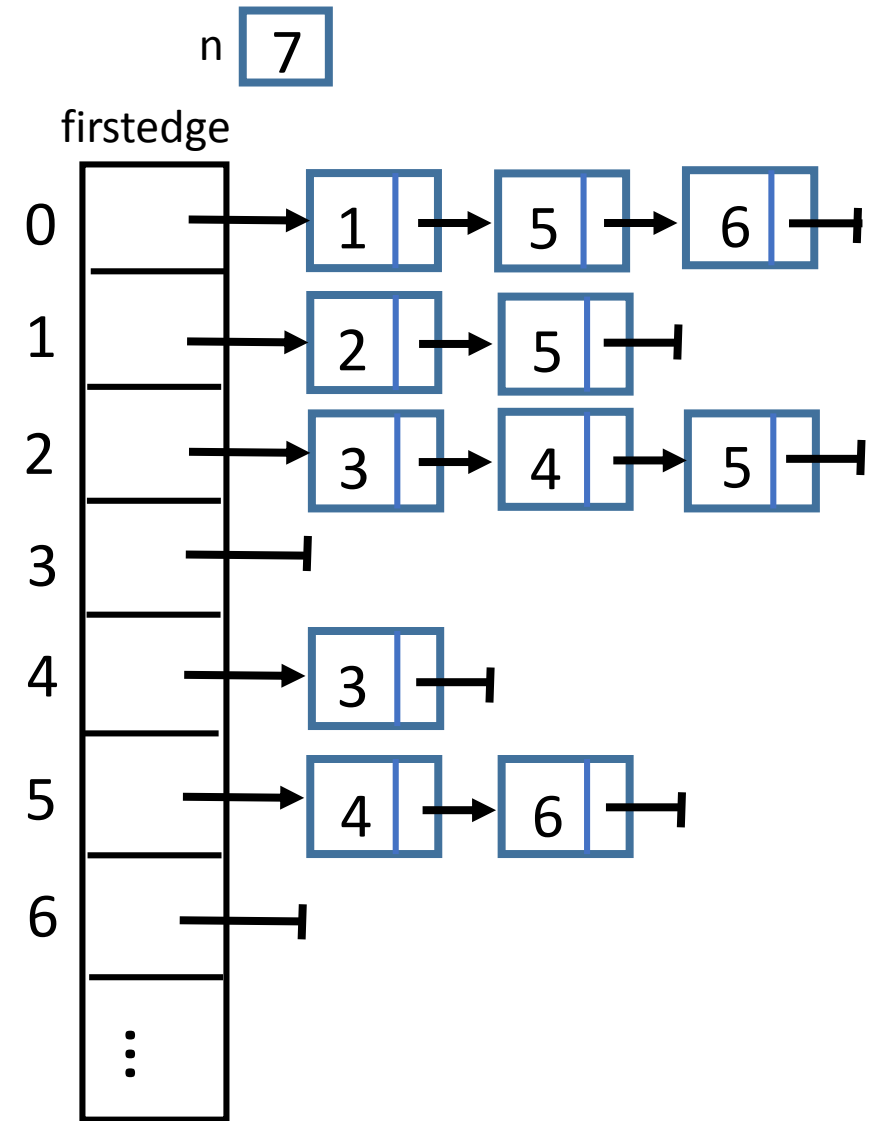
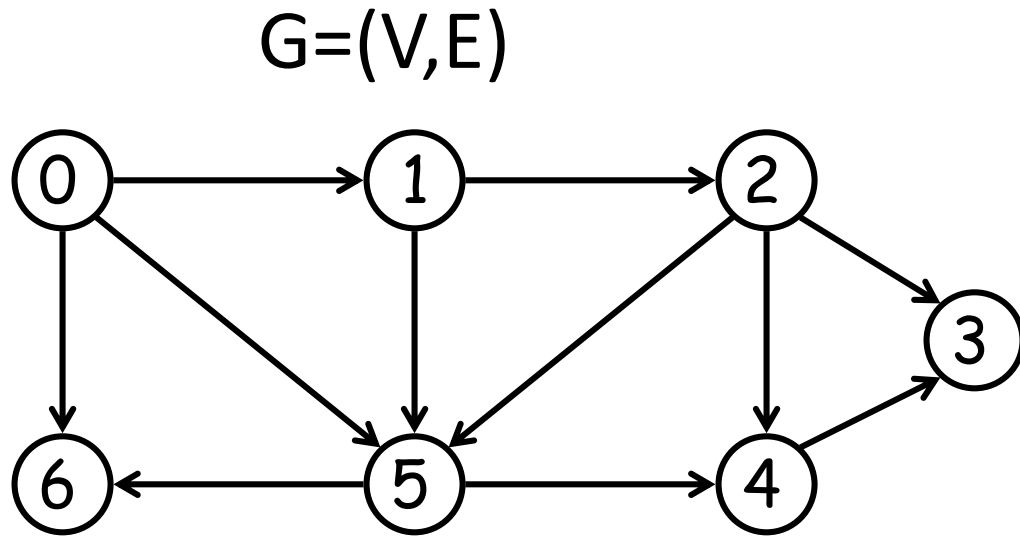


מטרה:

בהינתן גרף $G=(V,E)$ רוצים לעבור על המידע שהגרף מייצג בהתאם למבנה הגרף.

מהו המידע שהגרף
מייצג?

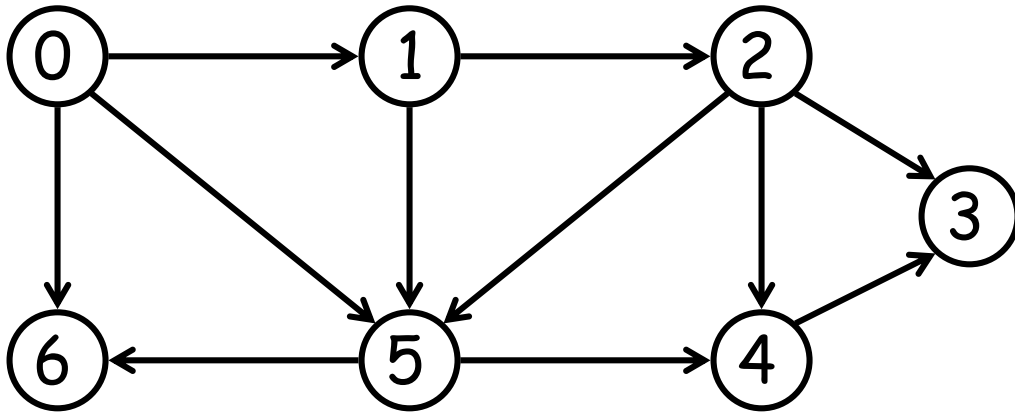
סריקת גרף בחיפוש לעומק (DFS)



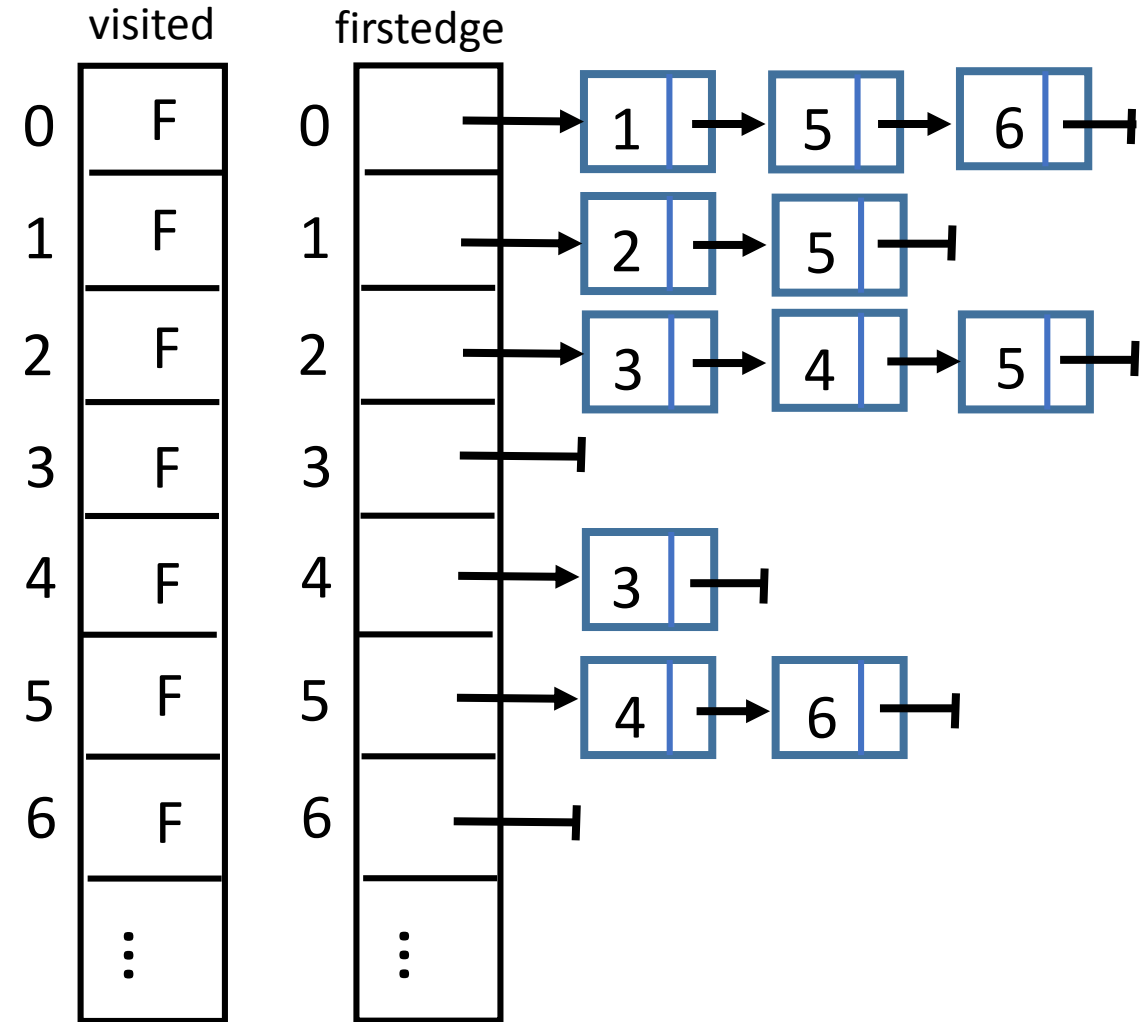
סריקת גרף בחיפוש לעומק (DFS)

DFS(G)

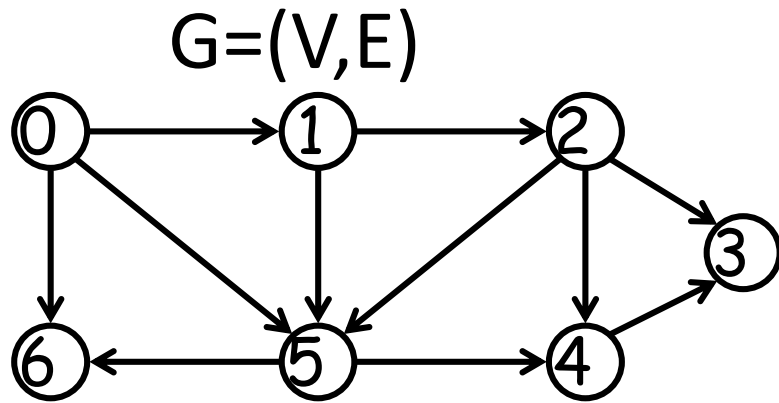
$G=(V,E)$



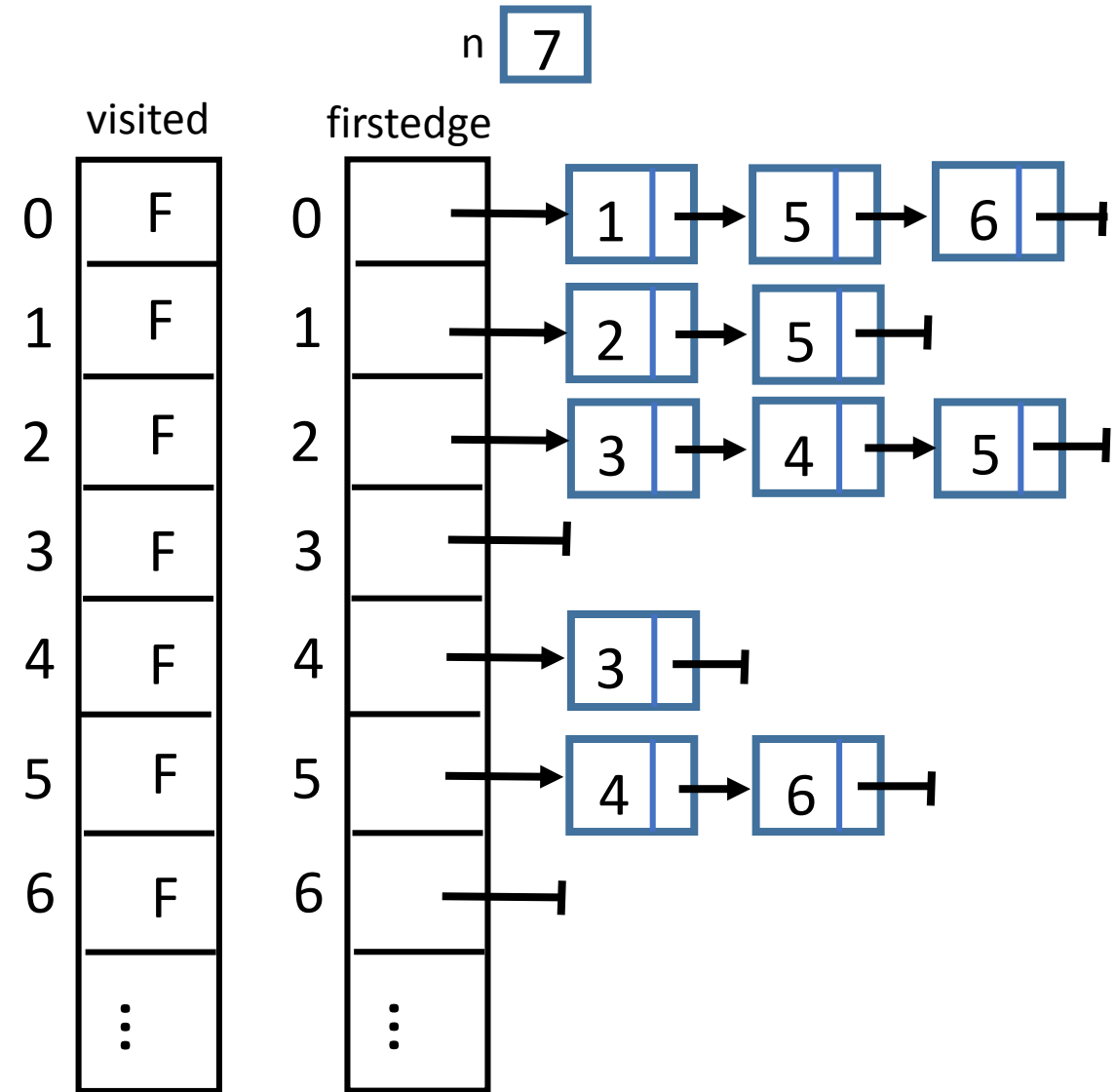
n 7



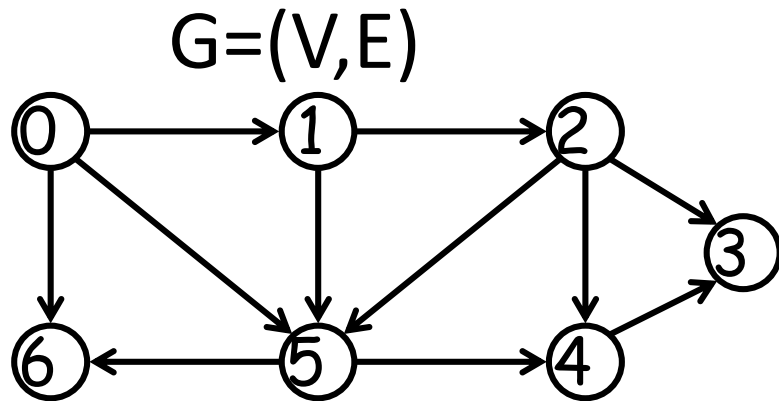
סריקת גרף בחיפוש לעומק (DFS)



DFS(G)
DFS-Visit(0)



סריקת גרף בחיפוש לעומק (DFS)



יער ה DFS

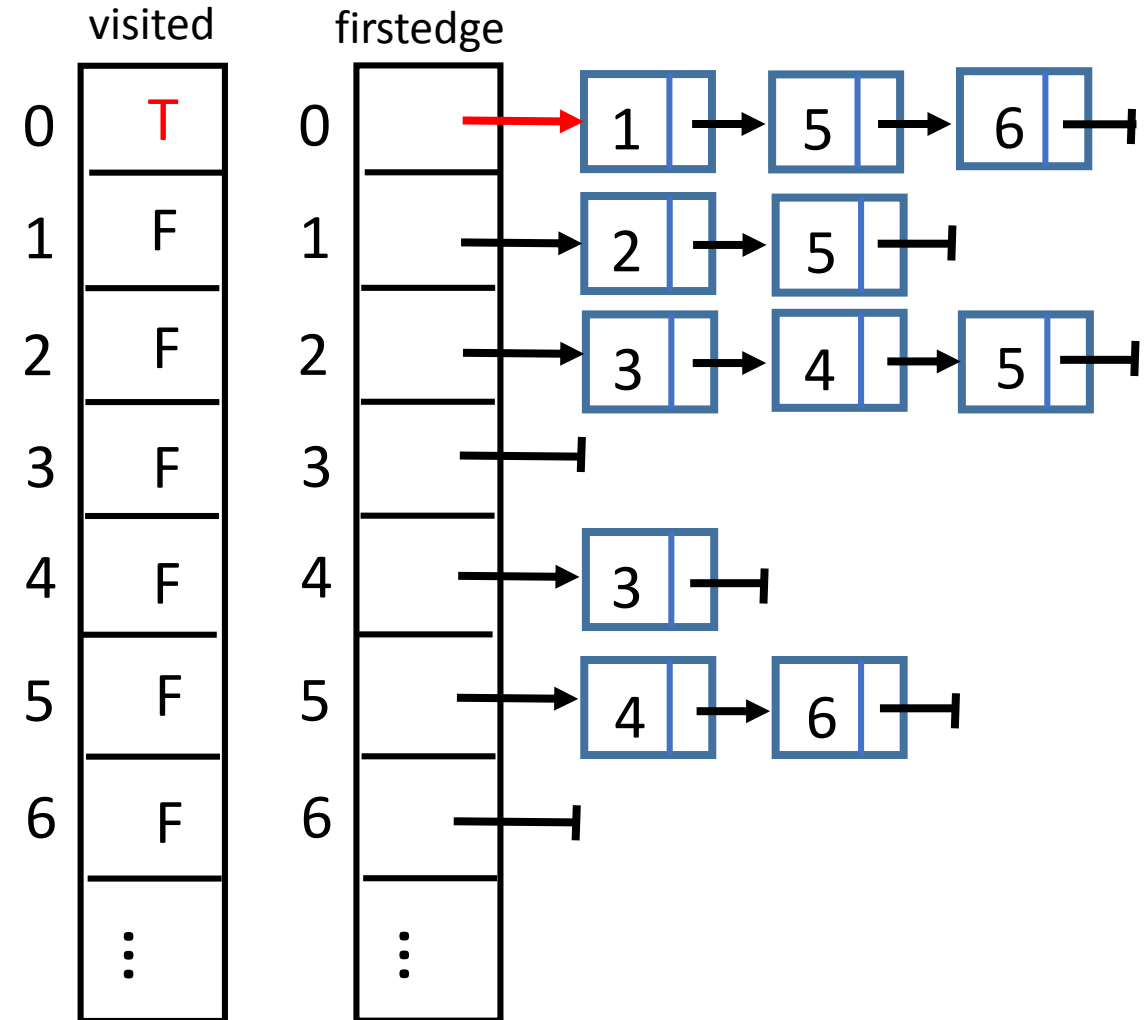
①

DFS(G)

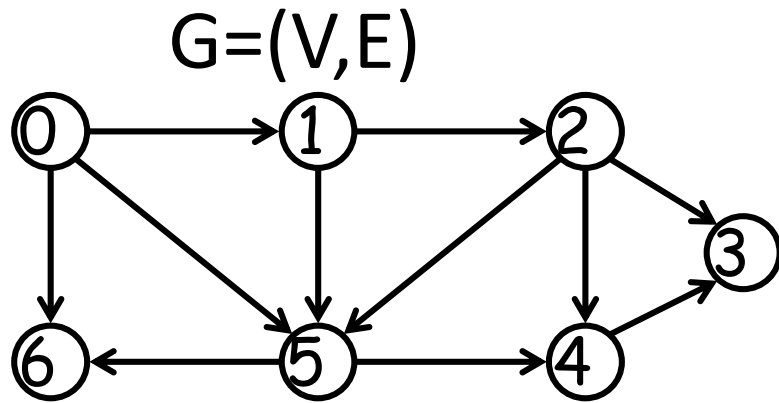
DFS-Visit(0)

DFS-Visit(1)

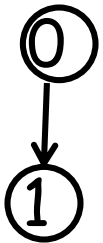
n 7 w 1



סריקת גרף בחיפוש לעומק (DFS)

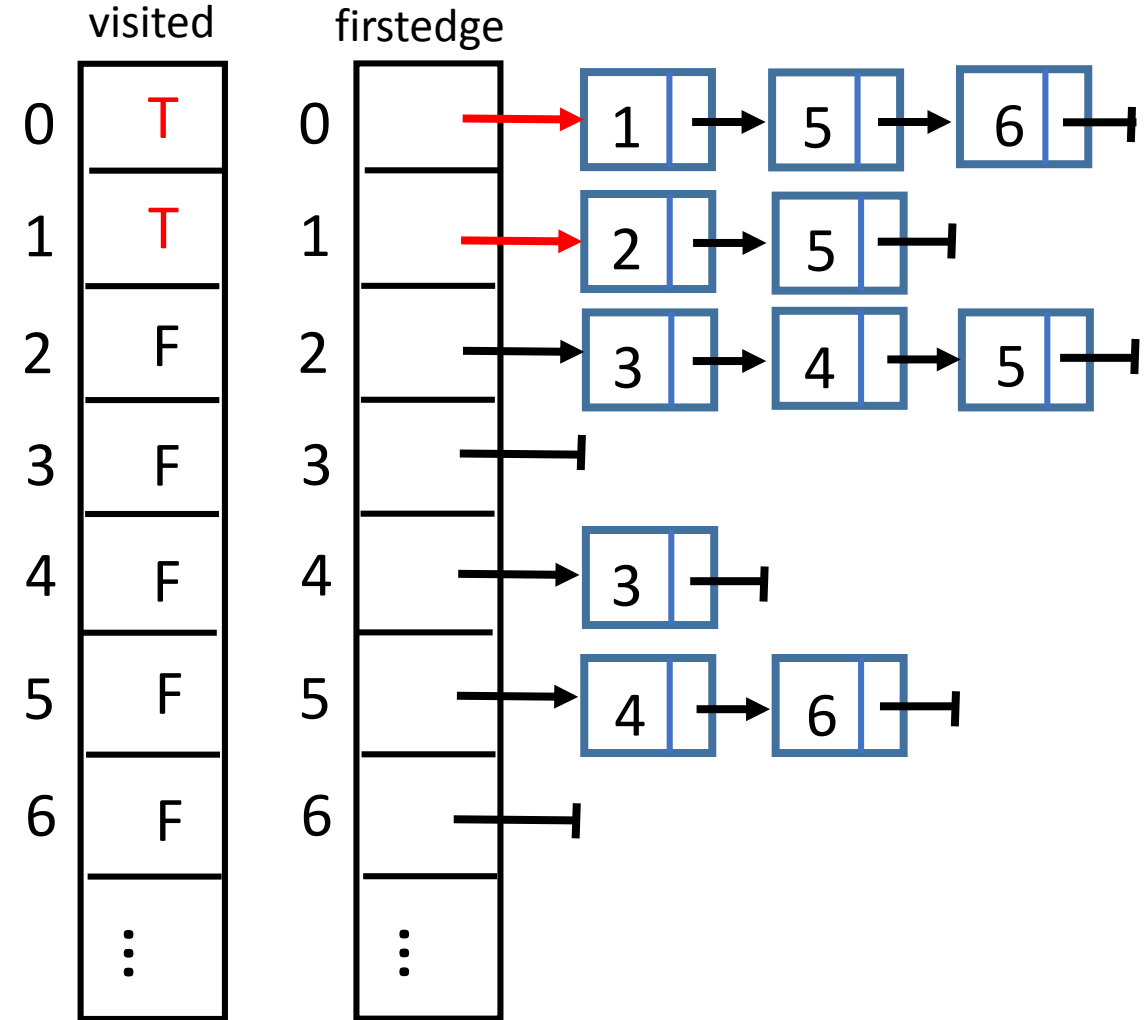


יער ה DFS

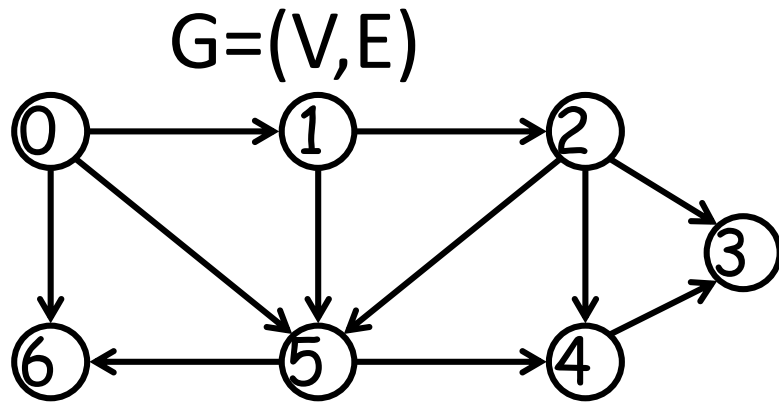


DFS(G)
DFS-Visit(0)
DFS-Visit(1)
DFS-Visit(2)

n 7 w 2



סריקת גרף בחיפוש לעומק (DFS)



DFS(G)

DFS-Visit(0)

