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CS526

Homework Assignment 6

Due: 10/31

The first two problems are about the stack and the queue data structures that are described in the textbook.

Problem 1 (10 points). Suppose that you execute the following sequence of operations on an initially empty stack. Using Example 6.3 in the textbook as a model, complete the following table.

Operation	Return Value	Stack Contents
push(8)	—	(8)
push(5)	—	(8,5)
push(10)	—	(8,5,10)
pop()	10	(8,5)
size( )	2	(8,5)
push(3)	—	(8,5,3)
top( )	3	(8,5,3)
pop( )	3	(8,5)
pop( )	5	(8)
pop()	8	( )
isEmpty( )	true	( )

Problem 2 (10 points). Suppose that you execute the following sequence of operations on an initially empty queue. Using Example 6.4 in the textbook as a model, complete the following table.

Operation	Return Value	Queue Contents (first ← Q ← last)
enqueue(10)	—	(10)
enqueue(12)	—	(10,12)
dequeue( )	10	(12)
first( )	12	(12)
enqueue(3)	—	(12,3)
enqueue(1)	—	(12,3,1)
dequeue( )	12	(3,1)
first( )	3	(3,1)
enqueue(11)	—	(3,1,11)
dequeue( )	3	(1,11)
dequeue( )	1	(11)
isEmpty( )	false	(11)