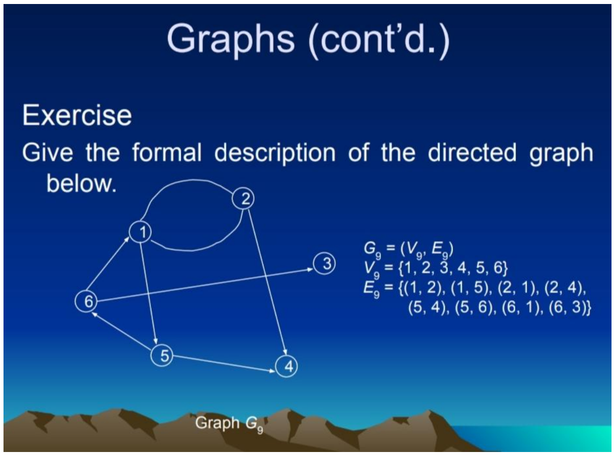
Florentino R. Manaysay III
BS CPE 2-2



V={1,5,4} length is 2
V={1,5,6,3} length is 3

Indegree of:	Outdegree of.	Simple Cycle:
1:V=(2,6)	1:V=(2,5)	1 and 2
2:V=1	2:V=(1,4)	1,5 and 6
3:V=6	3:V=none	
4:V=(2,5)	4:V=none	
5:V=1	5:V=(4,6)	
6:V=5	6:V=(1,3)	

The vertices adjacent to node 1 are nodes 2 and 6.
The vertices adjacent from node 1 are nodes 2 and 5.
The edges incident to node 1 are (1,2),(2,1),(1,5),(6,1).

The vertice adjacent to node 2 is node 1.
The vertices adjacent from node 2 are nodes 1 and 4.
The edges incident to node 2 are (2,1),(1,2),(2,4).

The vertice adjacent to node 3 is node 6.
The vertice adjacent from node 3 is none.
The edge incident to node 3 is (3,6).

The vertices adjacent to node 4 are nodes 2 and 5.
The vertice adjacent from node 4 is none.
The edges incident to node 4 are (2,4),(5,4).

The vertice adjacent to node 5 is node 1.
The vertices adjacent from node 5 are nodes 4 and 6.
The edges incident to node 5 are (5,4),(5,6),(1,5).

The vertice adjacent to node 6 is node 5.
The vertices adjacent from node 6 are nodes 1 and 3.
The edges incident to node 6 are (6,1),(6,3)(5,6).

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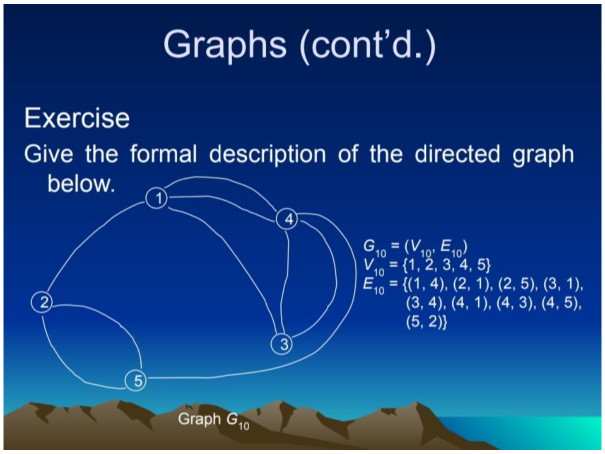

Indegree of:	Outdegree of.	Simple Cycle:
1:V=(2,3,4)	1:V=4	1,3 and 4
2:V=5	2:V=(1,5)	1,2,4 and 5
3:V=4	3:V=(1,4)	2 and 5
4:V=(1,3)	4:V=(1,3,5)	
5:V=(2,4)	5:V=2	

The vertices adjacent to node 1 are nodes 2,3 and 4.
The vertice adjacent from node 1 is node 4.
The edges incident to node 1 are (1,4),(4,1),(3,1),(2,1).

The vertice adjacent to node 2 is node 5.
The vertices adjacent from node 2 are nodes 1 and 4.
The edges incident to node 2 are (2,1),(2,5),(5,2).

The vertice adjacent to node 3 is node 4.
The vertice adjacent from node 3 are nodes 1 and 4.
The edges incident to node 3 are (3,1),(3,4),(4,3).

The vertices adjacent to node 4 are nodes 1 and 3.
The vertice adjacent from node 4 are nodes 1,3 and 5.
The edges incident to node 4 are (1,4),(4,1),(4,3),(3,4),(4,5).

The vertices adjacent to node 5 are nodes 2 and 4.
The vertice adjacent from node 5 is node 2.
The edges incident to node 5 are (5,2),(2,5),(4,5).

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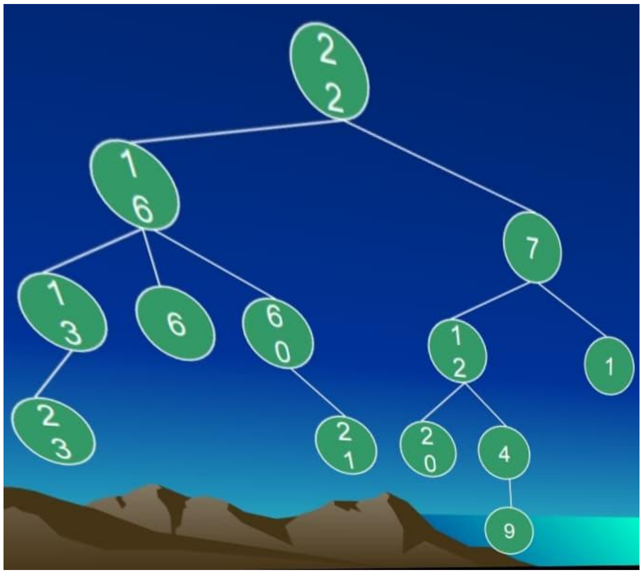
TREES



6. Children of node 16.
>> Node 13,6, and 60
7. Parent of node 1.
>> Node 7
8. Siblings of 23.
>> None
9. Ancestors of 9.
>> Node 22,7,12,4
10. Descendants of 16.
>> Node 13,6,60
11. Leaves.
>> Node 23,6,21,20
12. Non-leaves.
>> Node 22,16,13,60,7,12,4

13. Depth of node 4.
>> 3
14. Degree of the tree.
>> 3
15. Height of the tree.
>> 4
16. Weight of the tree.
>> 6
17. Is the tree a binary tree?
>> No
18. Removing 6, is the tree a full binary tree?
>> Yes
19. Removing 6, is the tree a complete binary tree?
>> Yes
20. Is a full binary tree complete?
>> No
21. Is a complete binary tree full?
>> Yes
22. How many leaves does a complete n-ary tree of height h have?
>> k^h = 3^4 = 81
23. What is the height of a complete n-ary tree with m leaves?
>> (logm^n) = log 3^6 = 1.63
24. What is the number of internal nodes of a complete n-ary tree of height h?
>> k^h - 1 / k-1 = 3^4-1/ 3-1 = 40
25. What is the total number of nodes a complete n-ary tree of height h have?
>> n = [(k^(h+1))-1]/(h-1) = [(3^(4+1))-1]/(4-1) = 80.67 or 81