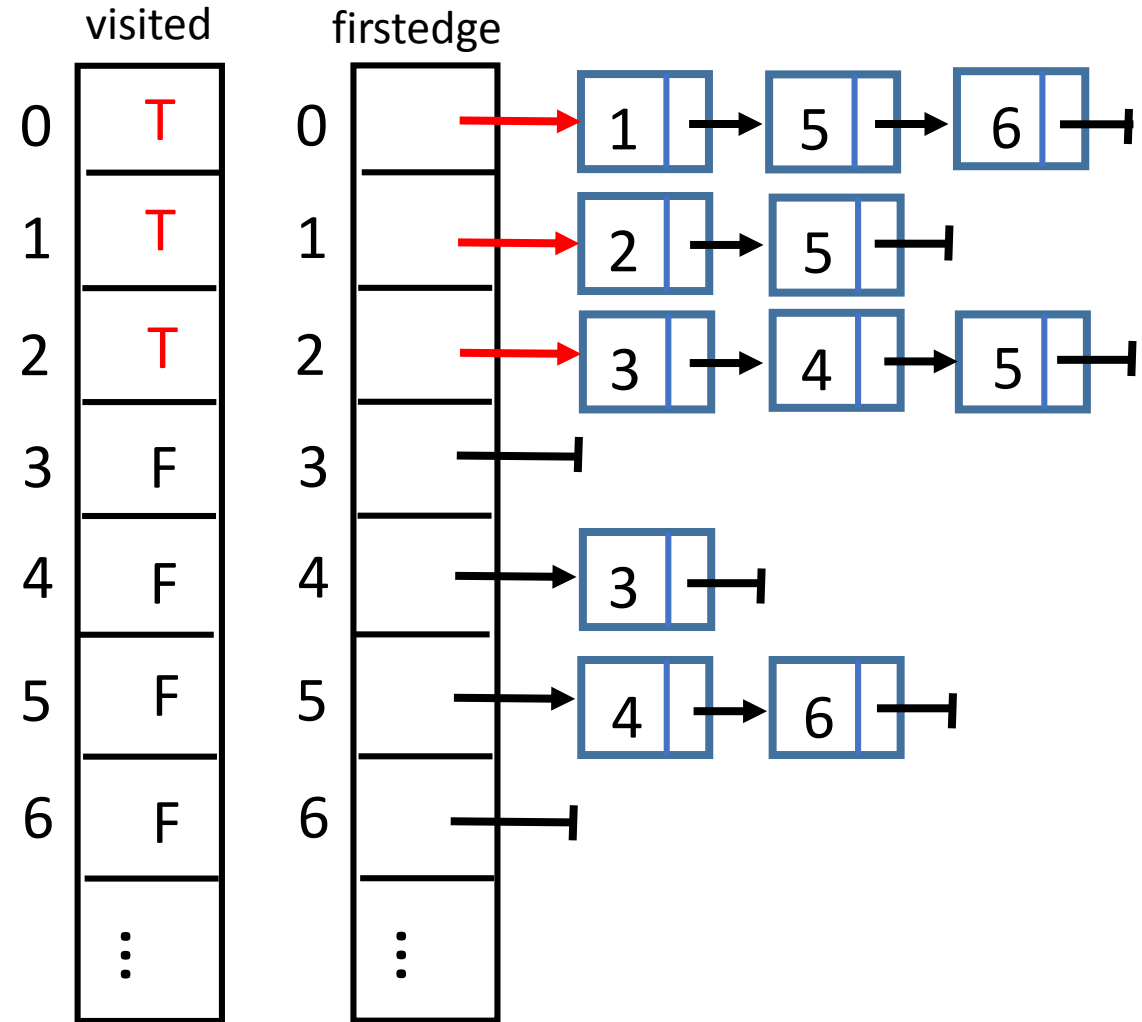
DFS-Visit(1)

DFS-Visit(2)

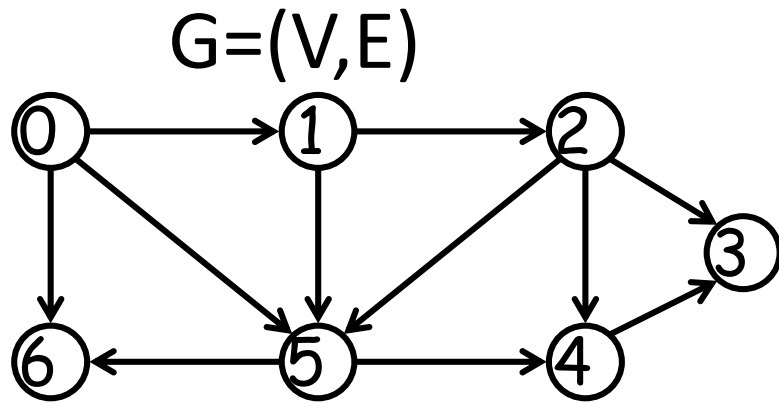
DFS-Visit(3)

n 7 w 3

יער ה DFS



סריקת גרף בחיפוש לעומק (DFS)



DFS(G)

DFS-Visit(0)

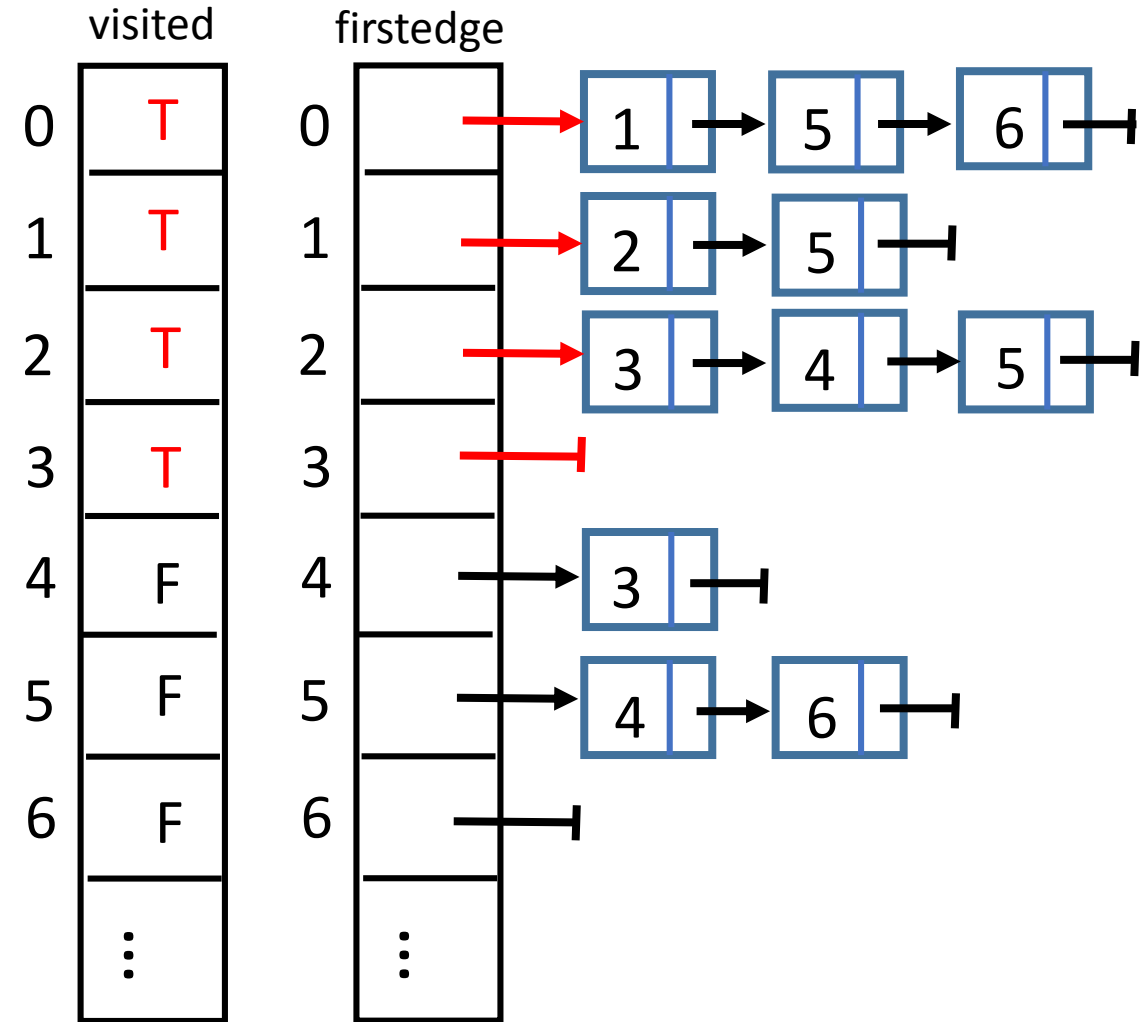
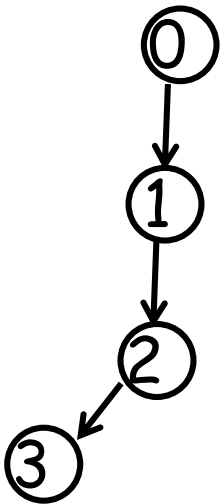
DFS-Visit(1)

DFS-Visit(2)

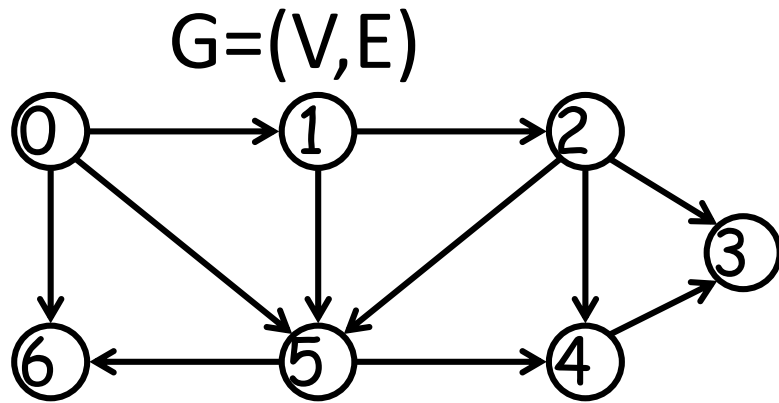
DFS-Visit(3)

n 7 w 3

יער ה DFS



סריקת גרף בחיפוש לעומק (DFS)



DFS(G)

DFS-Visit(0)

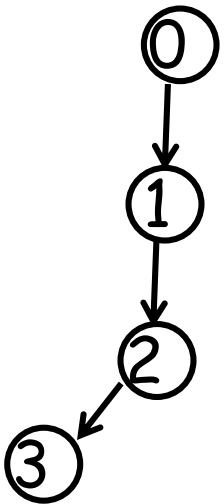
DFS-Visit(1)

DFS-Visit(2)

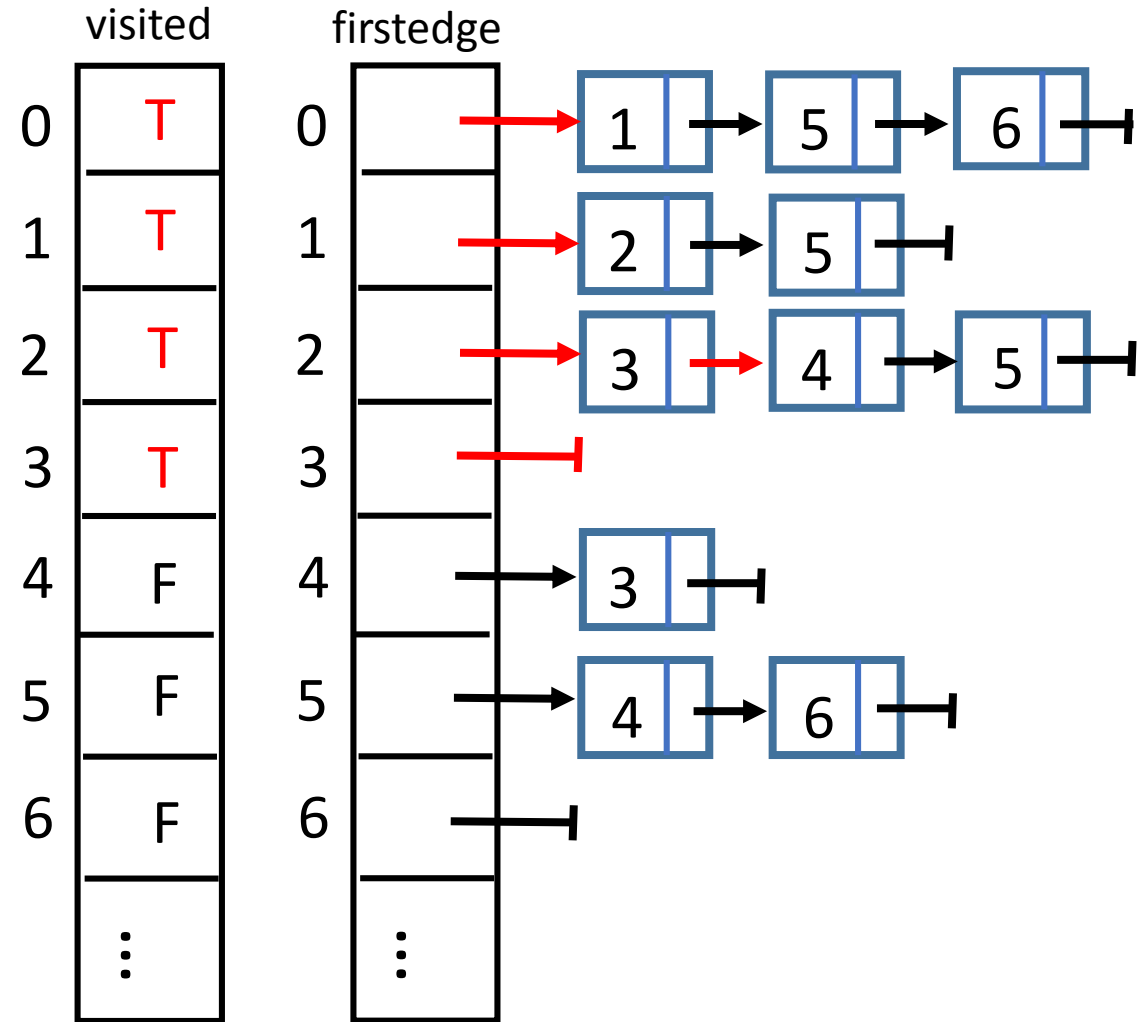
DFS-Visit(3)

DFS-Visit(4)

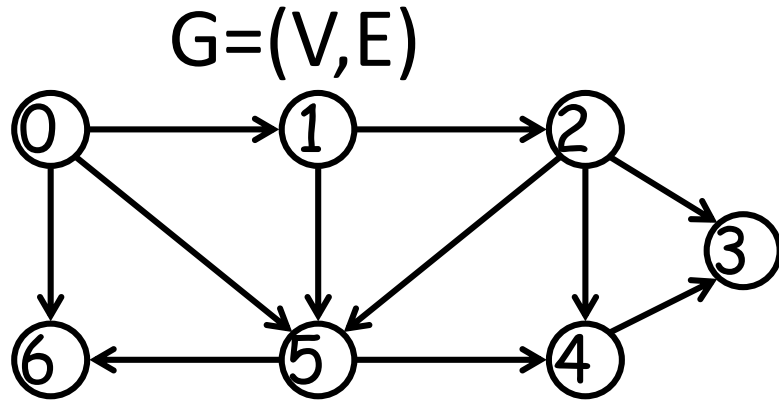
יער ה DFS



n 7 w 4



סריקת גרף בחיפוש לעומק (DFS)



DFS(G)

DFS-Visit(0)

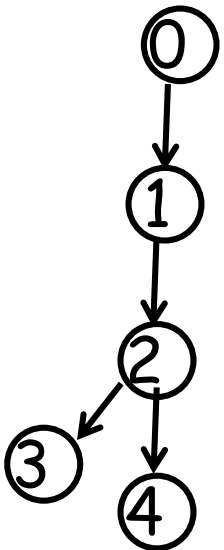
DFS-Visit(1)

DFS-Visit(2)

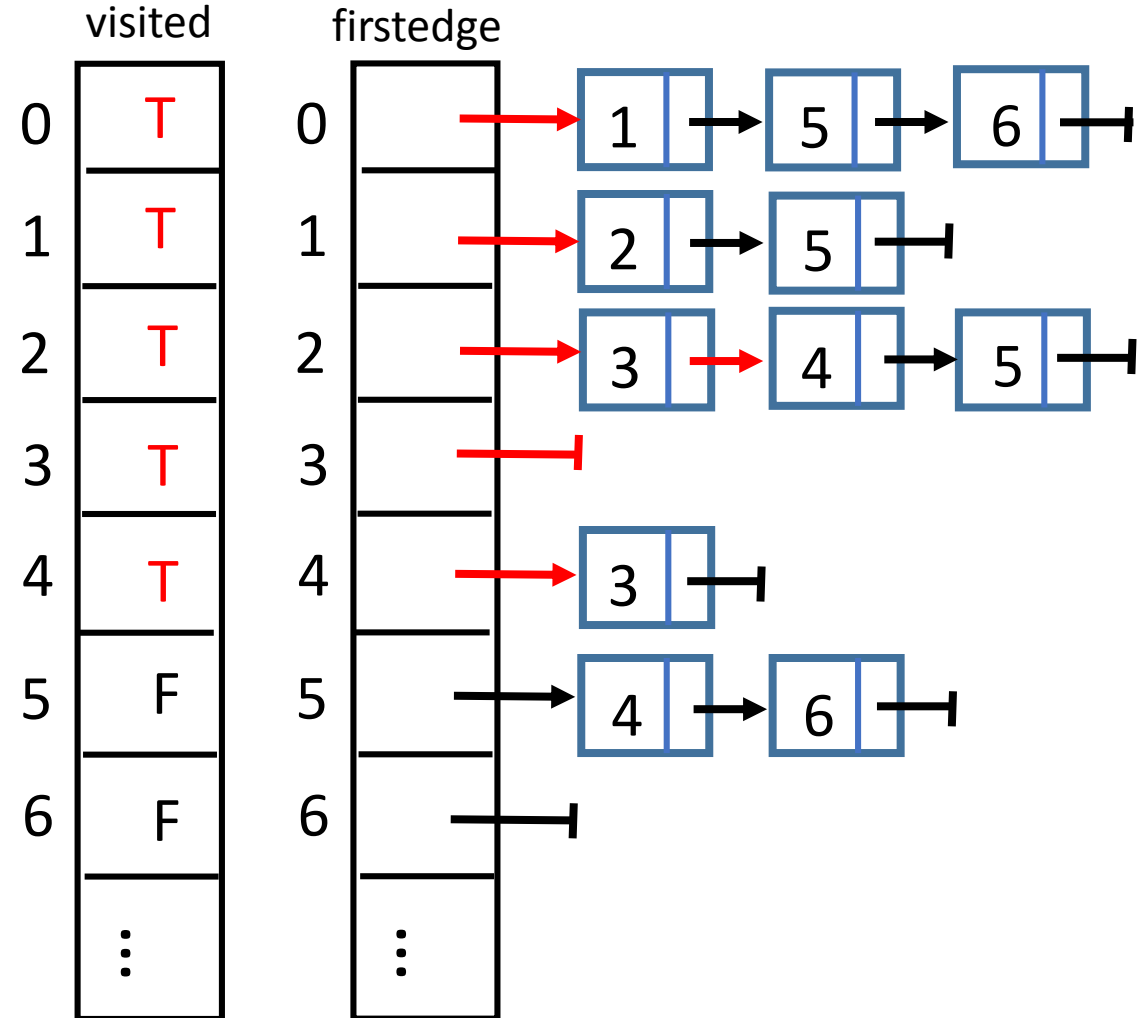
DFS-Visit(3)

DFS-Visit(4)

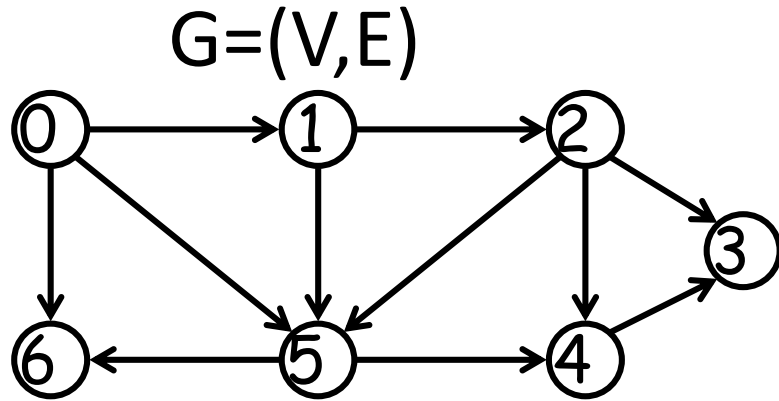
יער ה DFS



n 7 w 3



סריקת גרף בחיפוש לעומק (DFS)



DFS(G)

DFS-Visit(0)

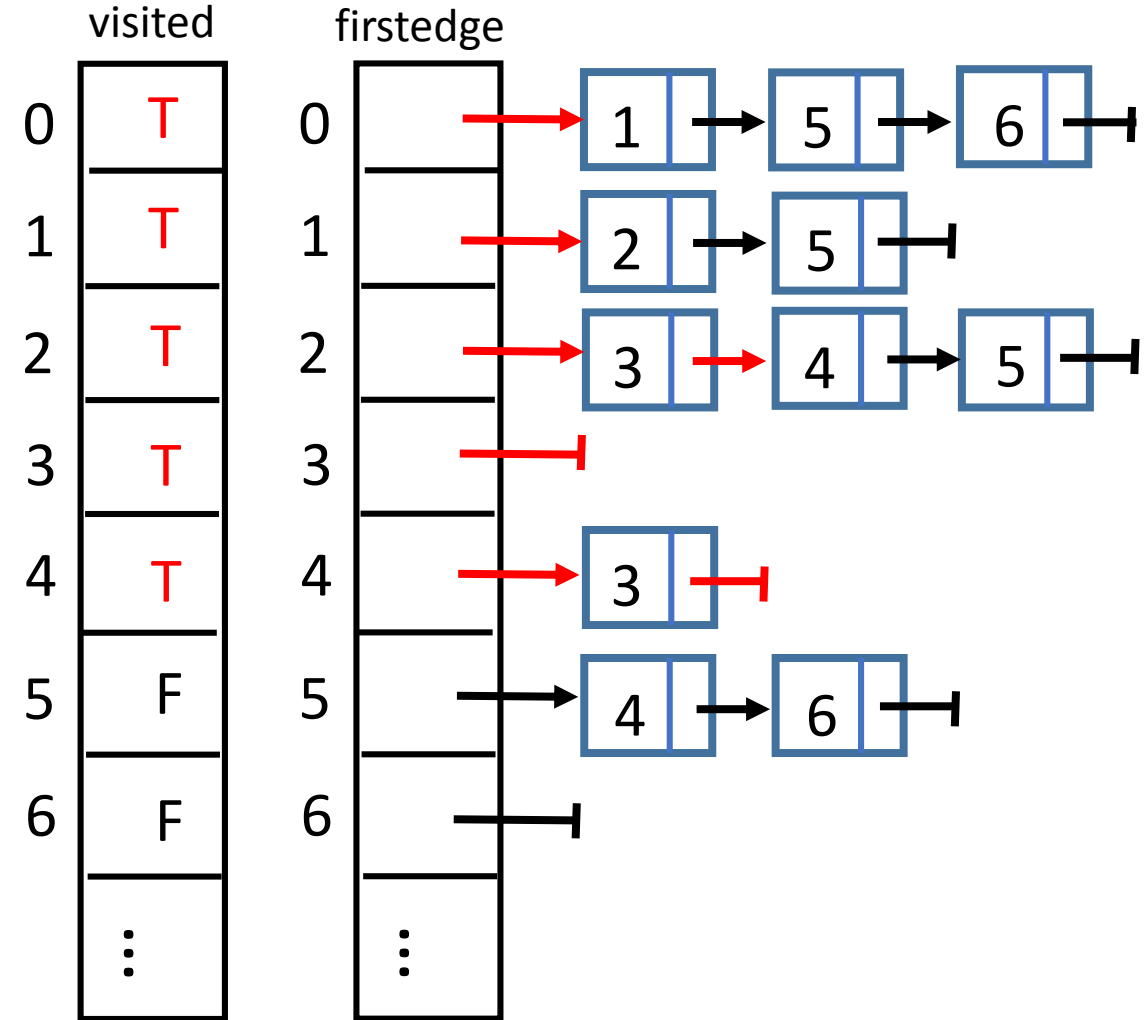
DFS-Visit(1)

DFS-Visit(2)

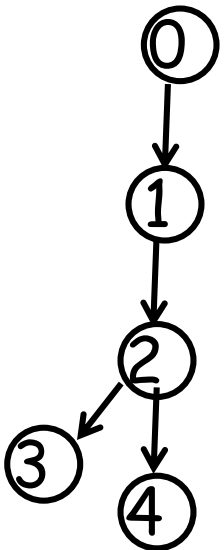
DFS-Visit(3)

DFS-Visit(4)

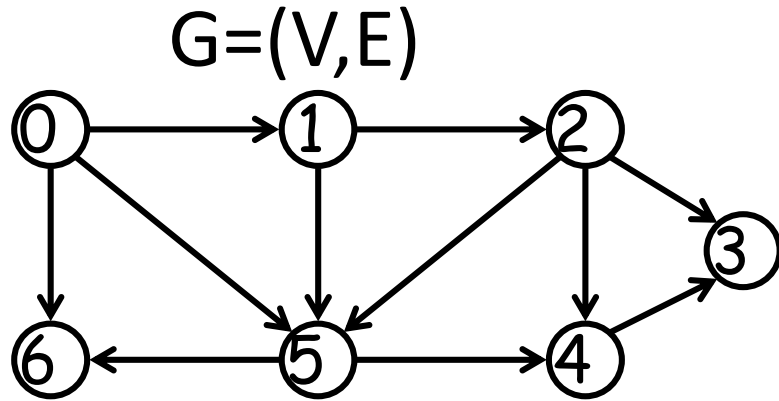
n 7 w 3



יער ה DFS



סריקת גרף בחיפוש לעומק (DFS)



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

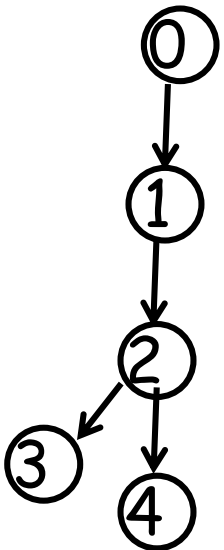
DFS-Visit(2)

