

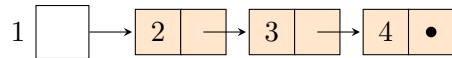
CIS 3223 Homework 5

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Name:

Temple ID (last 4 digits:

1 Covert the following edge list of the undirected graph G given in s-t format to an adjacency list using an array linked list.

$$\begin{array}{lcl} s & = & [1 \quad 1 \quad 1 \quad 2 \quad 3 \quad 3 \quad 4 \quad 5 \quad 5 \quad 5 \quad 6 \quad 7] \\ t & = & [2 \quad 3 \quad 4 \quad 5 \quad 2 \quad 5 \quad 6 \quad 4 \quad 6 \quad 8 \quad 7 \quad 8] \end{array}$$


What are the advantages and disadvantages of using a linked list?

Advantages:

Disadvantages:

2 Perform a dfs on the following undirected graph $G = (V, E)$ starting at vertex A; use the ordering given in the adjacency list representing E .

Push neighbors onto the stack in reverse order.

$$V = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

$$E\{1\} = [2, 7]$$

$$E\{2\} = [2, 3, 4]$$

$$E\{3\} = [2, 4]$$

$$E\{4\} = [2, 3]$$

$$E\{5\} = [6, 8]$$

$$E\{6\} = [5, 7]$$

$$E\{7\} = [1, 6]$$

$$E\{8\} = [5, 9, 10]$$

$$E\{9\} = [8, 10]$$

$$E\{10\} = [8, 9]$$

	<div>parent stack pre post</div>									
parent										
pre										
post										
vertex	1	2	3	4	5	6	7	8	9	10

Draw the resulting spanning tree of G (horizontally) consisting of the **tree edges**(red).
Add pre/post numbers.

Draw a spanning tree (horizontally), include pre/post numbers and **back** edges (black).