

HW#1

Using both classes Stack and Queue, assume we want to develop a new data structure called Stack of Queues, where each single element in the stack is a queue (implemented as array of queues). Each queue has five characters. You need to implement this structure (*StackOfQueues*) with the following operations:

- 1- *addChar(char x)*: it will add x to the queue on top of the stack, however if the queue is full, a new queue is created, and x is inserted then the new queue is pushed to sack, you should check that stack is not full yet.
- 2- *removeChar()*: it returns the character in the front of the queue on top of the stack. If the queue becomes empty after removing that character, the queue should be popped out of the stack. You should check that stack is not empty.
- 3- *Size ()*: returns how many character currently in this structure.
- 4- *Display ()*: displays the elements in the stack, each queue in a separate line.
- 5- Create a test class where you create an object of *StackOfQueues* then test the operations.

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Submission:

- Deadline is Thursday (5/11/2015).
- You should submit code of the following classes : Stack, Queue, StackOfQueu, test class, and screen shot of your program output.