DFS-Visit(3)

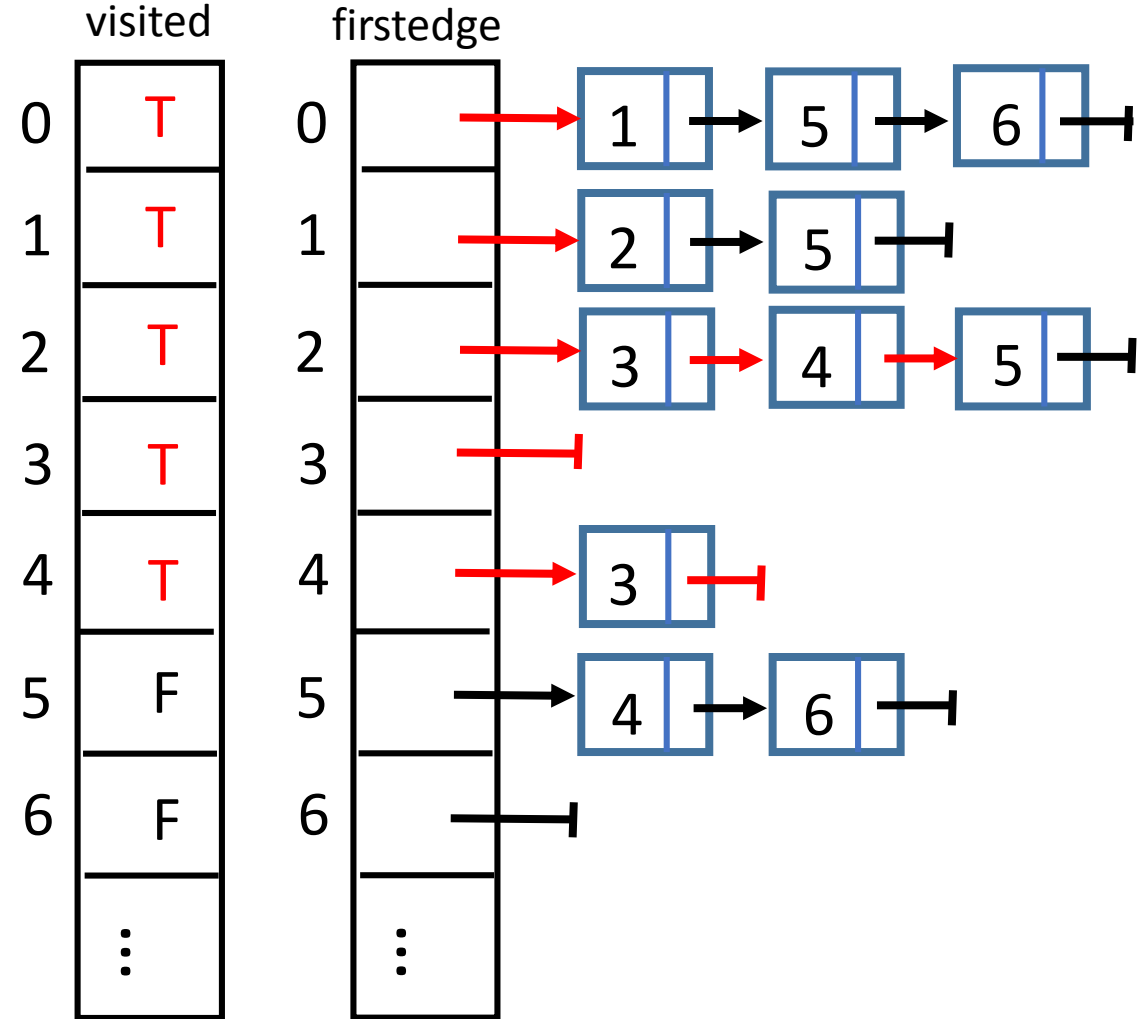
DFS-Visit(4)

DFS-Visit(5)

יער ה DFS

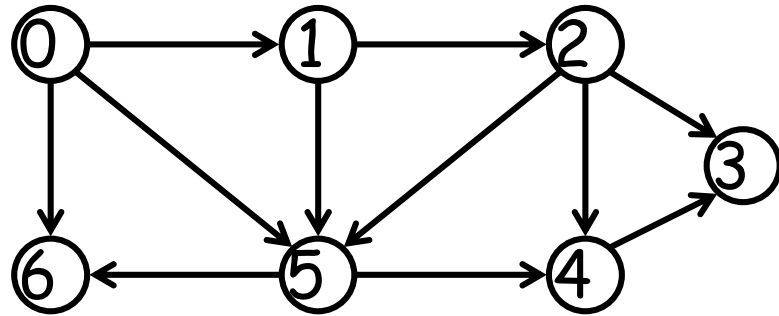


n 7 w 5



סריקת גרף בחיפוש לעומק (DFS)

$G=(V,E)$



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

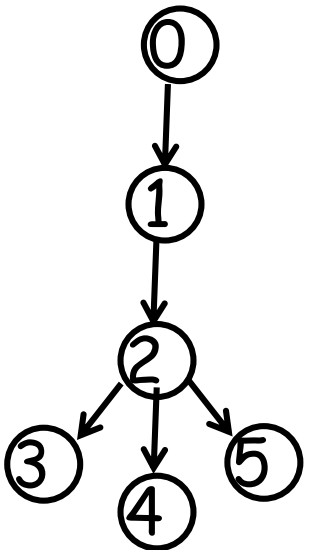
DFS-Visit(2)

DFS-Visit(3)

DFS-Visit(4)

DFS-Visit(5)

יער ה DFS



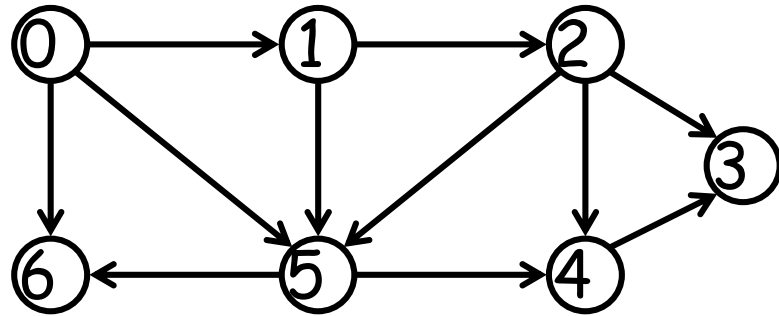
n 7 w 4

	visited	firstedge
0	T	→ 1 → 5 → 6 →
1	T	→ 2 → 5 →
2	T	→ 3 → 4 → 5 →
3	T	→
4	T	→ 3 →
5	T	→ 4 → 6 →
6	F	→
	⋮	⋮

סריקת גרף בחיפוש לעומק (DFS)

n 7 w 6

$G=(V,E)$



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

DFS-Visit(2)

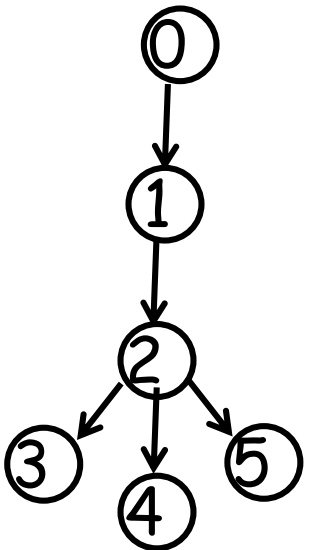
DFS-Visit(3)

DFS-Visit(4)

DFS-Visit(5)

DFS-Visit(6)

יער ה DFS



visited

0	T
1	T
2	T
3	T
4	T
5	T
6	F
	⋮

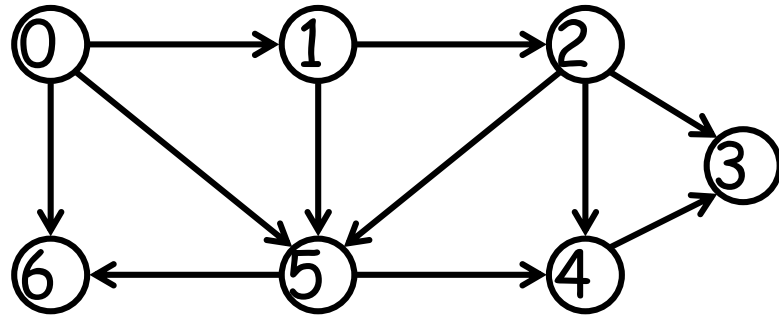
firstedge

0	→	1	→	5	→	6	→	⊥
1	→	2	→	5	→	⊥		
2	→	3	→	4	→	5	→	⊥
3	→	⊥						
4	→	3	→	⊥				
5	→	4	→	6	→	⊥		
6	→	⊥						
		⋮						

סריקת גרף בחיפוש לעומק (DFS)

n 7 w 6

$G=(V,E)$



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

DFS-Visit(2)

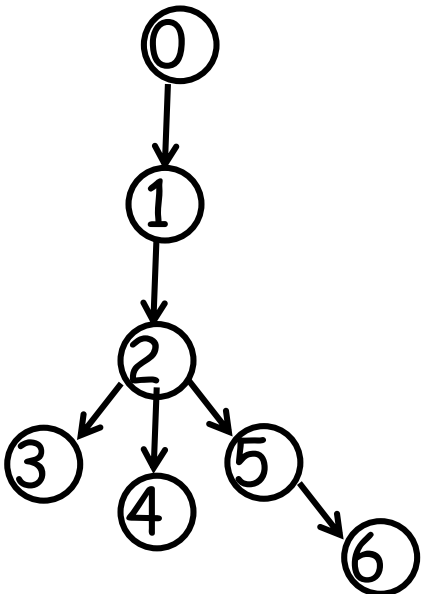
DFS-Visit(3)

DFS-Visit(4)

DFS-Visit(5)

DFS-Visit(6)

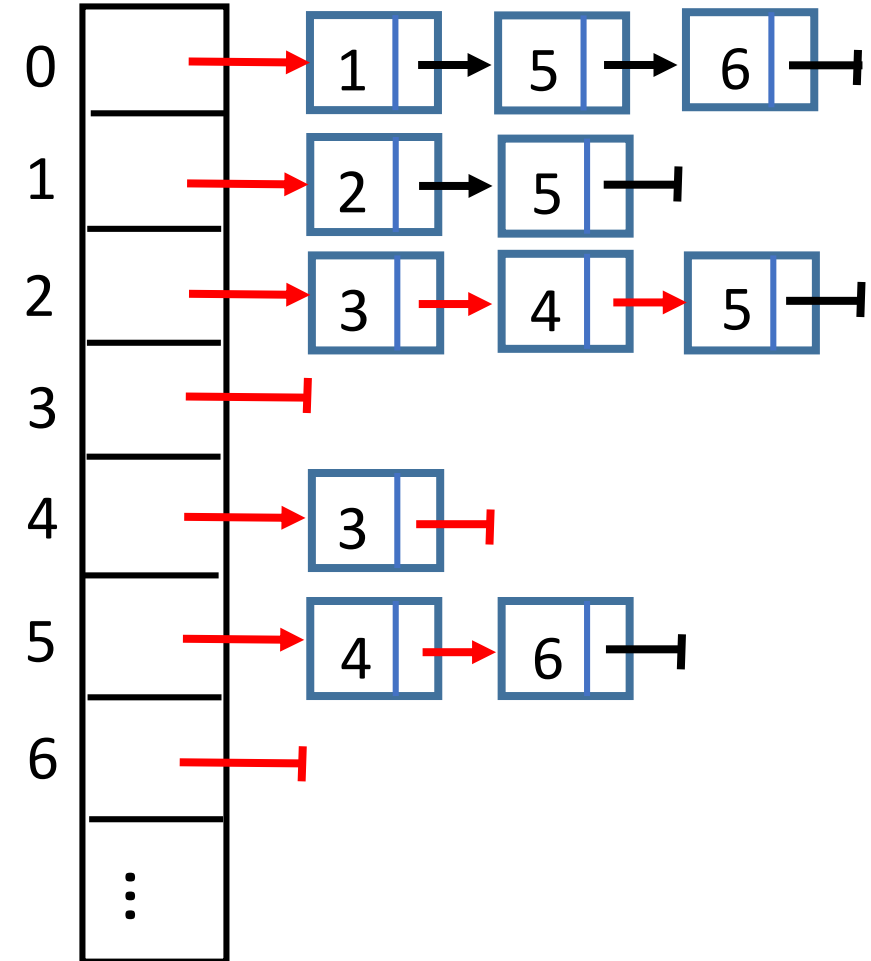
יער ה DFS



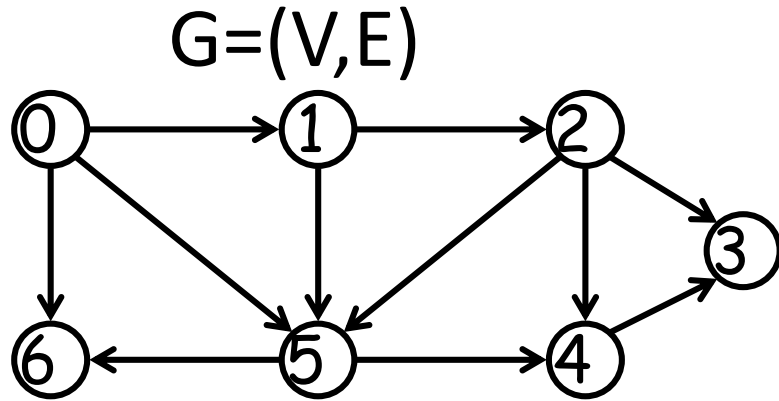
visited

0	T
1	T
2	T
3	T
4	T
5	T
6	T
	⋮

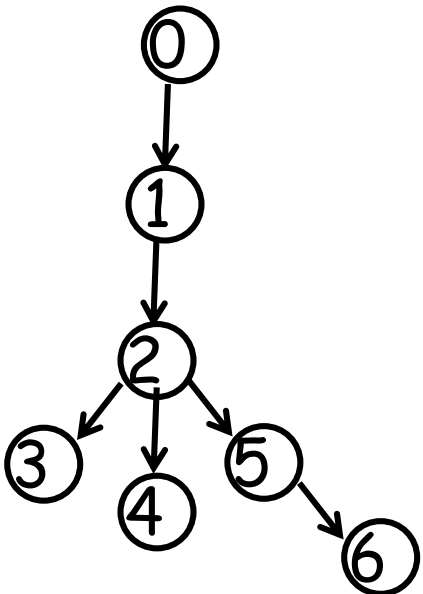
firstedge



סריקת גרף בחיפוש לעומק (DFS)



יער ה DFS



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

DFS-Visit(2)

DFS-Visit(3)

DFS-Visit(4)

DFS-Visit(5)

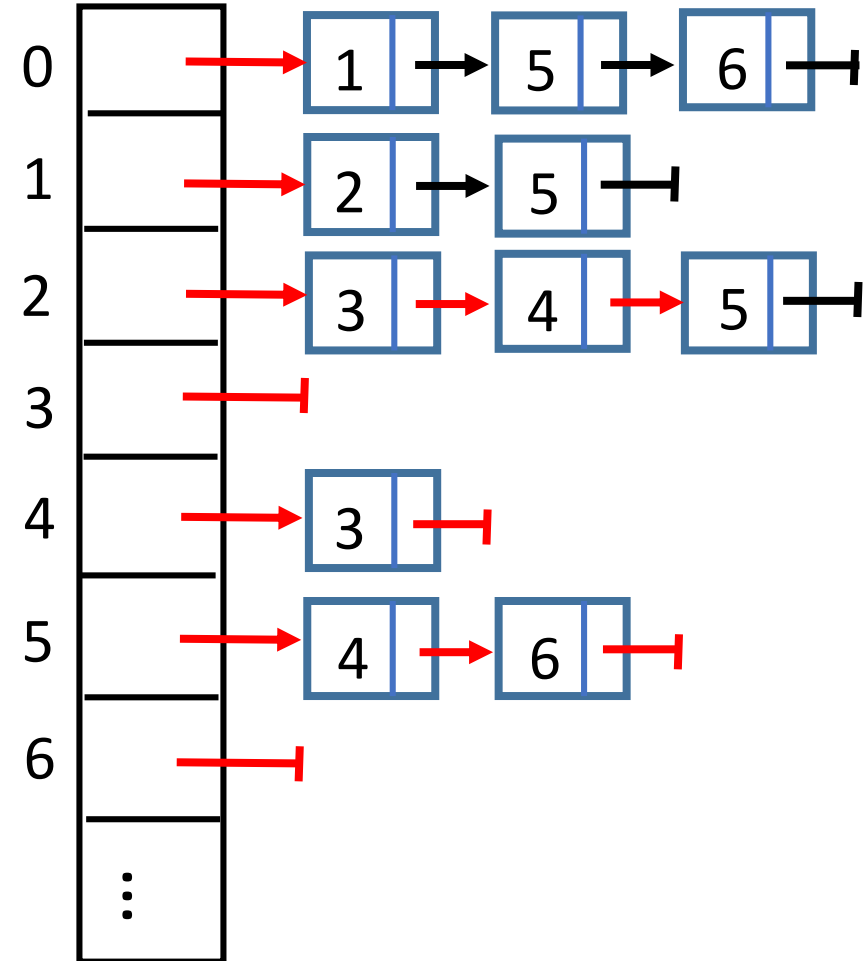
DFS-Visit(6)

n 7 w 6

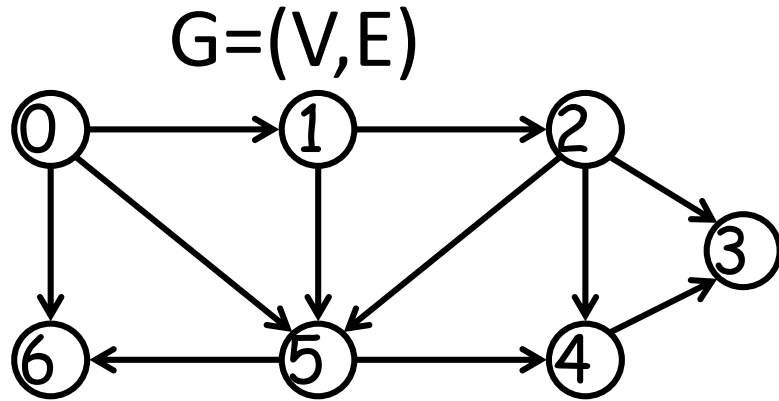
visited

0	T
1	T
2	T
3	T
4	T
5	T
6	T
	⋮

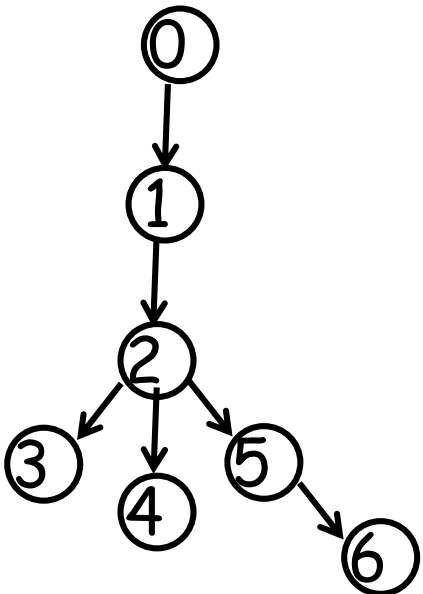
firstedge



סריקת גרף בחיפוש לעומק (DFS)



יער ה DFS



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

DFS-Visit(2)

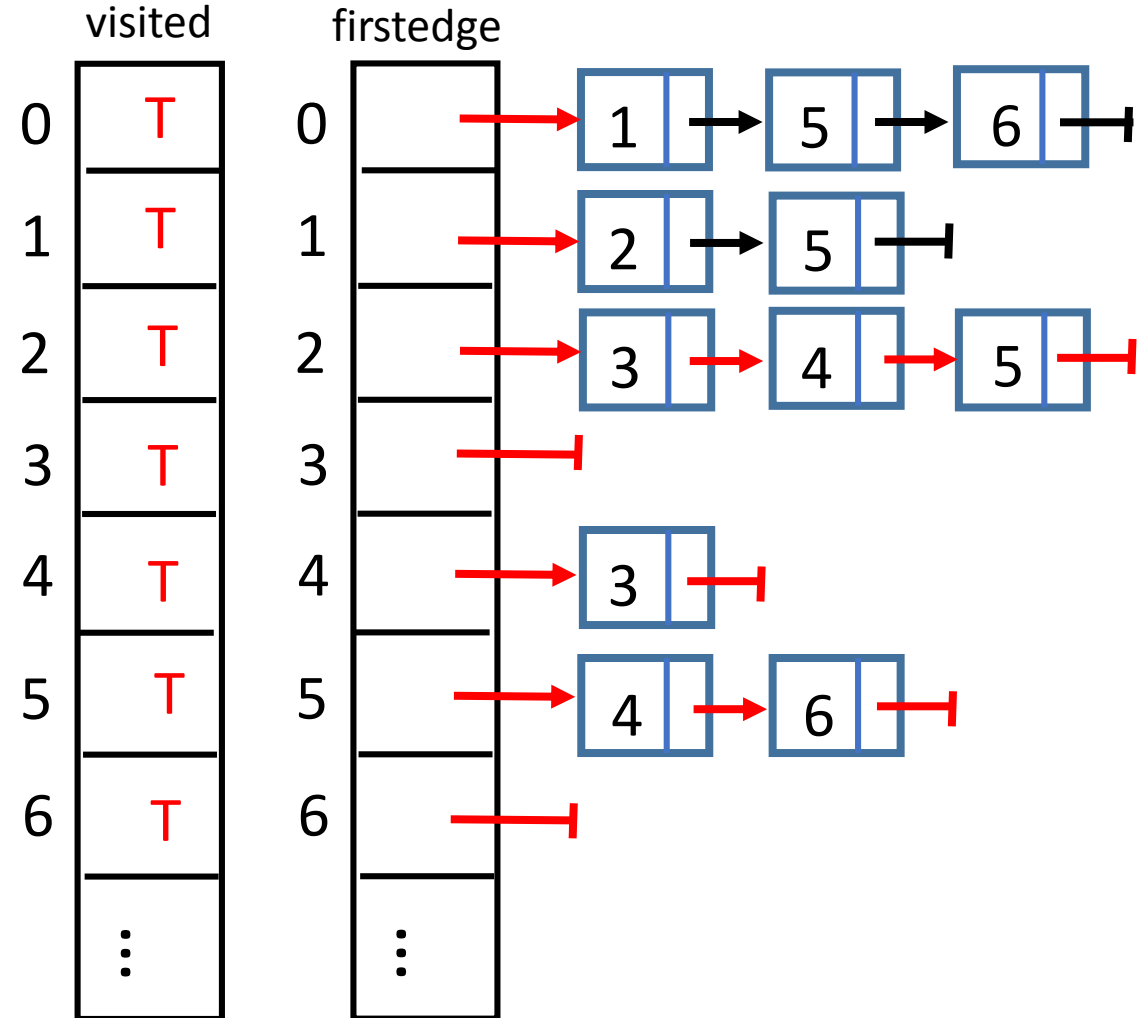
DFS-Visit(3)

DFS-Visit(4)

DFS-Visit(5)

DFS-Visit(6)

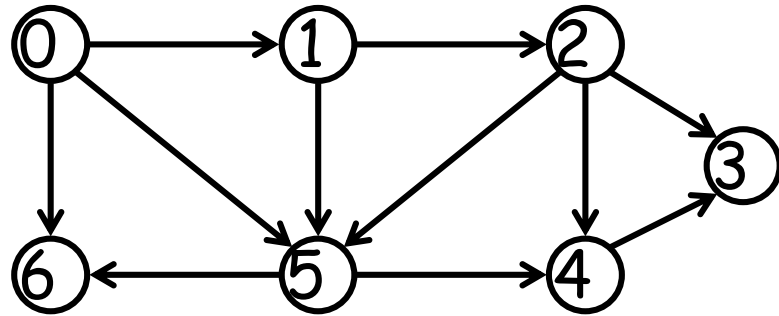
n 7 w 5



סריקת גרף בחיפוש לעומק (DFS)

n 7 w 5

$G=(V,E)$



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

DFS-Visit(2)

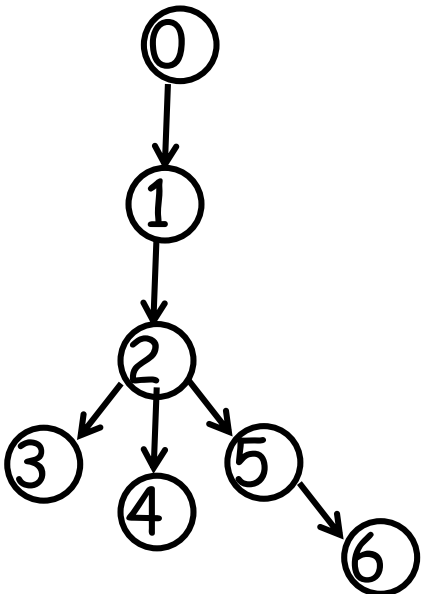
DFS-Visit(3)

DFS-Visit(4)

DFS-Visit(5)

DFS-Visit(6)

