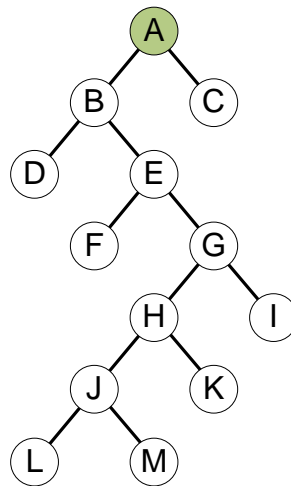


Homework 4

(Due on March 20, 2008)

Assuming that the edges are chosen based on the node priority (e.g. \overline{AB} is chosen before \overline{AC} ; \overline{BD} is chosen before \overline{BE}), and assuming the search remembers previous-visited nodes and will not repeat them. Please answer the questions on the basis of the given graphs

1.



Starting from A (the green node)

(a) Please represent the graph with array approach

Solution:

	A	B	C	D	E	F	G	H	I	J	K	L	M
A	-	1	1	0	0	0	0	0	0	0	0	0	0
B	1	-	0	1	1	0	0	0	0	0	0	0	0
C	1	0	-	0	0	0	0	0	0	0	0	0	0
D	0	1	0	-	0	0	0	0	0	0	0	0	0
E	0	1	0	0	-	1	1	0	0	0	0	0	0
F	0	0	0	0	1	-	0	0	0	0	0	0	0
G	0	0	0	0	1	0	-	1	1	0	0	0	0
H	0	0	0	0	0	0	1	-	0	1	1	0	0
I	0	0	0	0	0	0	1	0	-	0	0	0	0
J	0	0	0	0	0	0	0	1	0	-	0	1	1
K	0	0	0	0	0	0	0	1	0	0	-	0	0
L	0	0	0	0	0	0	0	0	0	1	0	-	0
M	0	0	0	0	0	0	0	0	0	1	0	0	-

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(b) Please represent the graph with list approach

Solution:

	LIST
A	B, C
B	A, D, E
C	A
D	B
E	B, F, G
F	E
G	E, H, I
H	G, J, K
I	G
J	H, L, M
K	H
L	J
M	J

(c) What is the order of node exploring by depth first search?

Solution: ABDEFGHJLMKIC

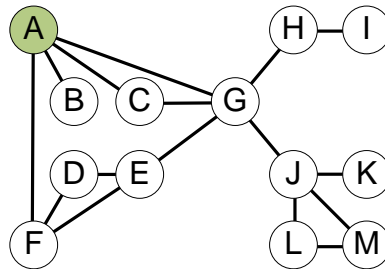
(d) What is the order of node exploring by breadth first search?

Solution: ABCDEFGHIJKLM

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2.



Starting from A (the green node)

(a) Please represent the graph with array approach

Solution:

	A	B	C	D	E	F	G	H	I	J	K	L	M
A	-	1	1	0	0	1	1	0	0	0	0	0	0
B	1	-	0	0	0	0	0	0	0	0	0	0	0
C	1	0	-	0	0	0	1	0	0	0	0	0	0
D	0	0	0	-	1	1	0	0	0	0	0	0	0
E	0	0	0	1	-	1	1	0	0	0	0	0	0
F	1	0	0	1	1	-	0	0	0	0	0	0	0
G	1	0	1	0	1	0	-	1	0	1	0	0	0
H	0	0	0	0	0	0	1	-	1	0	0	0	0
I	0	0	0	0	0	0	0	1	-	0	0	0	0
J	0	0	0	0	0	0	1	0	0	-	1	1	1
K	0	0	0	0	0	0	0	0	0	1	-	0	0
L	0	0	0	0	0	0	0	0	0	1	0	-	1
M	0	0	0	0	0	0	0	0	0	1	0	1	-

(b) Please represent the graph with list approach

Solution:

	LIST
A	B, C, F, G
B	A
C	A, G
D	E, F
E	D, F, G
F	A, D, E
G	A, C, E, H, J
H	G, I
I	H
J	G, K, L, M
K	J
L	J, M
M	J, L

(c) What is the order of node exploring by depth first search?

Solution: ABCGEDFHIIJKLM

(d) What is the order of node exploring by breadth first search?

Solution: ABCFGDEHIIJKLM