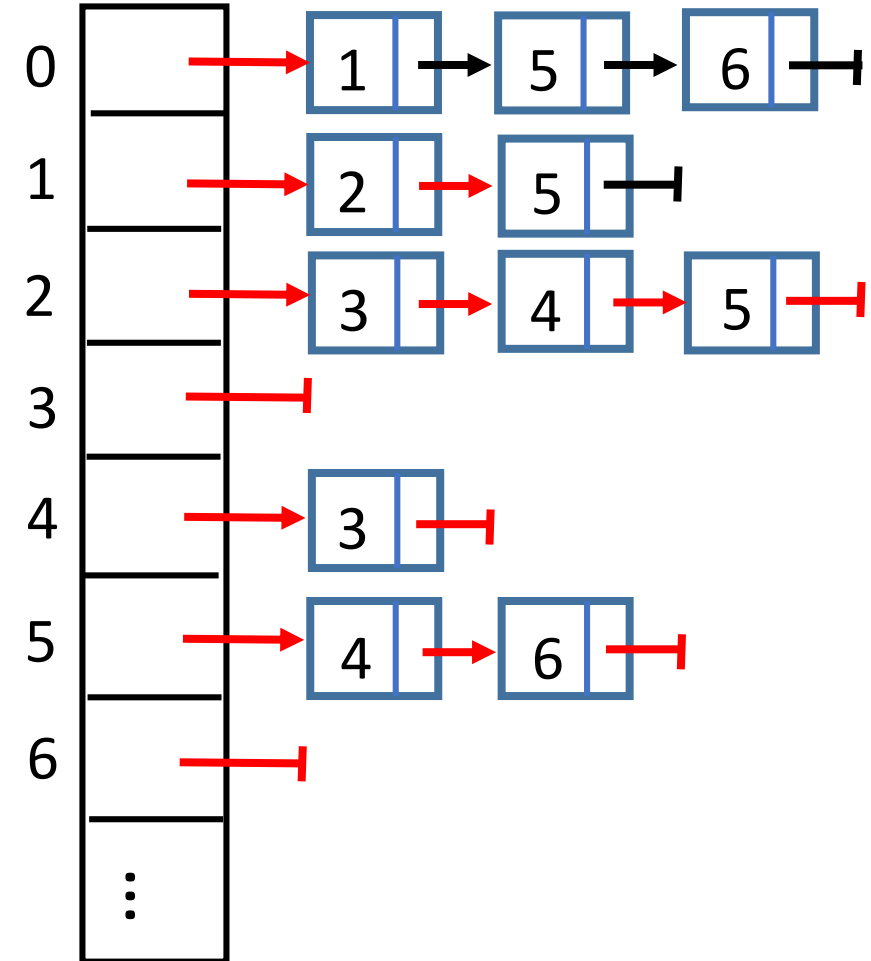
יער ה DFS



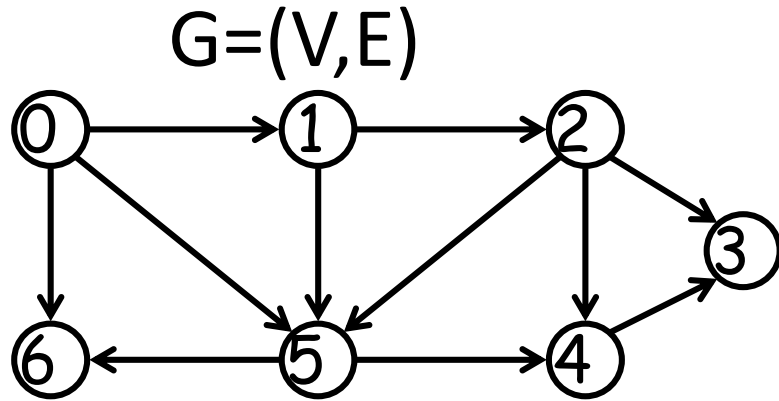
visited

0	T
1	T
2	T
3	T
4	T
5	T
6	T
	⋮

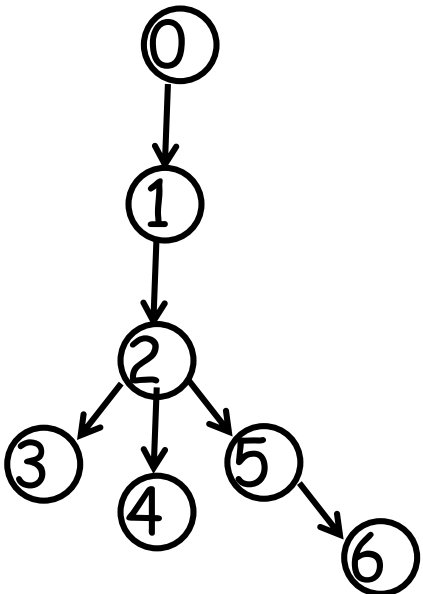
firstedge



סריקת גרף בחיפוש לעומק (DFS)



יער ה DFS



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

DFS-Visit(2)

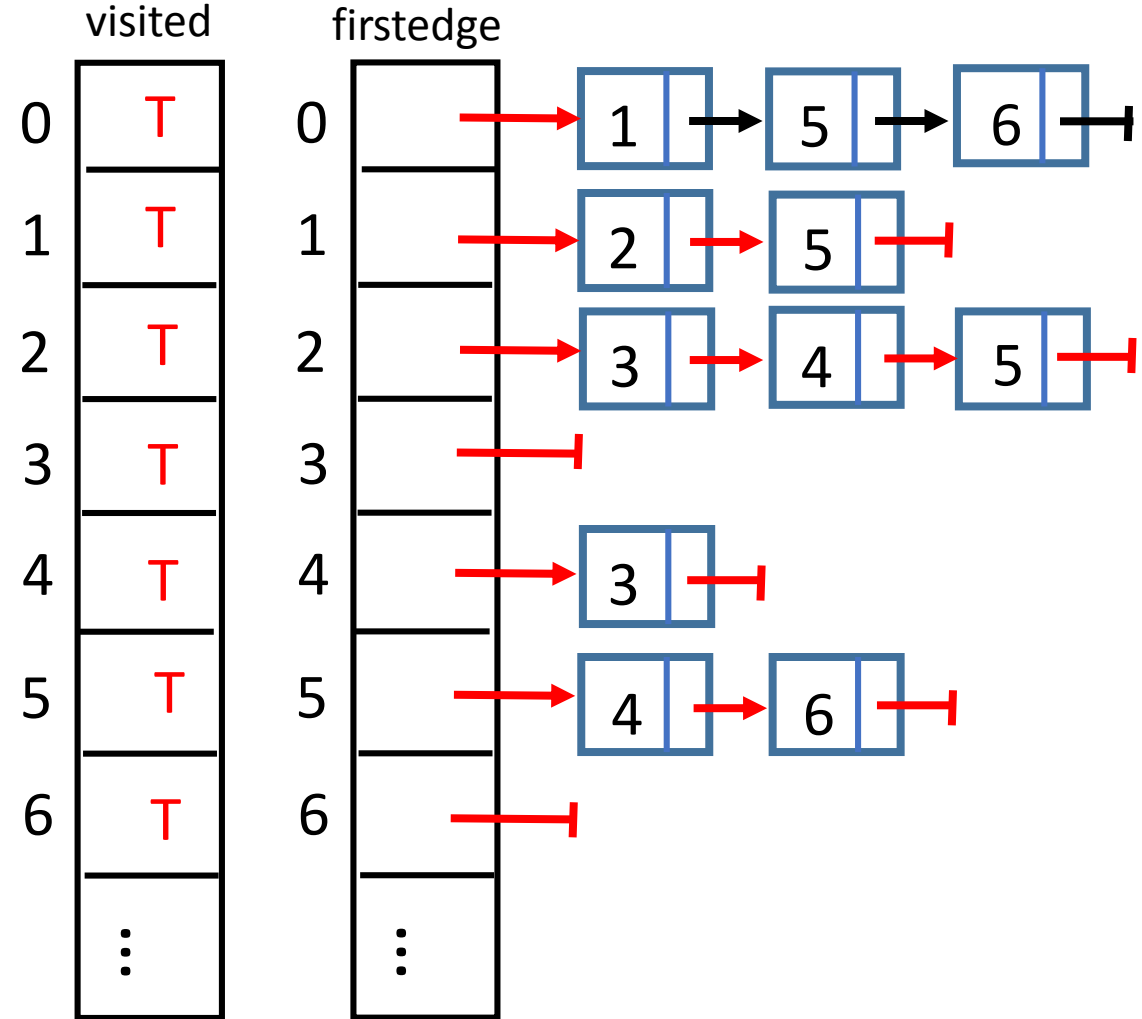
DFS-Visit(3)

DFS-Visit(4)

DFS-Visit(5)

DFS-Visit(6)

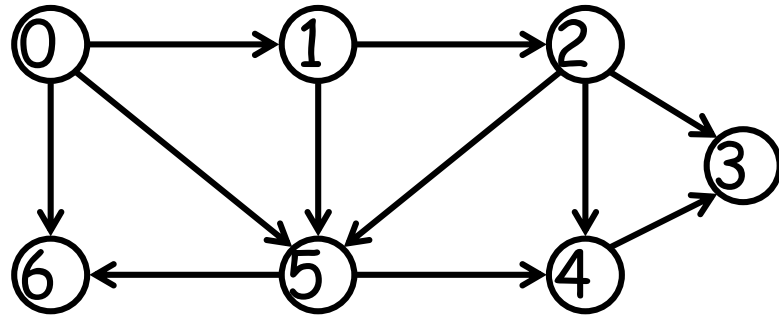
n 7 w 5



סריקת גרף בחיפוש לעומק (DFS)

n 7 w 5

$G=(V,E)$



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

DFS-Visit(2)

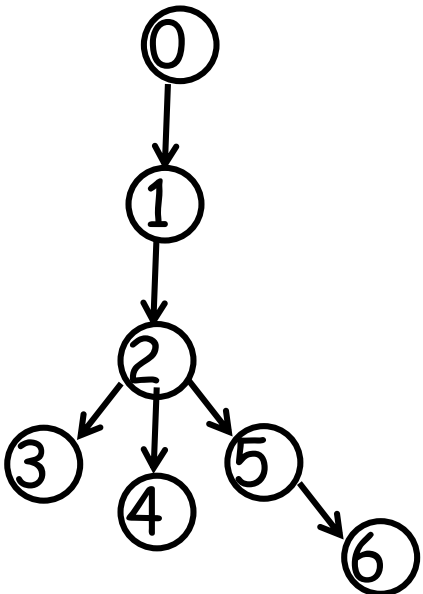
DFS-Visit(3)

DFS-Visit(4)

DFS-Visit(5)

DFS-Visit(6)

יער ה DFS



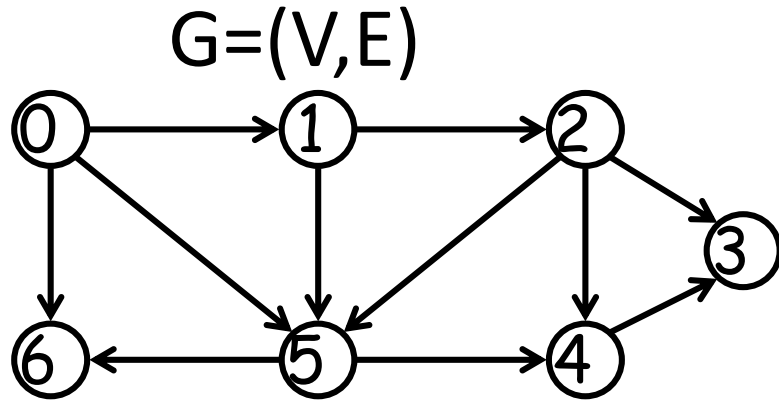
visited

0	T
1	T
2	T
3	T
4	T
5	T
6	T
	⋮

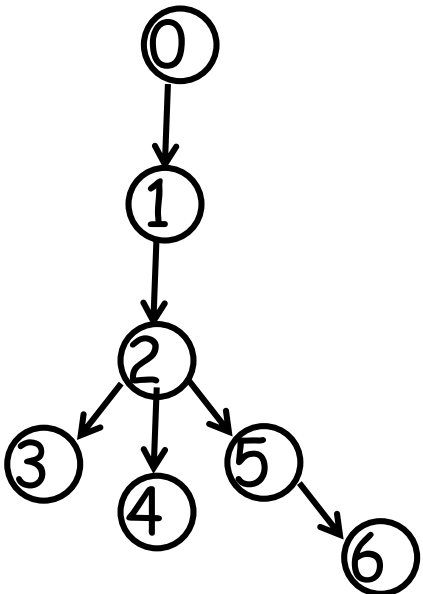
firstedge

0	→	1	→	5	→	6	→	⊥
1	→	2	→	5	→	⊥		
2	→	3	→	4	→	5	→	⊥
3	→	⊥						
4	→	3	→	⊥				
5	→	4	→	6	→	⊥		
6	→	⊥						
		⋮						

סריקת גרף בחיפוש לעומק (DFS)



יער ה DFS



DFS(G)

DFS-Visit(0)

DFS-Visit(1)

DFS-Visit(2)

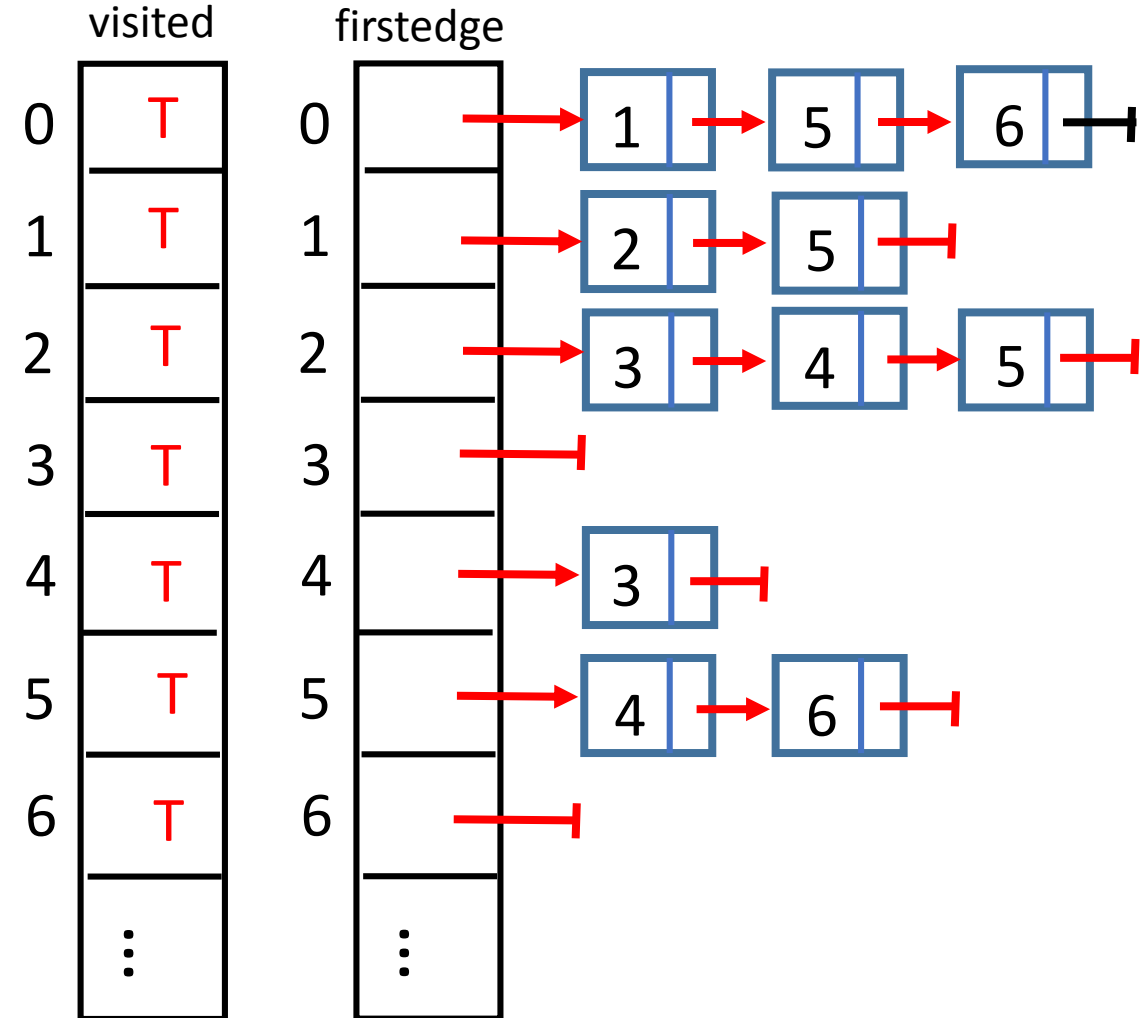
DFS-Visit(3)

DFS-Visit(4)

DFS-Visit(5)

DFS-Visit(6)

n 7 w 6



סריקת גרף בחיפוש לעומק (DFS)

n 7 w 6

DFS(G)

DFS-Visit(0)
DFS-Visit(1)
DFS-Visit(2)
DFS-Visit(3)
DFS-Visit(4)
DFS-Visit(5)
DFS-Visit(6)

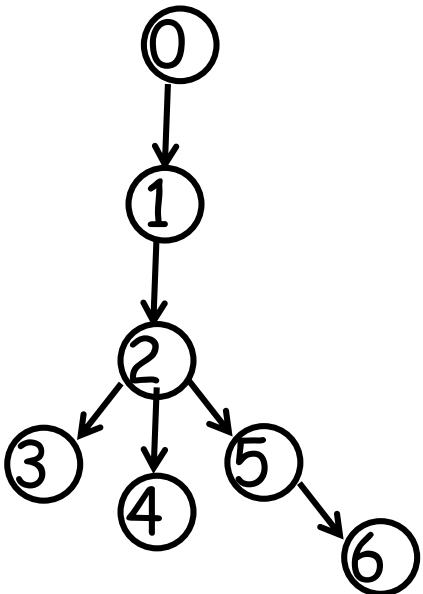
visited

0	T
1	T
2	T
3	T
4	T
5	T
6	T
	⋮

firstedge

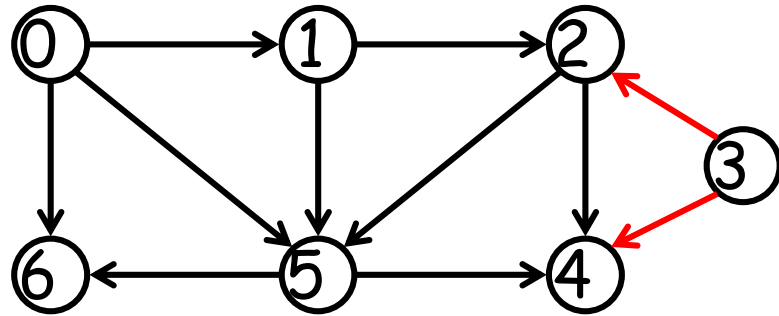
0	→	1	→	5	→	6	→	
1	→	2	→	5	→			
2	→	3	→	4	→	5	→	
3	→							
4	→	3	→					
5	→	4	→	6	→			
6	→							

יער ה DFS



סריקת גרף בחיפוש לעומק (DFS)

$G=(V,E)$



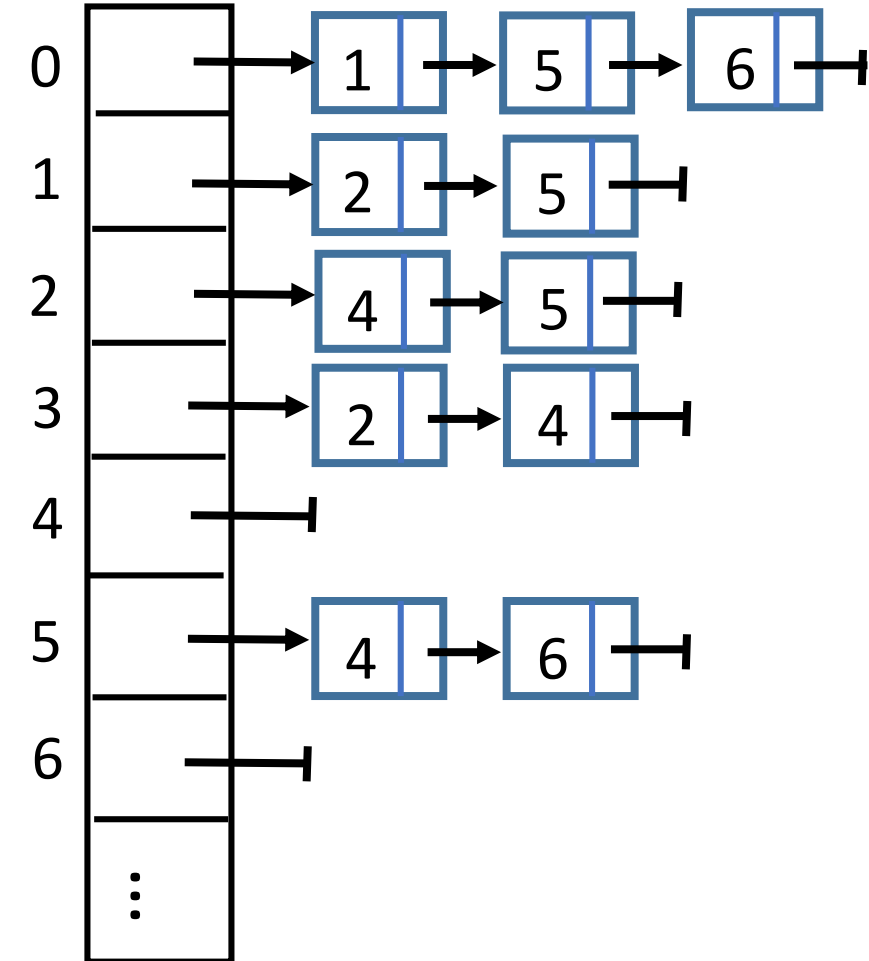
DFS(G)

n 7

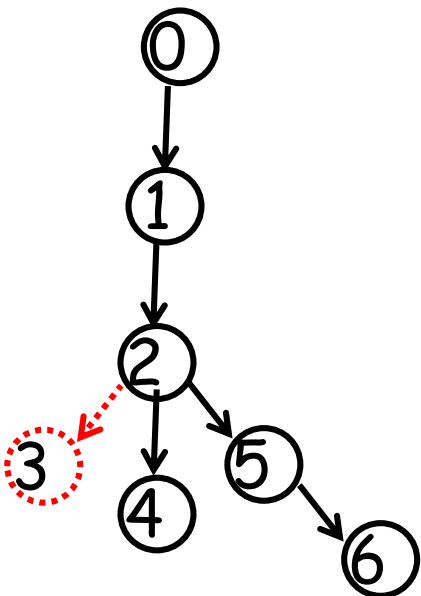
visited

0	F
1	F
2	F
3	F
4	F
5	F
6	F
	⋮

firstedge



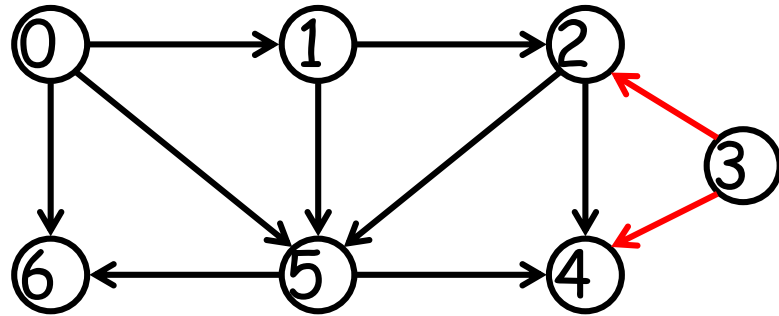
יער ה DFS



אין משתנה הסריקה אם
משנים את כיווני הקשתות
המסומנות?

סריקת גרף בחיפוש לעומק (DFS)

$G=(V,E)$

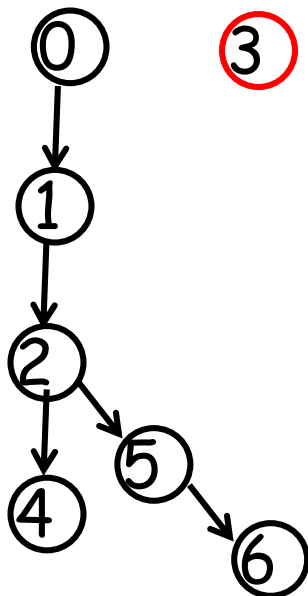


DFS(G)

n 7

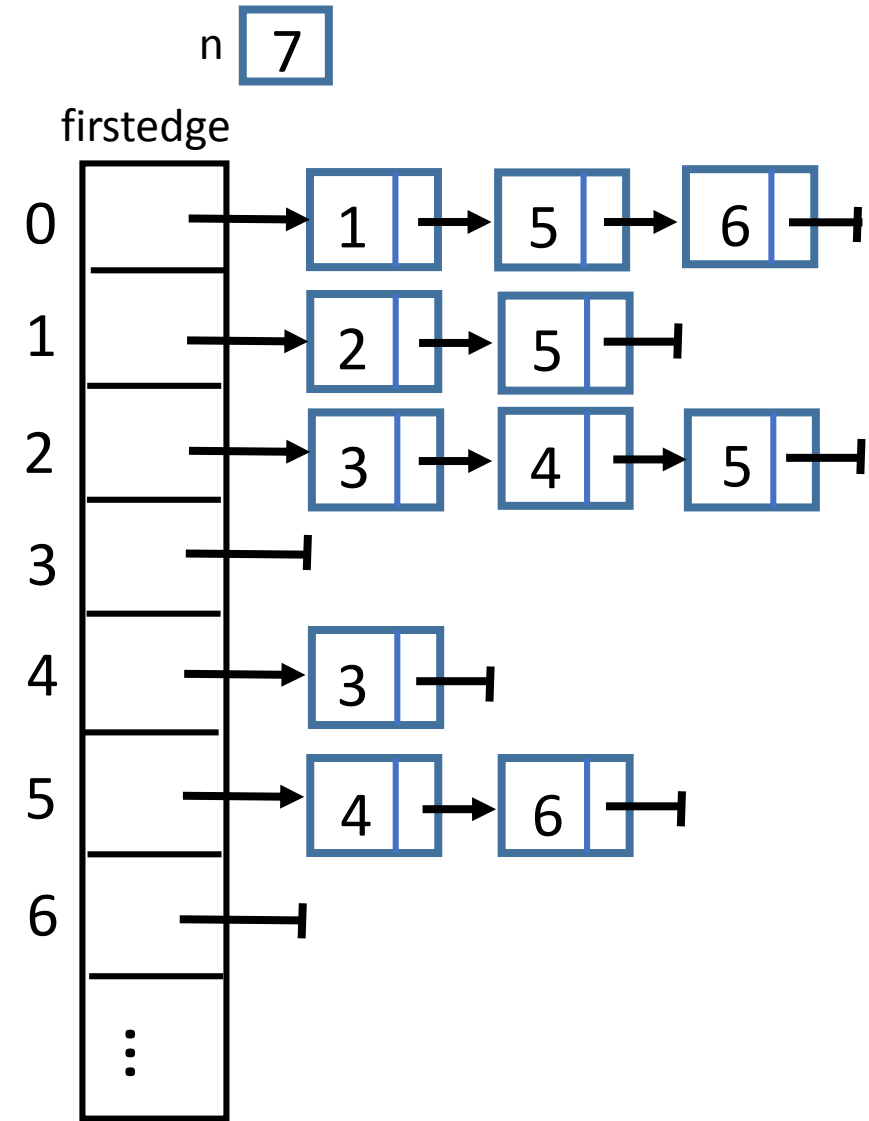
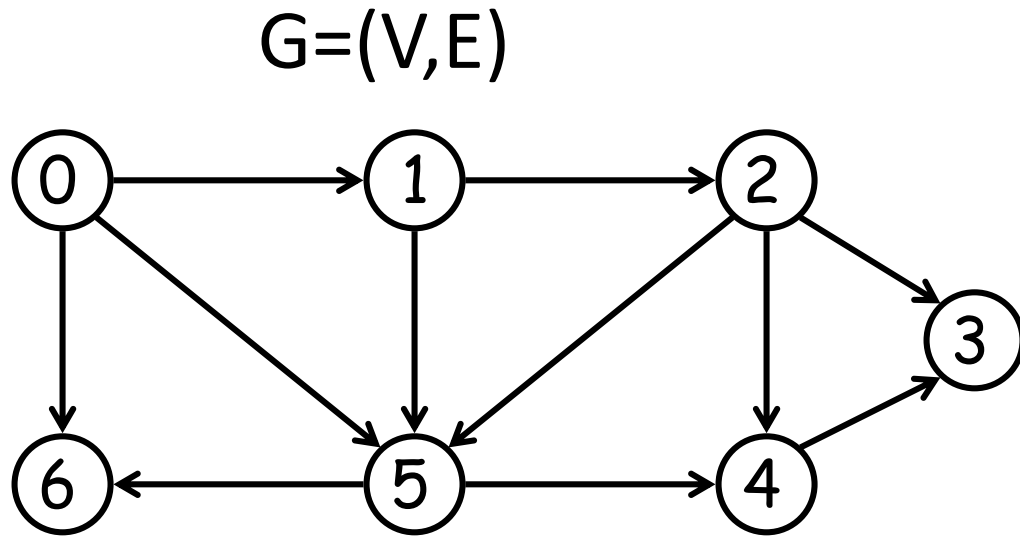
	visited	firstedge
0	F	→ 1 → 5 → 6 →
1	F	→ 2 → 5 →
2	F	→ 4 → 5 →
3	F	→ 2 → 4 →
4	F	→
5	F	→ 4 → 6 →
6	F	→
	⋮	⋮

יער ה DFS

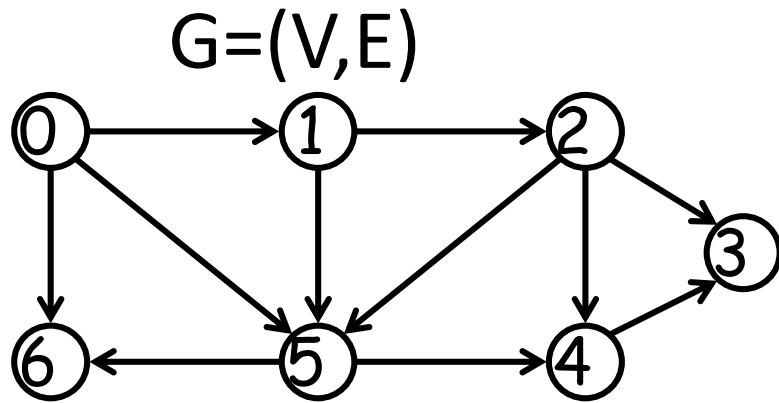


נקבל שהסריקה יוצרת יער
ולא עץ יחיד!

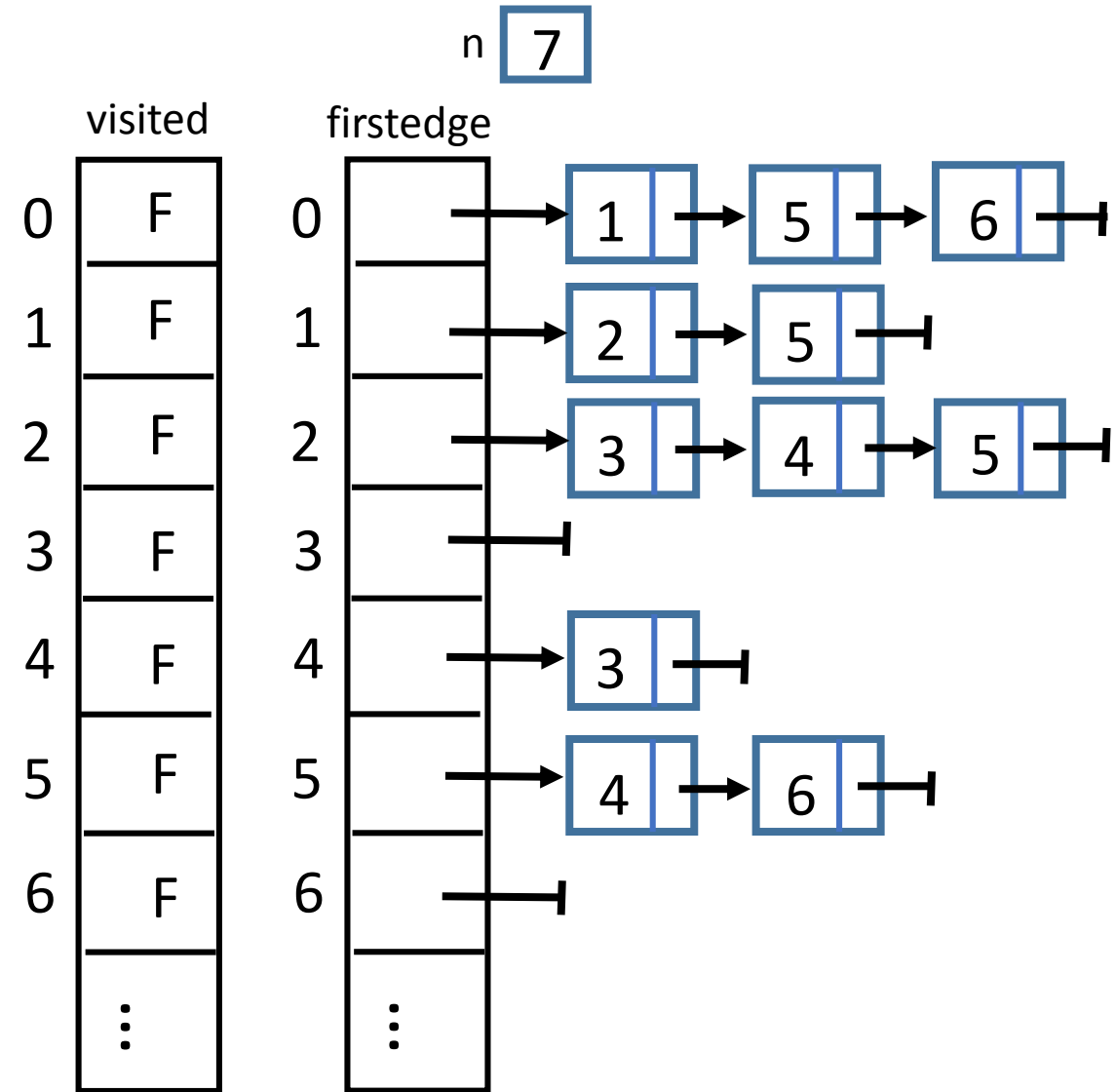
סריקת גרף בחיפוש לרוחב (BFS)



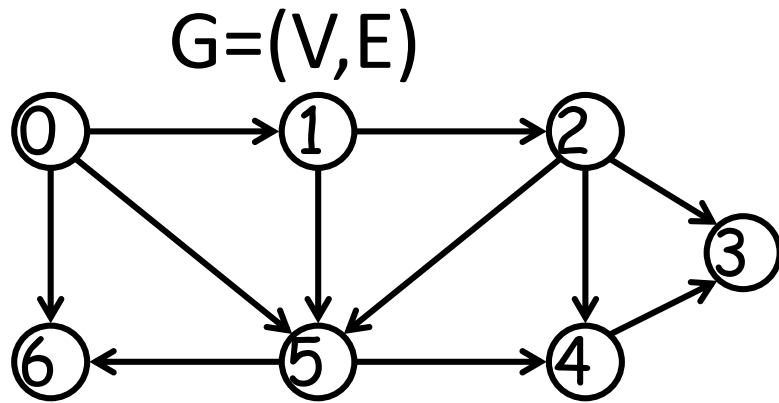
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)



סריקת גרף בחיפוש לרוחב (BFS)



יער ה BFS

0

BFS(G)

v

w

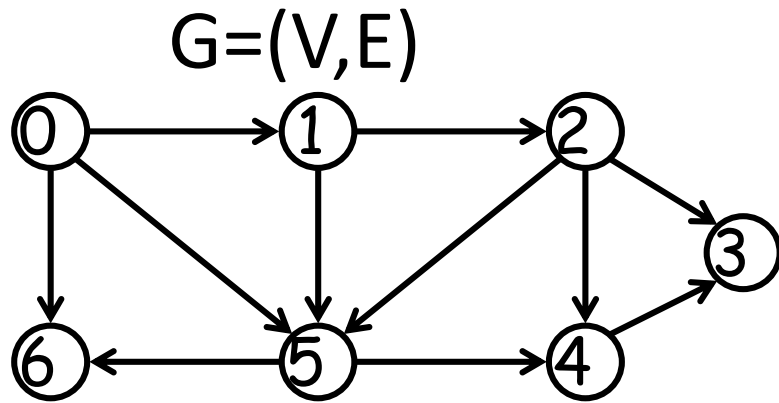
Q	
0	0
1	
2	
3	
4	
5	
6	
	⋮

visited	
0	F
1	F
2	F
3	F
4	F
5	F
6	F
	⋮

n 7

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

סריקת גרף בחיפוש לרוחב (BFS)



יער ה BFS

①

BFS(G)

v 0
w

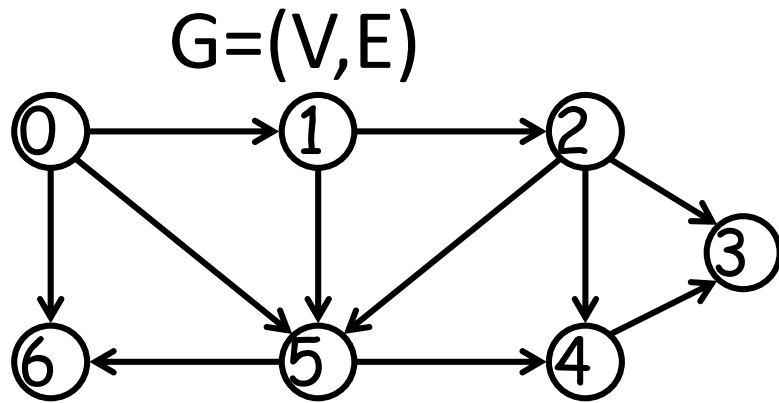
Q	
0	
1	
2	
3	
4	
5	
6	
⋮	

visited	
0	T
1	F
2	F
3	F
4	F
5	F
6	F
⋮	

n 7

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
⋮	

סריקת גרף בחיפוש לרוחב (BFS)

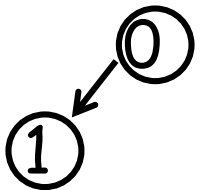


$BFS(G)$

v 0

w 1

יער ה BFS



Q

0	1
1	
2	
3	
4	
5	
6	
	⋮

visited

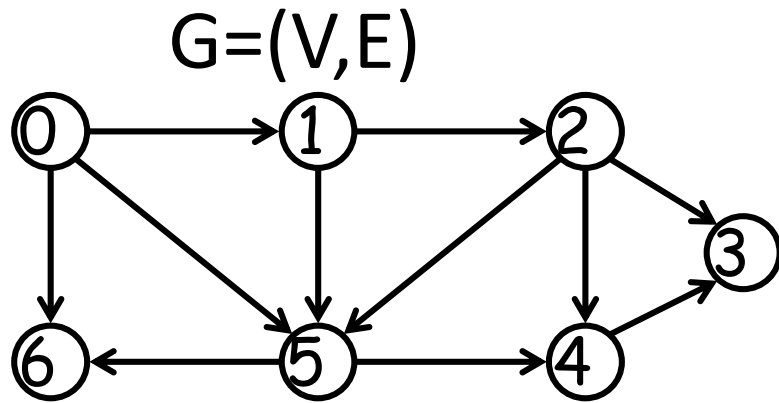
0	T
1	F
2	F
3	F
4	F
5	F
6	F
	⋮

n 7

firstedge

0	→ 1	→ 5	→ 6	→
1	→ 2	→ 5	→	
2	→ 3	→ 4	→ 5	→
3	→			
4	→ 3	→		
5	→ 4	→ 6	→	
6	→			
	⋮			

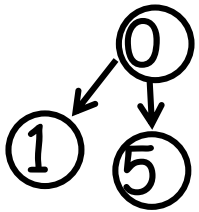
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

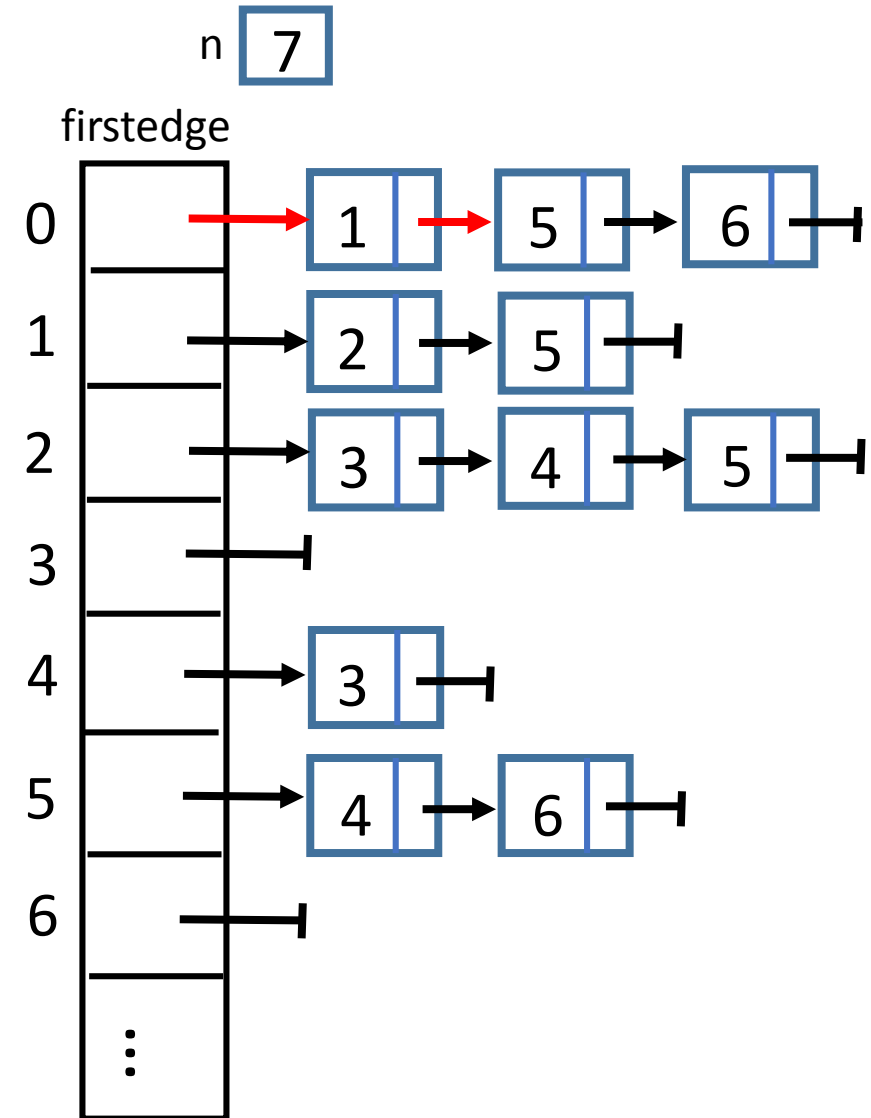
v 0
w 5

יער ה BFS

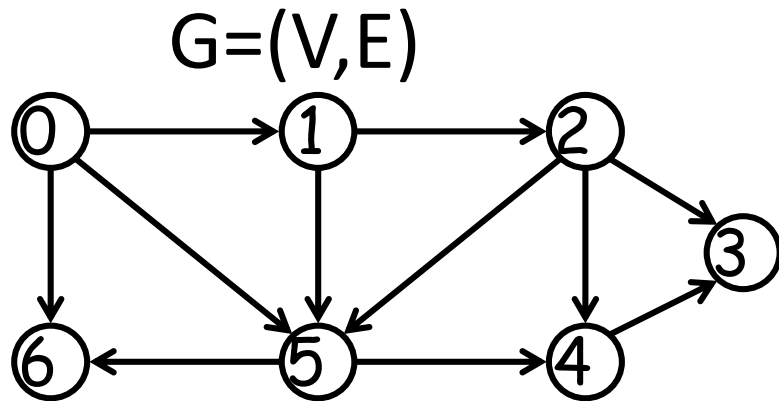


Q	
0	1
1	5
2	
3	
4	
5	
6	
	⋮

visited	
0	T
1	F
2	F
3	F
4	F
5	F
6	F
	⋮



סריקת גרף בחיפוש לרוחב (BFS)

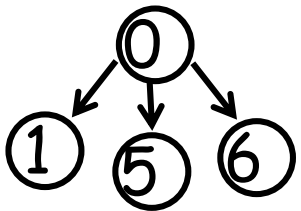


$BFS(G)$

v 0

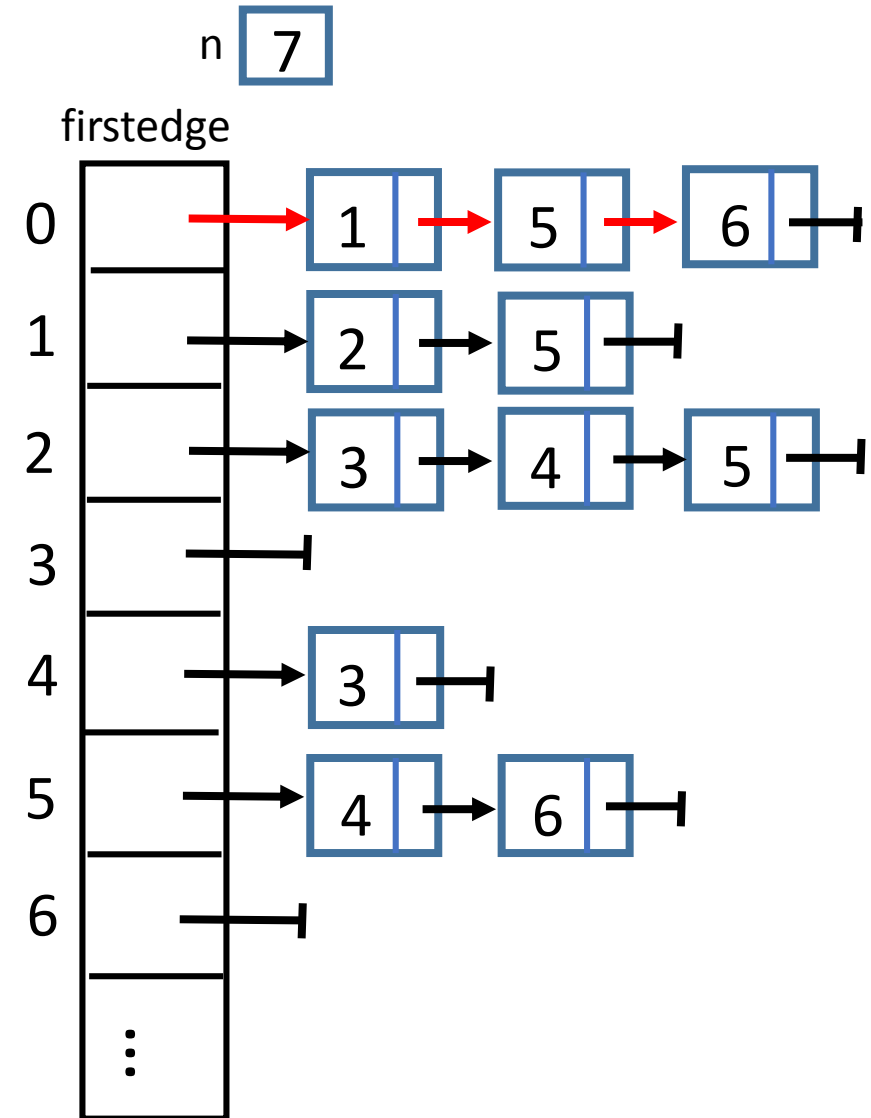
w 6

יער ה BFS

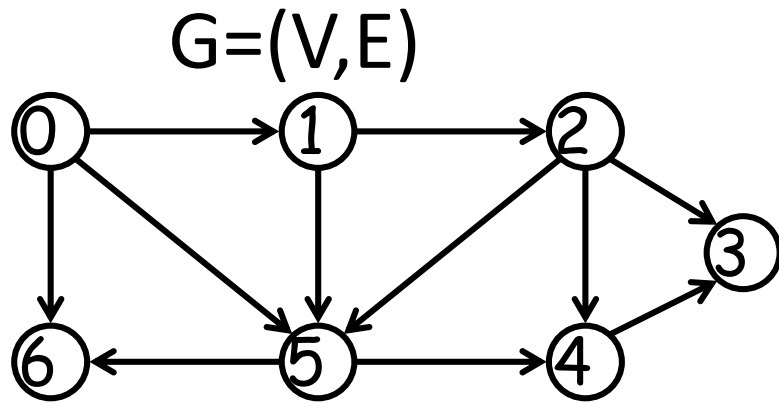


Q	
0	1
1	5
2	6
3	
4	
5	
6	
	⋮

visited	
0	T
1	F
2	F
3	F
4	F
5	F
6	F
	⋮



סריקת גרף בחיפוש לרוחב (BFS)

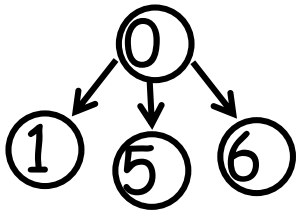


$BFS(G)$

v 0

w 6

יער ה BFS

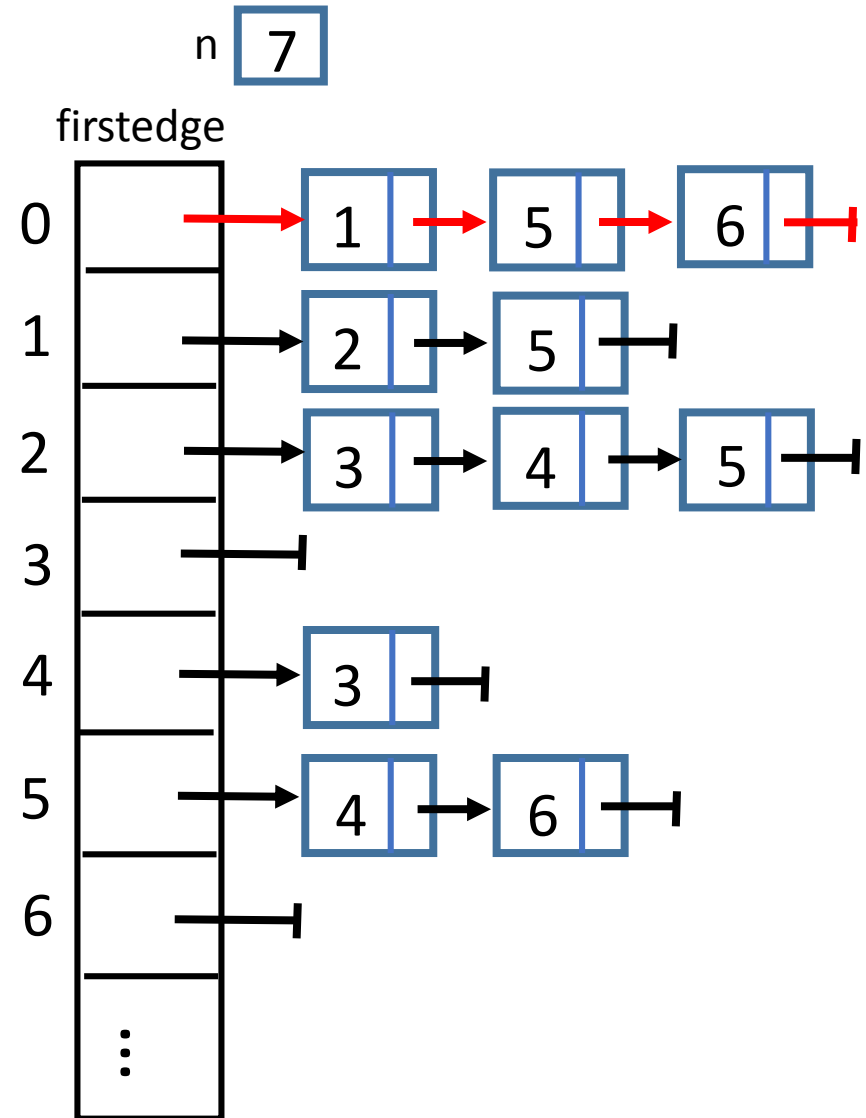


Q

0	1
1	5
2	6
3	
4	
5	
6	
	⋮

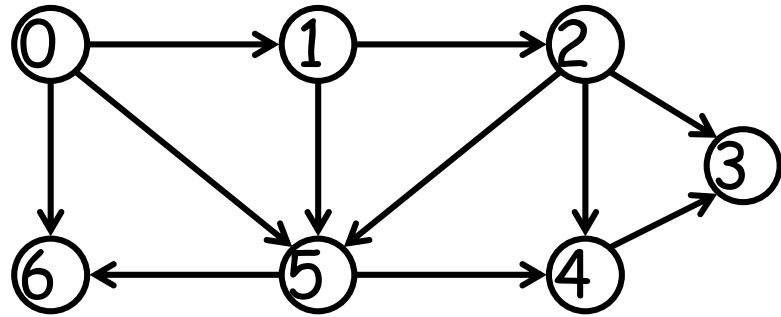
visited

0	T
1	F
2	F
3	F
4	F
5	F
6	F
	⋮



סריקת גרף בחיפוש לרוחב (BFS)

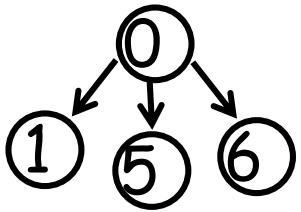
$G=(V,E)$



$BFS(G)$

v
 w

יער ה BFS

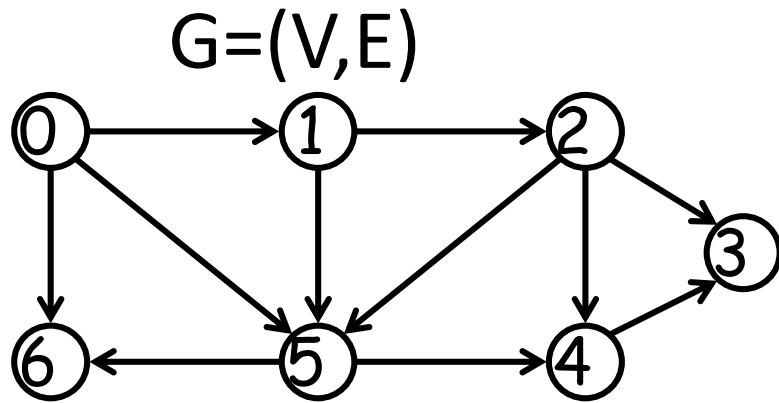


Q	
0	
1	5
2	6
3	
4	
5	
6	
	⋮

visited	
0	T
1	T
2	F
3	F
4	F
5	F
6	F
	⋮

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

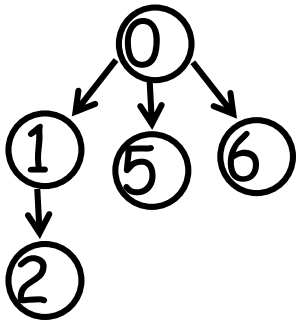
סריקת גרף בחיפוש לרוחב (BFS)



$BFS(G)$

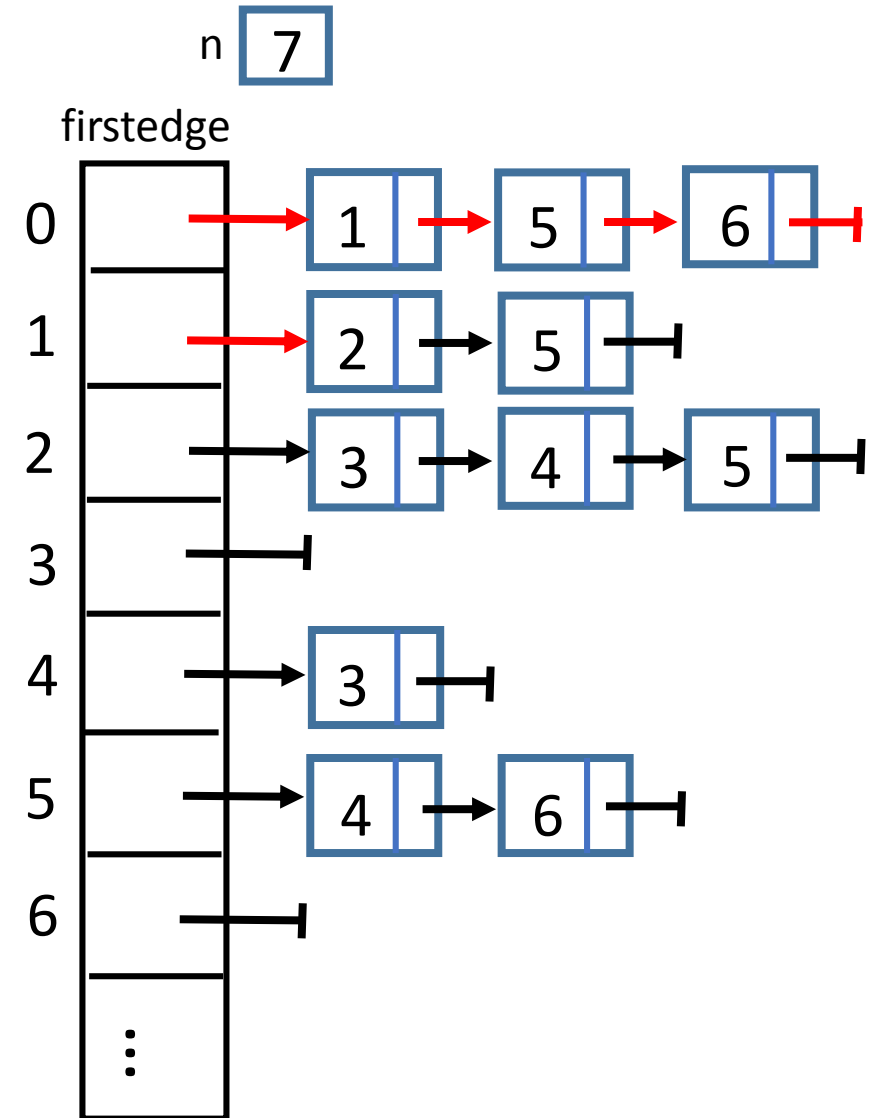
v 1
 w 2

יער ה BFS

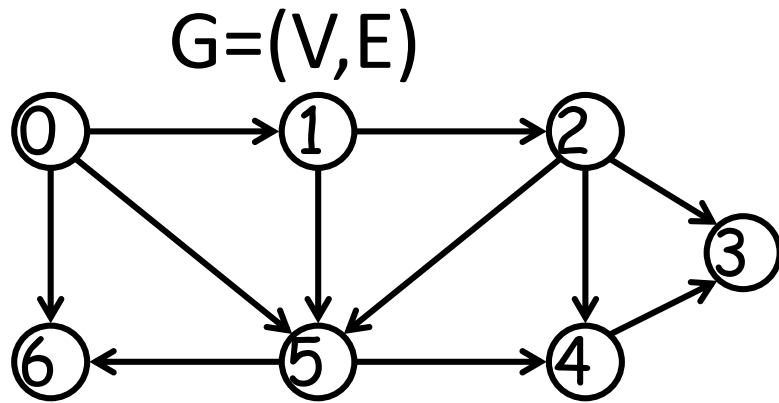


Q	
0	
1	5
2	6
3	2
4	
5	
6	
	⋮

visited	
0	T
1	T
2	F
3	F
4	F
5	F
6	F
	⋮



סריקת גרף בחיפוש לרוחב (BFS)



$BFS(G)$

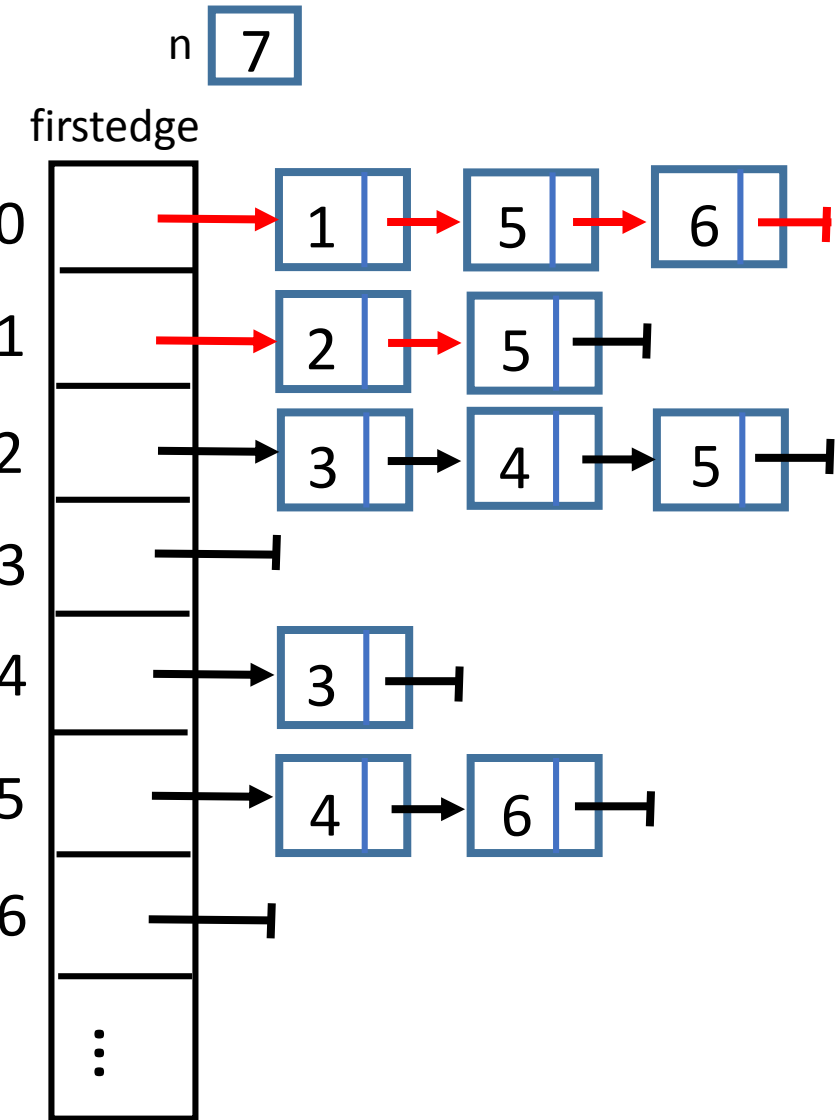
v 1
 w 5

Q

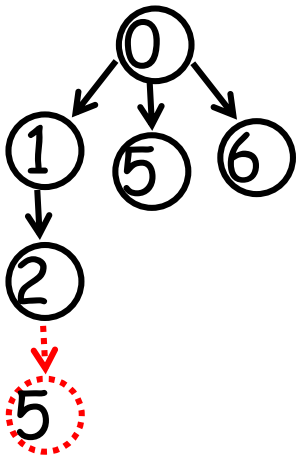
0	
1	5
2	6
3	2
4	5
5	
6	
	⋮

visited

0	T
1	T
2	F
3	F
4	F
5	F
6	F
	⋮

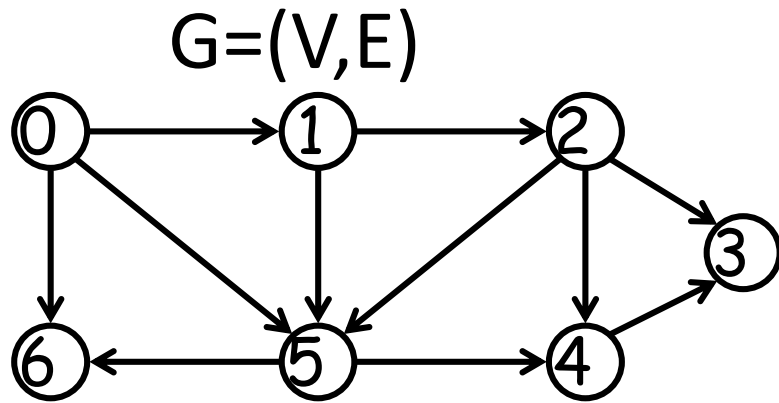


יער ה BFS



רוצים שכל צומת יהיה בעץ
 (ובתור) רק פעם אחת!

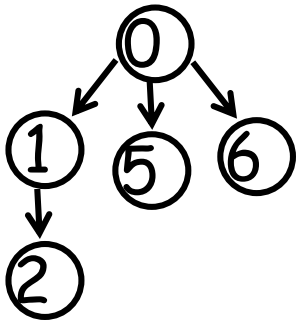
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

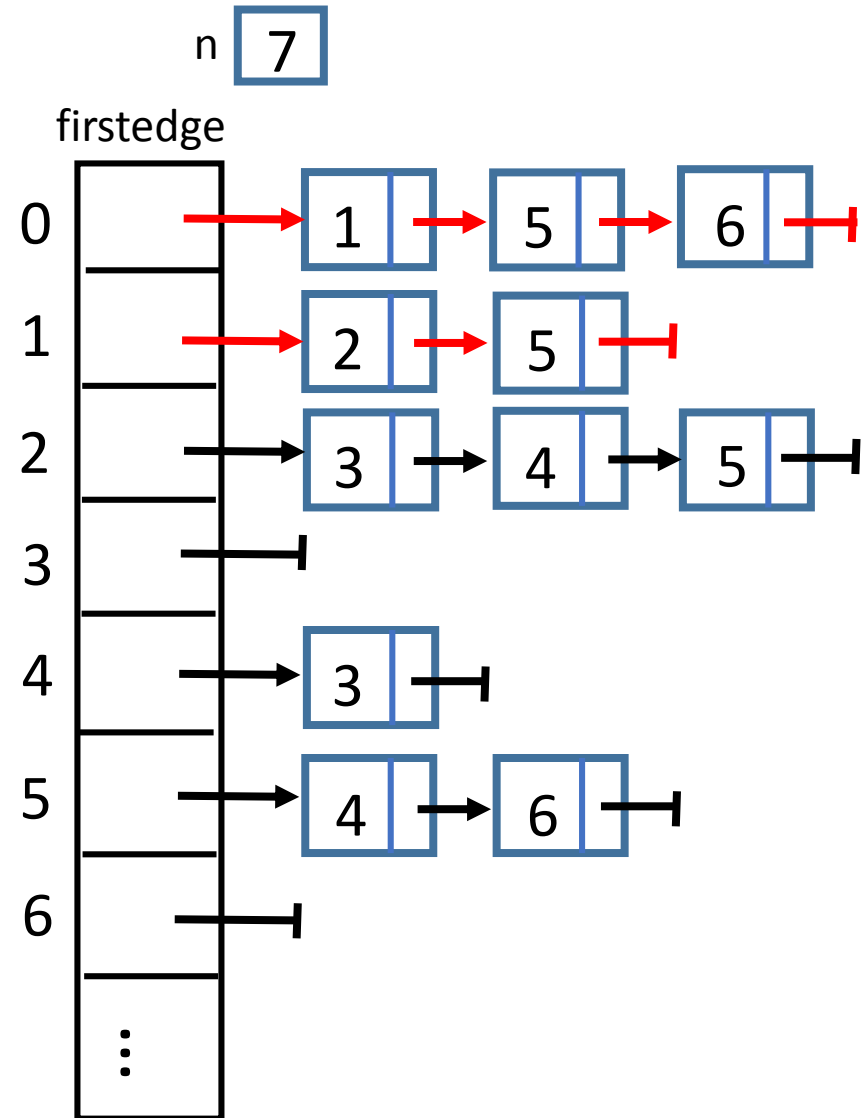
v 1
w 5

יער ה BFS

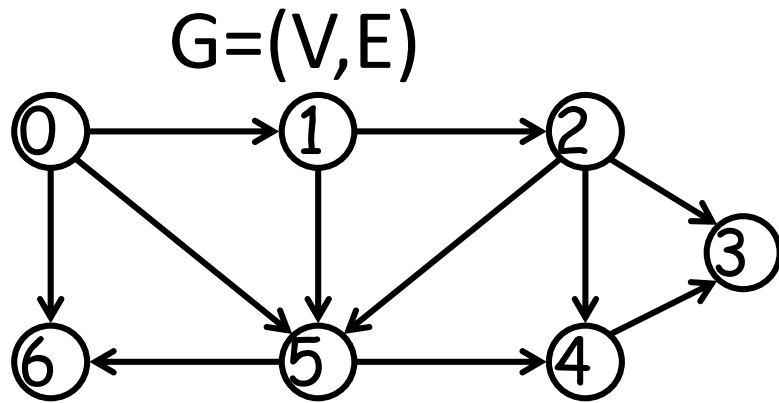


Q	
0	
1	5
2	6
3	2
4	5
5	
6	
	⋮

visited	
0	T
1	T
2	F
3	F
4	F
5	F
6	F
	⋮



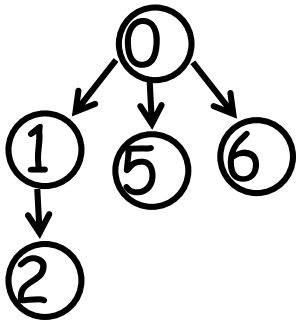
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

v
w

יער ה BFS

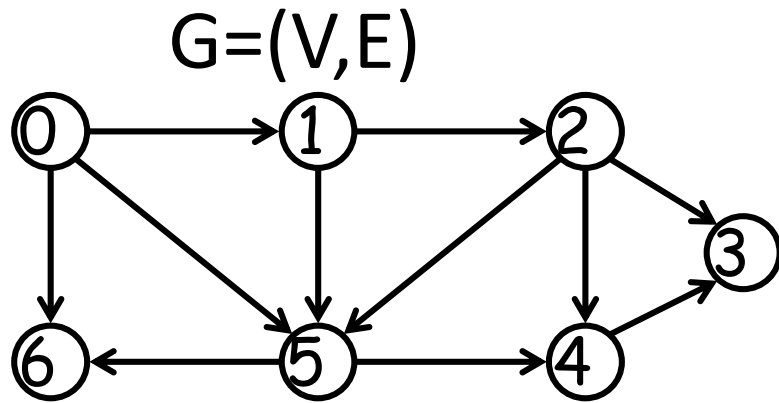


Q	
0	
1	
2	6
3	2
4	5
5	
6	
	⋮

visited	
0	T
1	T
2	F
3	F
4	F
5	T
6	F
	⋮

firstedge	
0	→ <input type="text" value="1"/> → <input type="text" value="5"/> → <input type="text" value="6"/> →
1	→ <input type="text" value="2"/> → <input type="text" value="5"/> →
2	→ <input type="text" value="3"/> → <input type="text" value="4"/> → <input type="text" value="5"/> →
3	→
4	→ <input type="text" value="3"/> →
5	→ <input type="text" value="4"/> → <input type="text" value="6"/> →
6	→
	⋮

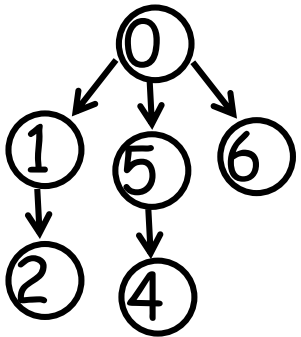
סריקת גרף בחיפוש לרוחב (BFS)



$BFS(G)$

v 5
 w 4

יער ה BFS

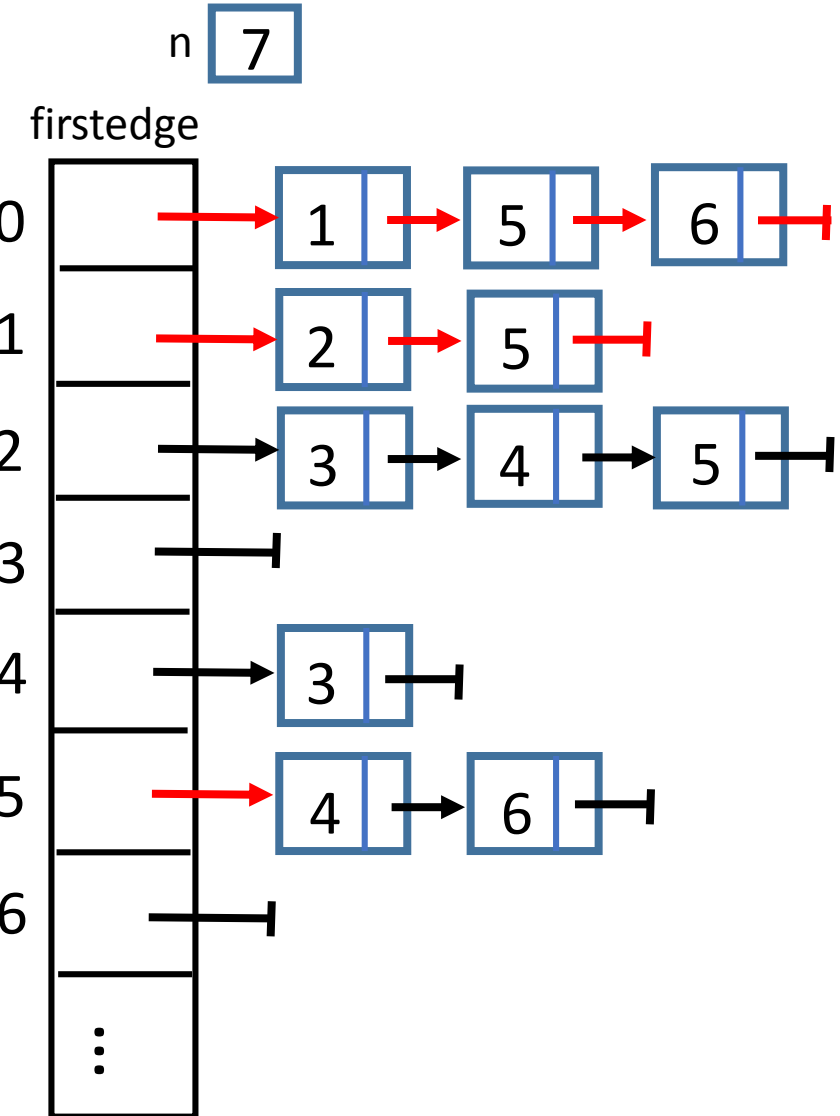


Q

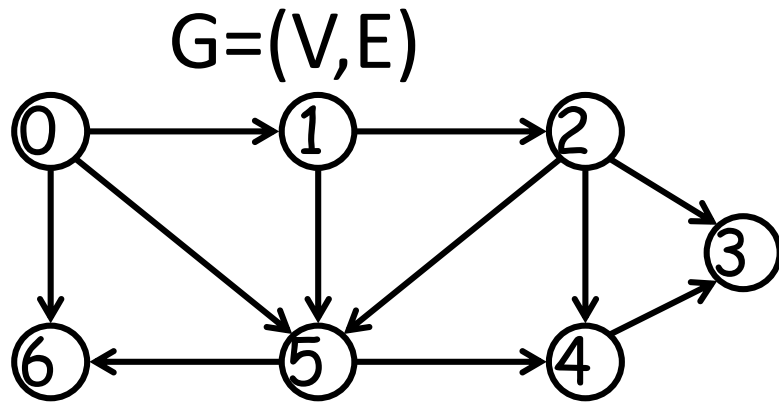
0	
1	
2	6
3	2
4	5
5	4
6	
	⋮

visited

0	T
1	T
2	F
3	F
4	F
5	T
6	F
	⋮



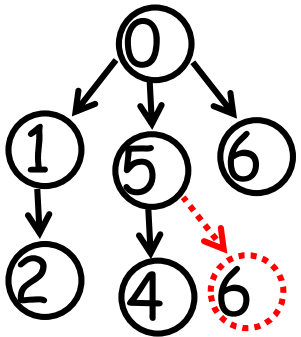
סריקת גרף בחיפוש לרוחב (BFS)



$BFS(G)$

v 5
 w 6

יער ה BFS

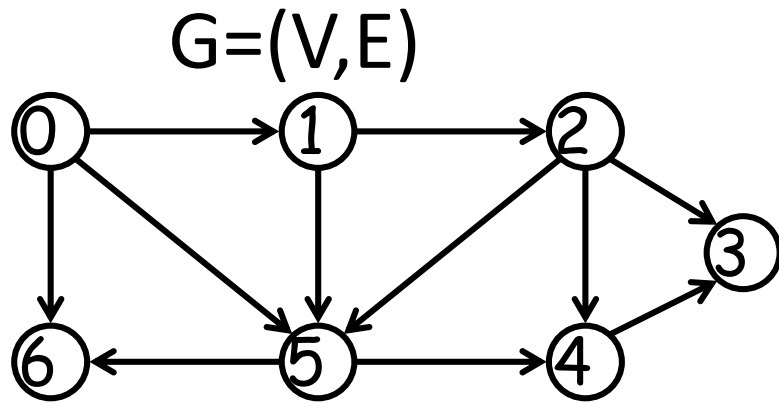


Q	
0	
1	
2	6
3	2
4	5
5	4
6	6
	⋮

visited	
0	T
1	T
2	F
3	F
4	F
5	T
6	F
	⋮

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

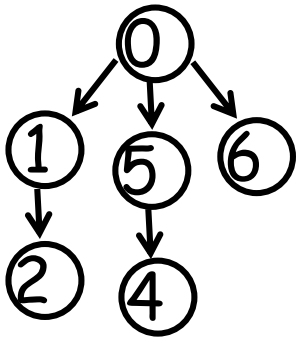
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

v 5
w 6

יער ה BFS



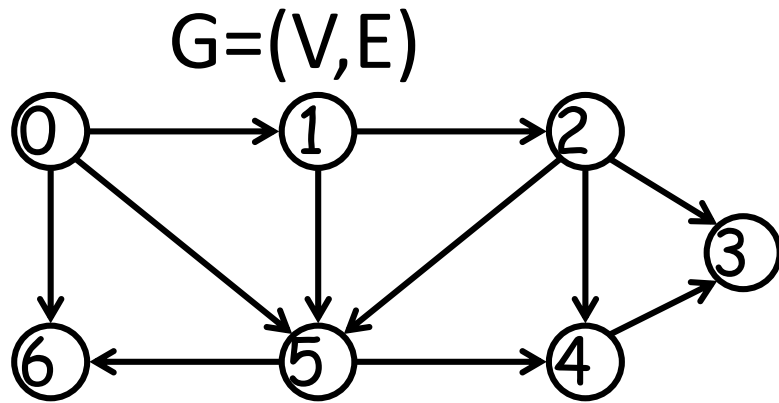
Q	
0	
1	
2	6
3	2
4	5
5	4
6	6
	⋮

visited	
0	T
1	T
2	F
3	F
4	F
5	T
6	F
	⋮

n 7

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

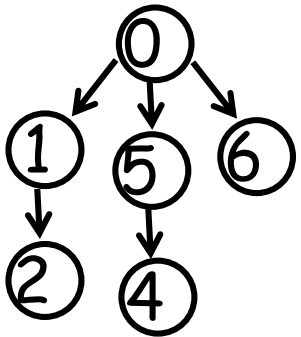
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

v
w

יער ה BFS



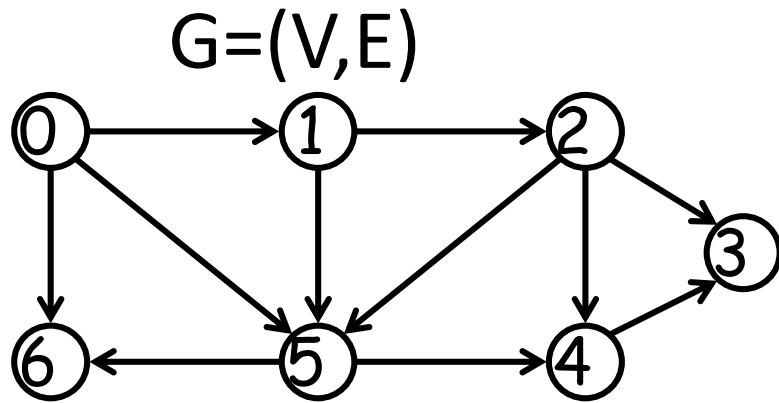
Q	
0	
1	
2	
3	2
4	5
5	4
6	6
	⋮

visited	
0	T
1	T
2	F
3	F
4	F
5	T
6	T
	⋮

n

firstedge	
0	→ <input type="text" value="1"/> → <input type="text" value="5"/> → <input type="text" value="6"/> →
1	→ <input type="text" value="2"/> → <input type="text" value="5"/> →
2	→ <input type="text" value="3"/> → <input type="text" value="4"/> → <input type="text" value="5"/> →
3	→
4	→ <input type="text" value="3"/> →
5	→ <input type="text" value="4"/> → <input type="text" value="6"/> →
6	→
	⋮

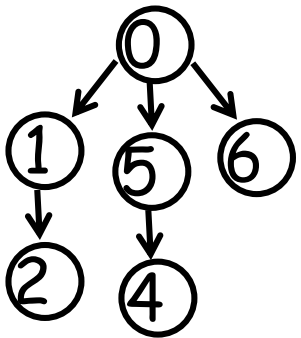
סריקת גרף בחיפוש לרוחב (BFS)



$BFS(G)$

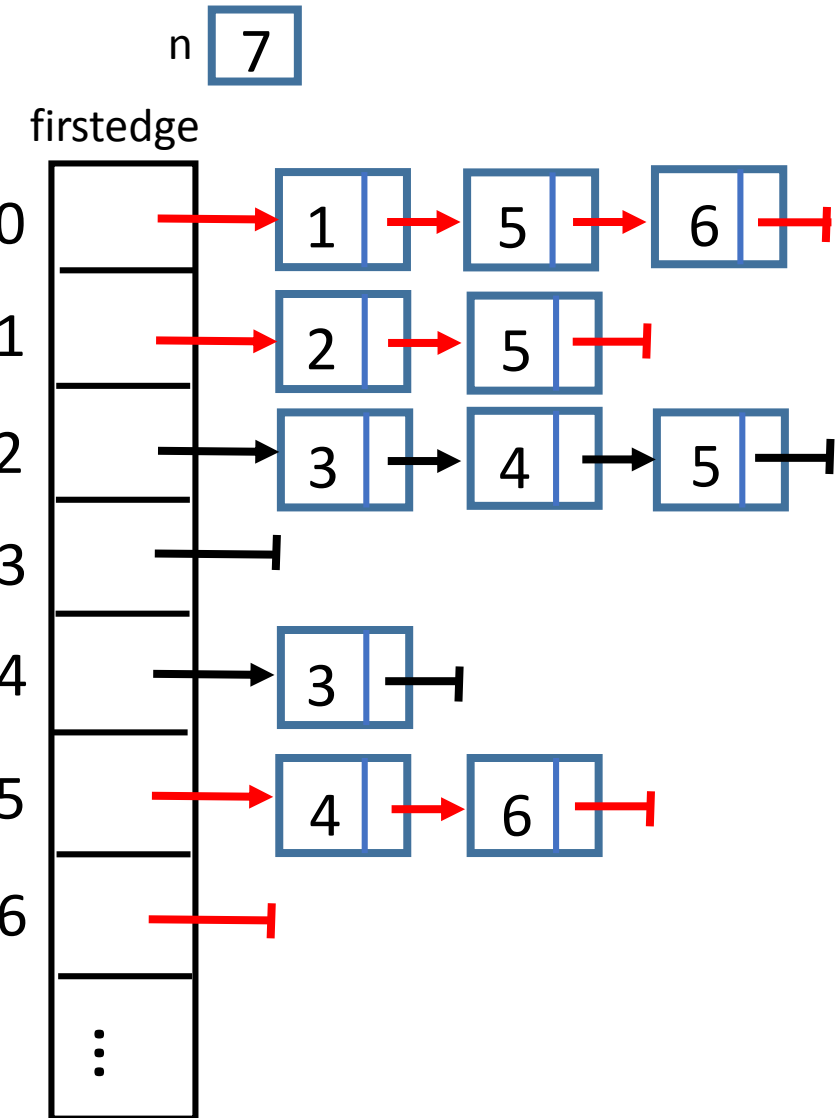
v 6
 w

יער ה BFS



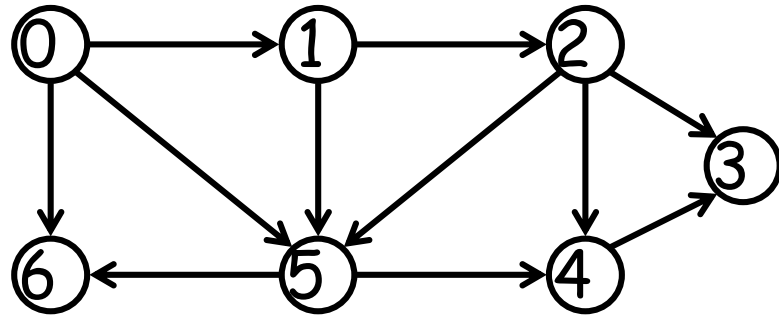
Q	
0	
1	
2	
3	2
4	5
5	4
6	6
	⋮

visited	
0	T
1	T
2	F
3	F
4	F
5	T
6	T
	⋮



סריקת גרף בחיפוש לרוחב (BFS)

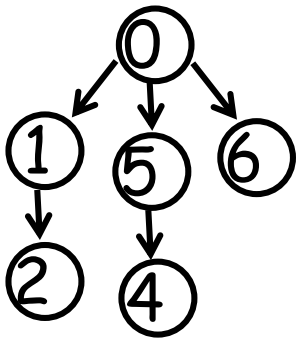
$G=(V,E)$



BFS(G)

v
w

יער ה BFS

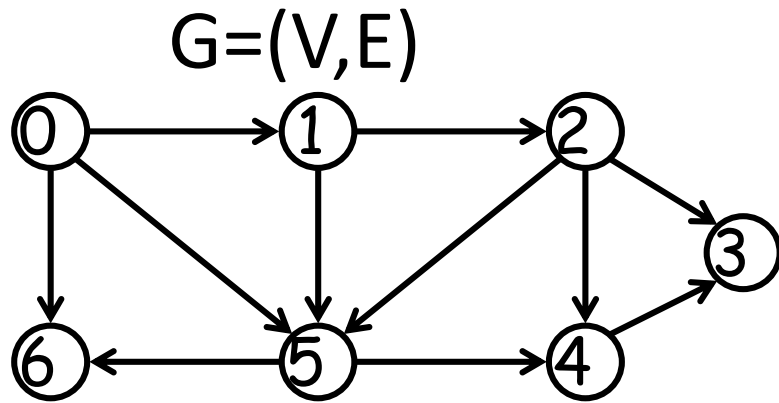


Q	
0	
1	
2	
3	
4	5
5	4
6	6
	⋮

visited	
0	T
1	T
2	T
3	F
4	F
5	T
6	T
	⋮

firstedge	
0	→ <input type="text" value="1"/> → <input type="text" value="5"/> → <input type="text" value="6"/> →
1	→ <input type="text" value="2"/> → <input type="text" value="5"/> →
2	→ <input type="text" value="3"/> → <input type="text" value="4"/> → <input type="text" value="5"/> →
3	→
4	→ <input type="text" value="3"/> →
5	→ <input type="text" value="4"/> → <input type="text" value="6"/> →
6	→
	⋮

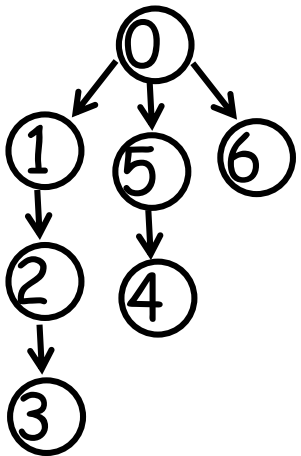
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

v 2
w 3

יער ה BFS

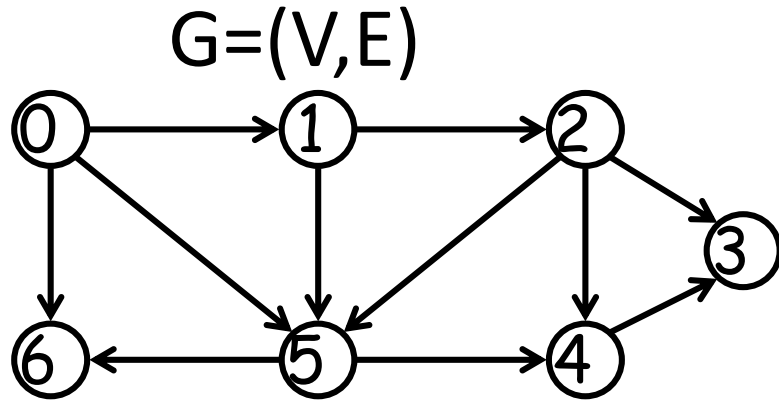


Q	
0	
1	
2	
3	
4	5
5	4
6	6
7	3

visited	
0	T
1	T
2	T
3	F
4	F
5	T
6	T
	⋮

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

סריקת גרף בחיפוש לרוחב (BFS)

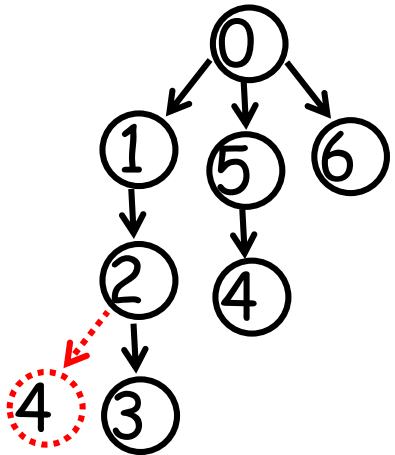


BFS(G)

v 2

w 4

יער ה BFS

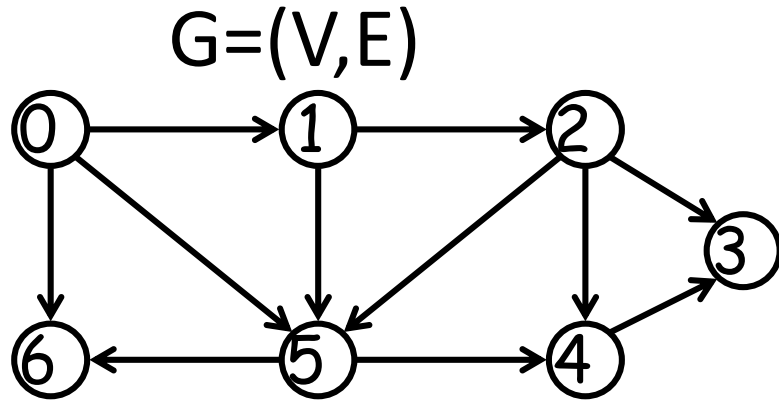


Q	
0	4
1	
2	
3	
4	5
5	4
6	6
7	3

visited	
0	T
1	T
2	T
3	F
4	F
5	T
6	T
	⋮

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

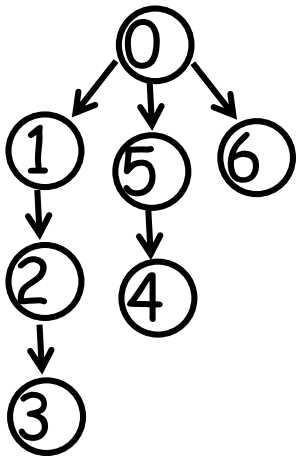
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

v 2
w 5

יער ה BFS

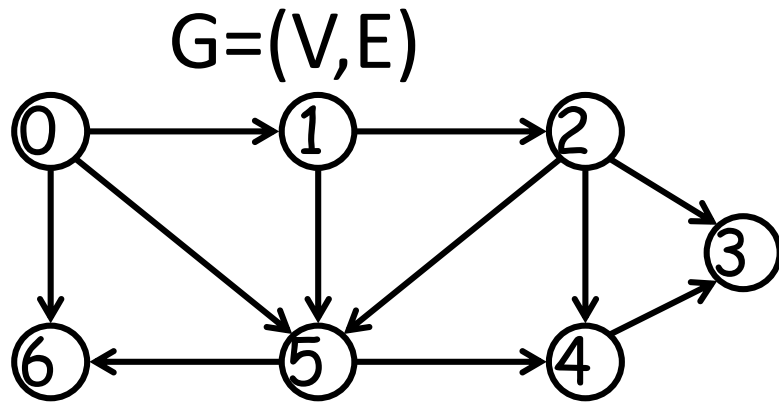


Q	
0	4
1	
2	
3	
4	5
5	4
6	6
7	3

visited	
0	T
1	T
2	T
3	F
4	F
5	T
6	T
	⋮

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

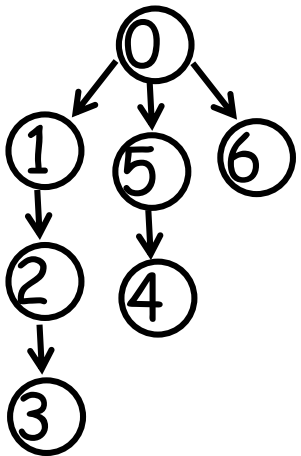
סריקת גרף בחיפוש לרוחב (BFS)



$BFS(G)$

v 2
 w 5

יער ה BFS



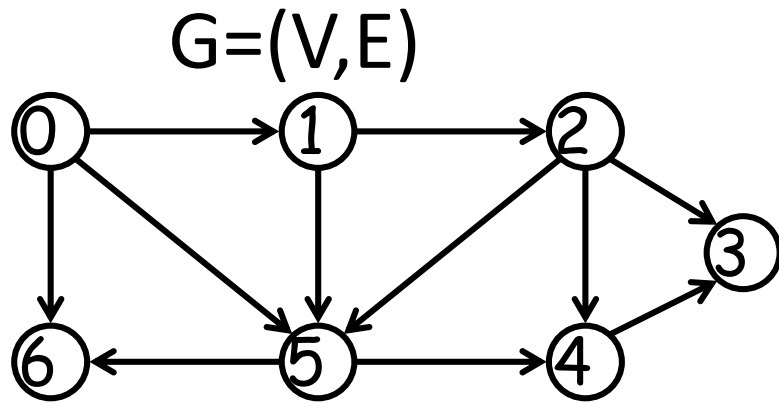
Q	
0	4
1	
2	
3	
4	5
5	4
6	6
7	3

visited	
0	T
1	T
2	T
3	F
4	F
5	T
6	T
	⋮

n 7

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

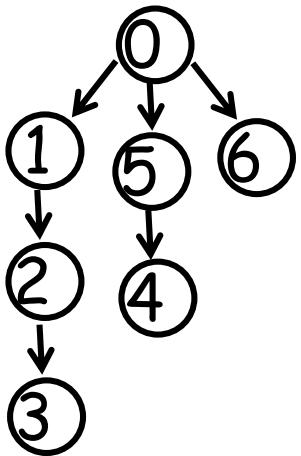
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

v 5
w

יער ה BFS



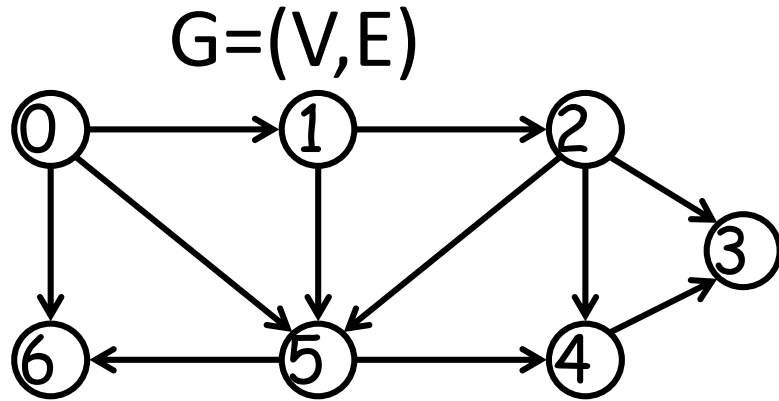
Q	
0	4
1	
2	
3	
4	
5	4
6	6
7	3

visited	
0	T
1	T
2	T
3	F
4	F
5	T
6	T
	⋮

n 7

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

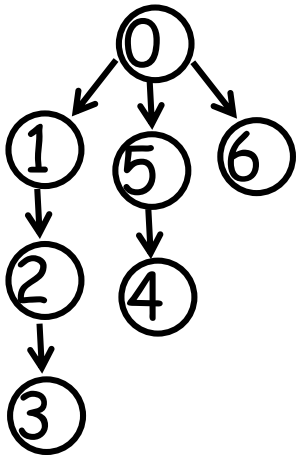
סריקת גרף בחיפוש לרוחב (BFS)



$BFS(G)$

v
 w

יער ה BFS

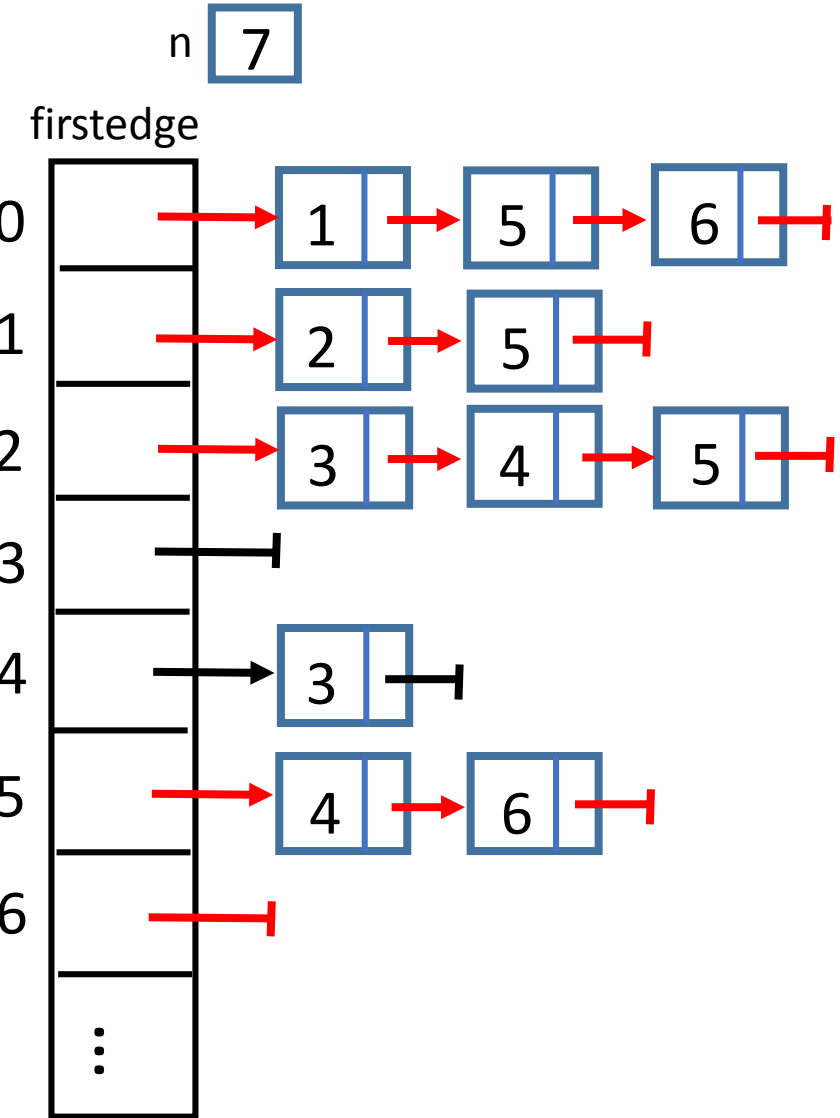


Q

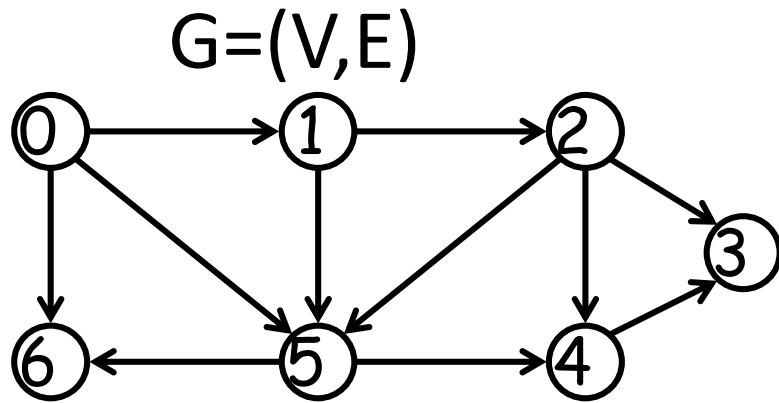
0	4
1	
2	
3	
4	
5	
6	6
7	3

visited

0	T
1	T
2	T
3	F
4	
5	T
6	T
	⋮



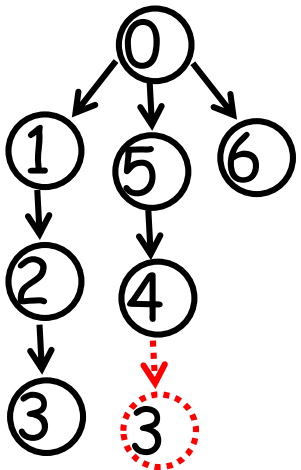
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

v 4
w 3

יער ה BFS



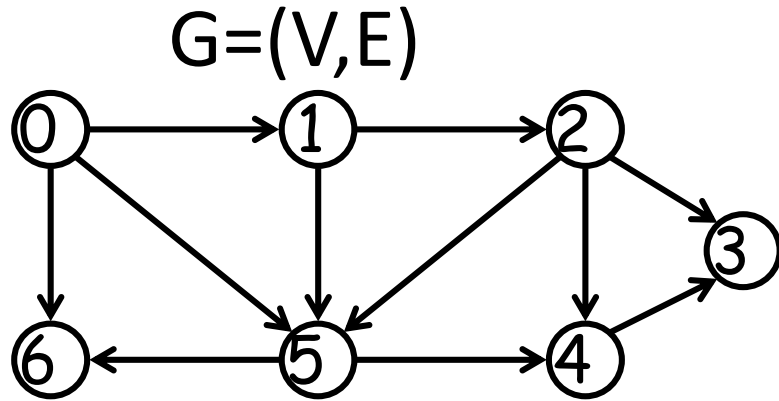
Q	
0	4
1	3
2	
3	
4	
5	
6	6
7	3

visited	
0	T
1	T
2	T
3	F
4	T
5	T
6	T
	⋮

n 7

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

v 4

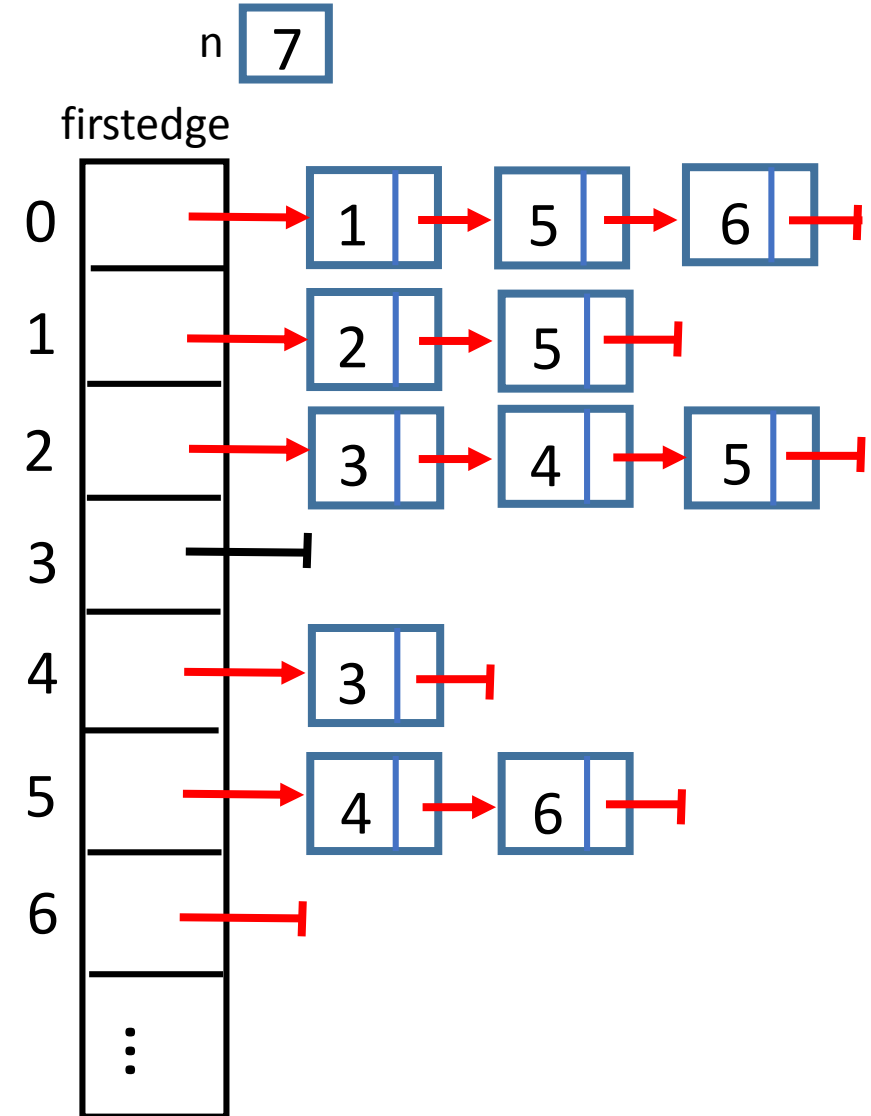
w 3

Q

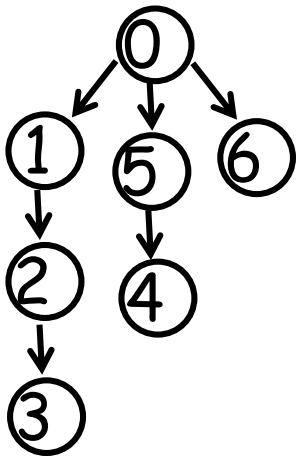
0	4
1	3
2	
3	
4	
5	
6	6
7	3

visited

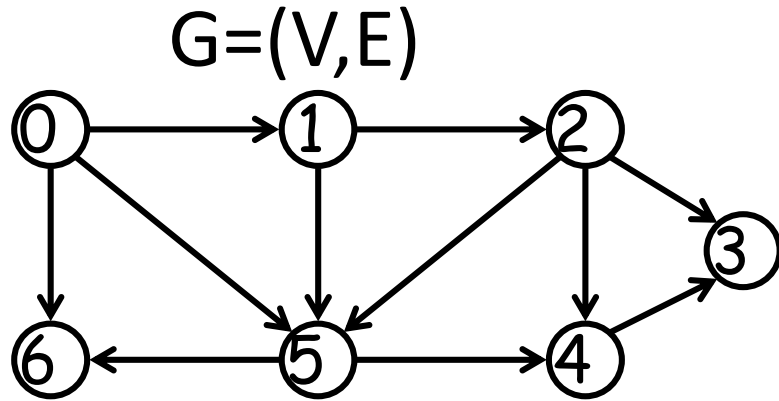
0	T
1	T
2	T
3	F
4	
5	T
6	T
	⋮



יער ה BFS



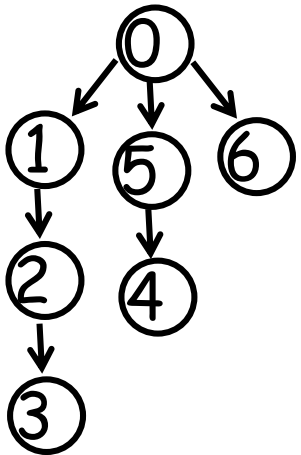
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

v 6
w

יער ה BFS



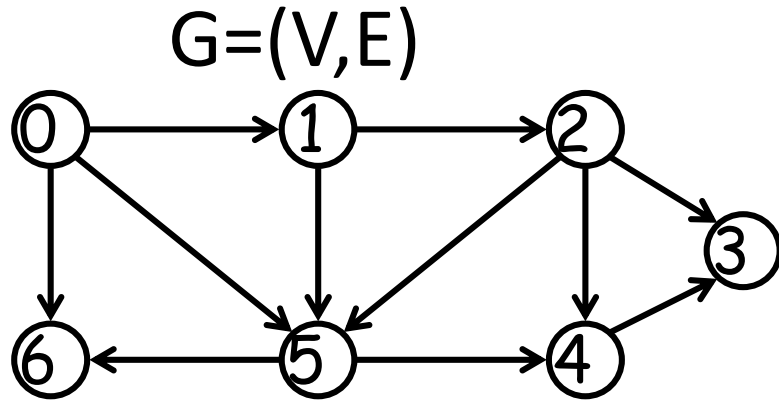
Q	
0	4
1	3
2	
3	
4	
5	
6	
7	3

visited	
0	T
1	T
2	T
3	F
4	
5	T
6	T
	⋮

n 7

firstedge	
0	→ 1 → 5 → 6 →
1	→ 2 → 5 →
2	→ 3 → 4 → 5 →
3	→
4	→ 3 →
5	→ 4 → 6 →
6	→
	⋮

סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

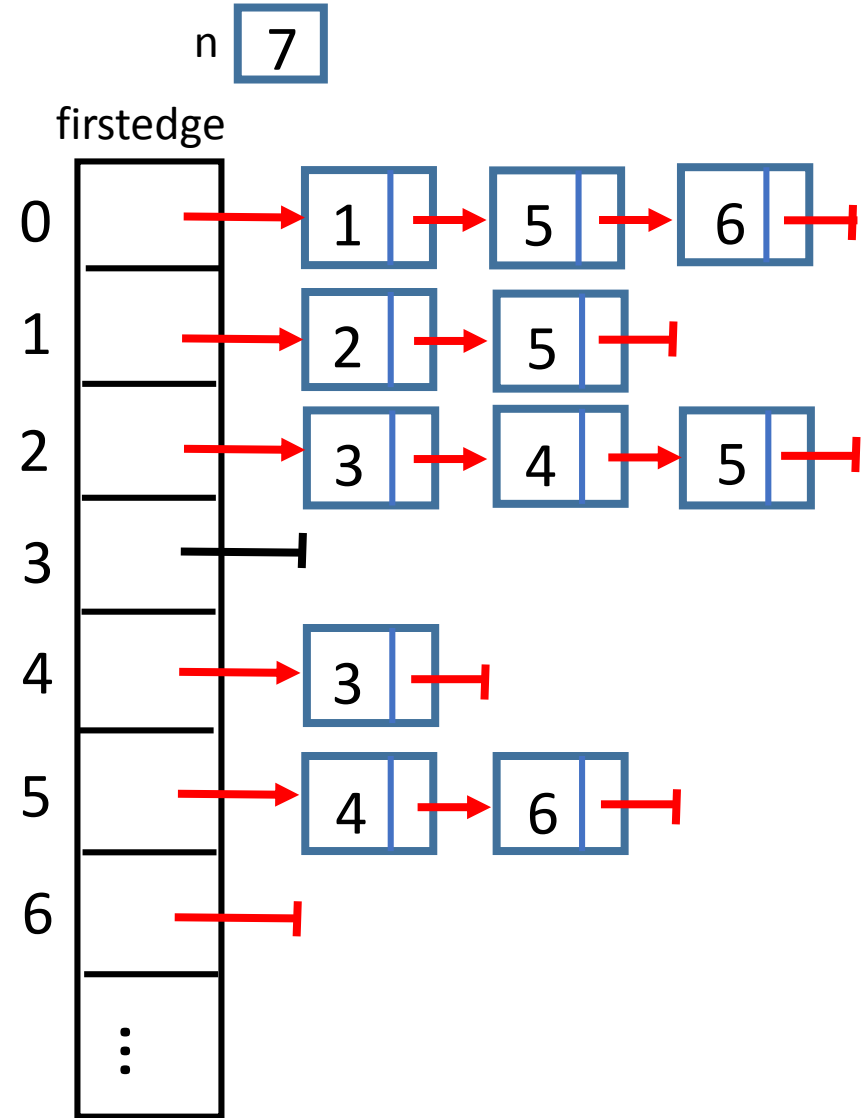
v
w

Q

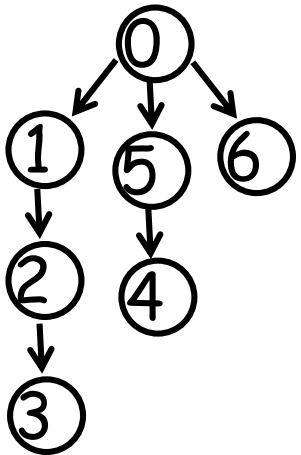
0	4
1	3
2	
3	
4	
5	
6	
7	

visited

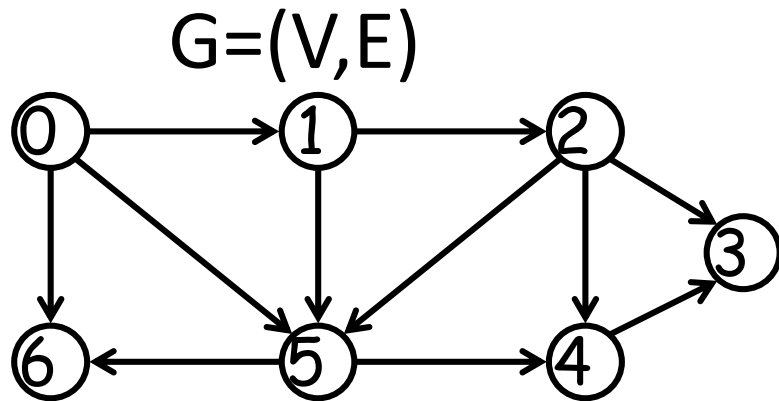
0	T
1	T
2	T
3	T
4	T
5	T
6	T
	⋮



יער ה BFS



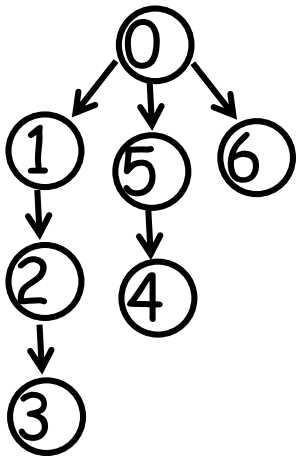
סריקת גרף בחיפוש לרוחב (BFS)



BFS(G)

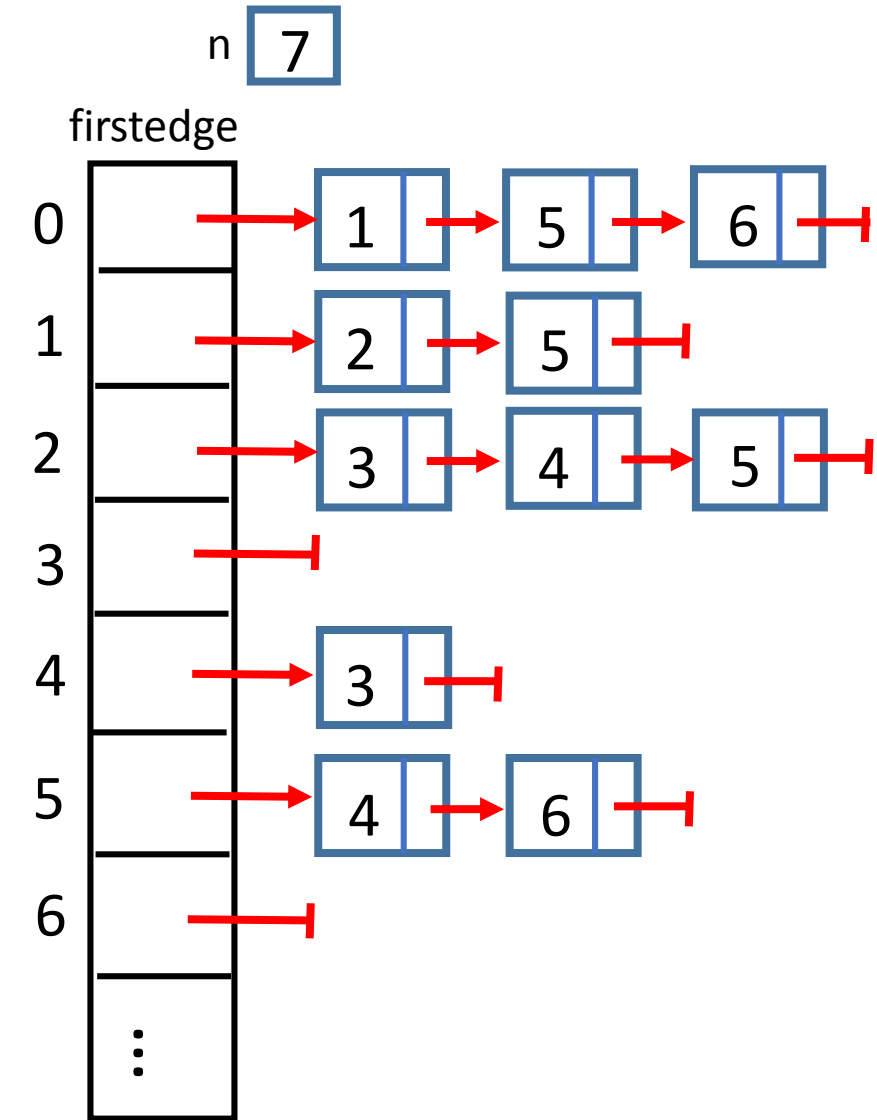
v
w

יער ה BFS

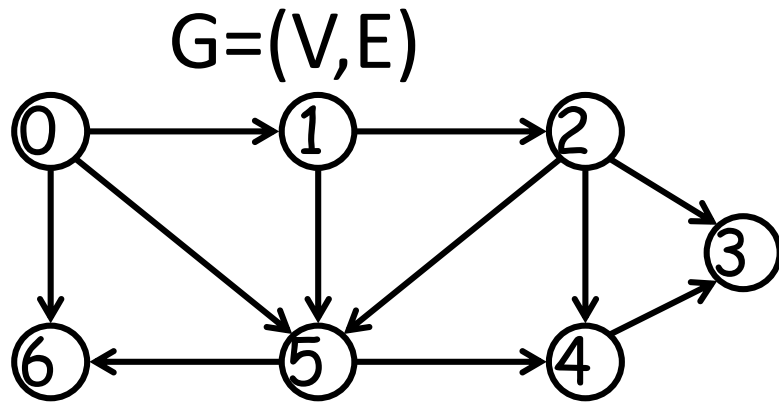


Q	
0	4
1	3
2	
3	
4	
5	
6	
7	

visited	
0	T
1	T
2	T
3	T
4	T
5	T
6	T
	⋮

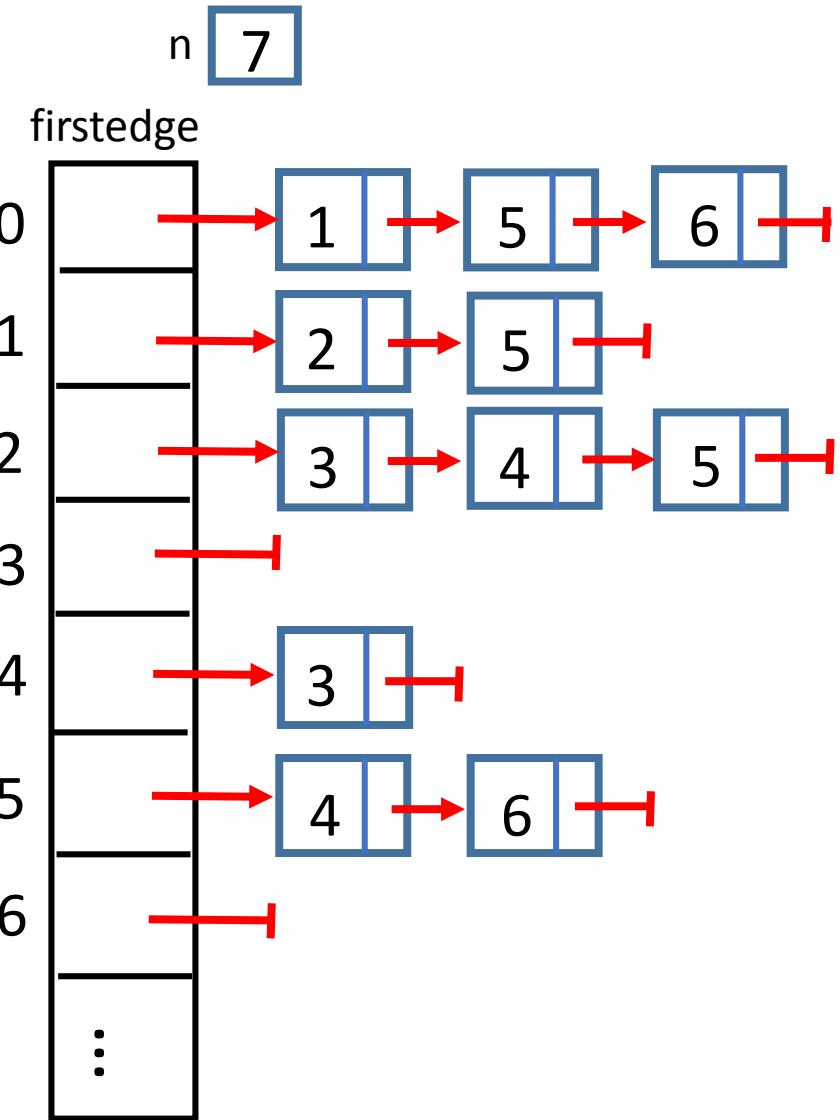
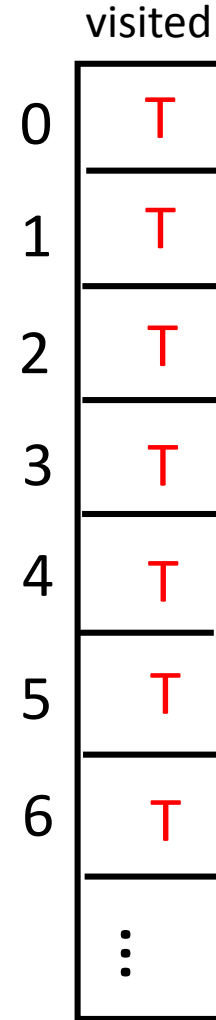
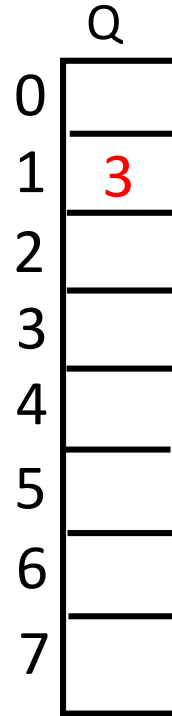


סריקת גרף בחיפוש לרוחב (BFS)

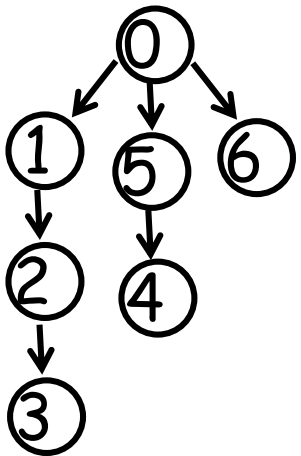


BFS(G)

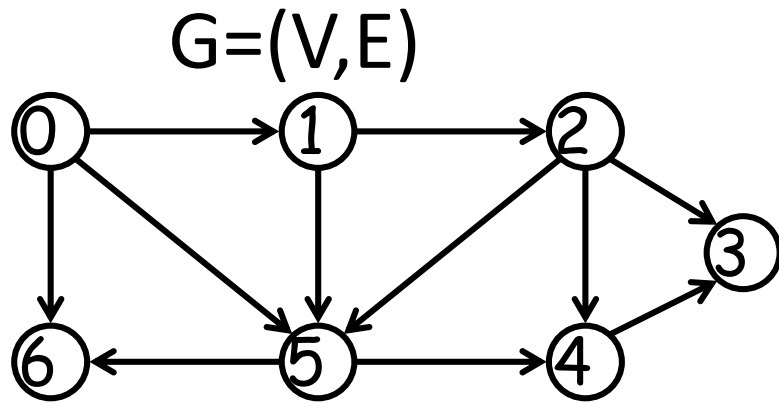
v 4
w



יער ה BFS

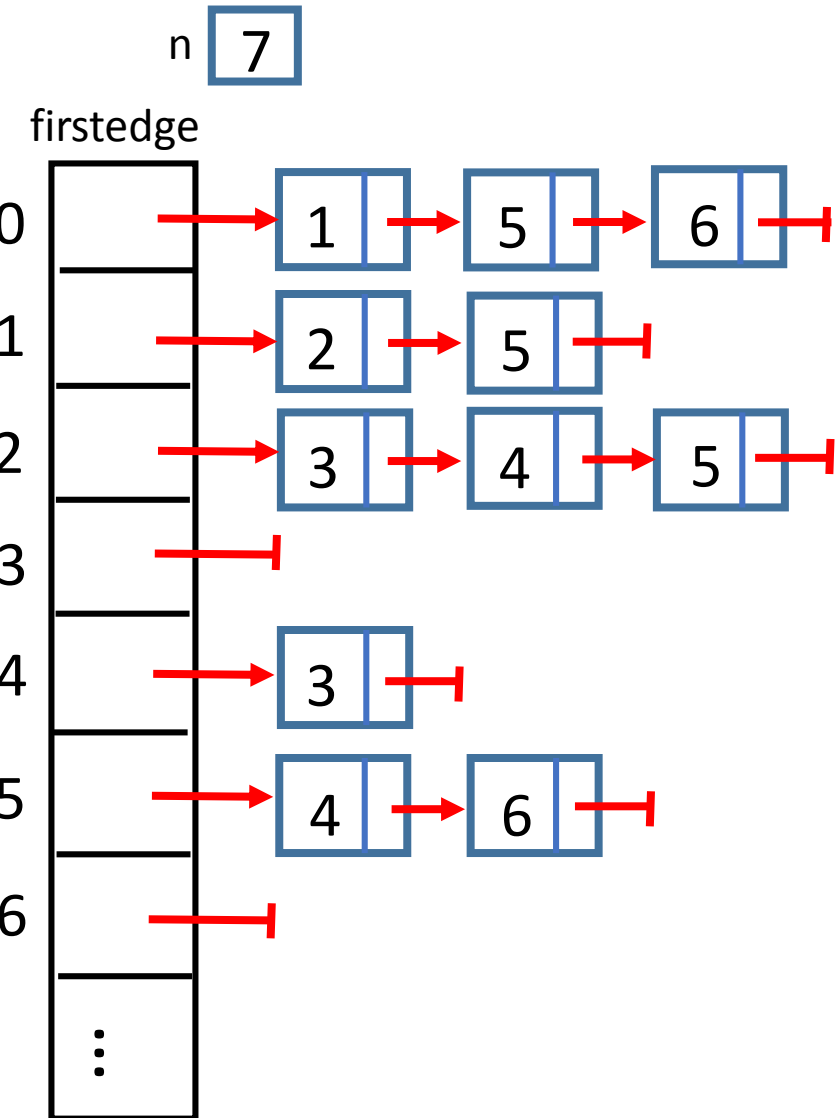
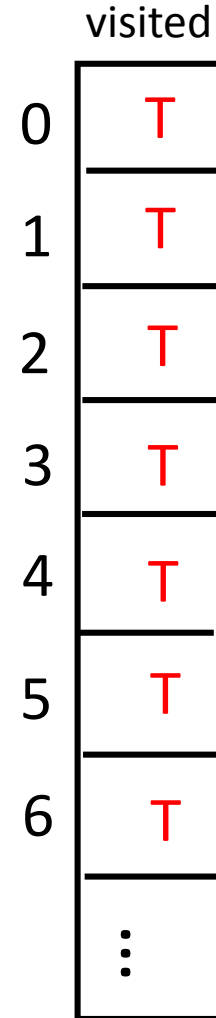
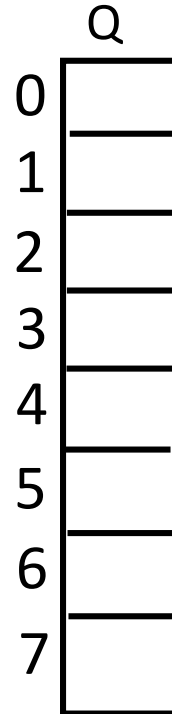


סריקת גרף בחיפוש לרוחב (BFS)

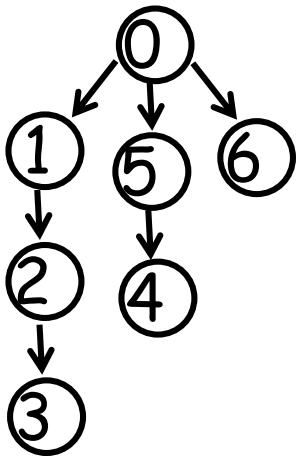


BFS(G)

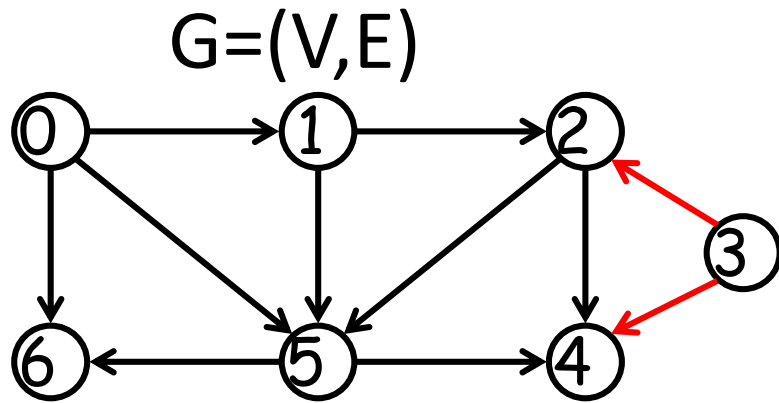
v 3
w



יער ה BFS



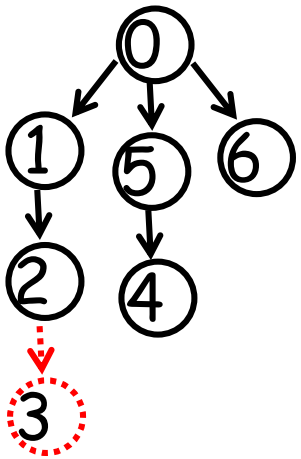
סריקת גרף בחיפוש לרוחב (BFS)



$BFS(G)$

n 7

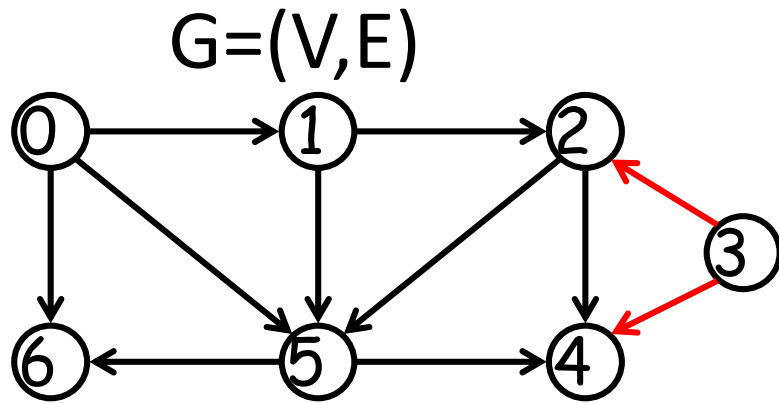
יער ה BFS



איך משתנה הסריקה אם משנים את כיווני הקשתות המסומנות?

	visited	firstedge
0	F	→ 1 → 5 → 6 →
1	F	→ 2 → 5 →
2	F	→ 4 → 5 →
3	F	→ 2 → 4 →
4	F	→
5	F	→ 4 → 6 →
6	F	→
	⋮	⋮

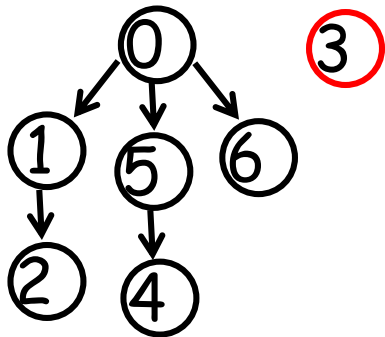
סריקת גרף בחיפוש לרוחב (BFS)



$BFS(G)$

n 7

יער ה BFS



נקבל שהסריקה יוצרת יער
ולא עץ יחיד!

	visited	firstedge
0	F	→ 1 → 5 → 6 →
1	F	→ 2 → 5 →
2	F	→ 4 → 5 →
3	F	→ 2 → 4 →
4	F	→
5	F	→ 4 → 6 →
6	F	→
	⋮	⋮