CSE 373 A
Homework 1
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04/07/2015

1. For the ArrayQueue, I firstly run the ArrayQueueTest.java until it shows that my ArrayQueue works successful. Then I create new command to print out the ArrayQueue after several calls of enqueue and dequeue and also print out the size to test whether the enqueue and dequeuer goes right. For isEmpty and isFull, they are assumed to be right since in the methods enqueue and dequeue I use them. For ListQueue, the idea of testing is basically the same.

2. Every time of resize, the new size will double the previous one. newSize = 2*size.
   For 1 million: 128*2^t >= 1000000, we get t = 13
   For 1 billion: 128*2^t >= 1000000000, we get t = 23
   For 1 trillion: 128*2^t >= 1000000000000, we get t = 33
   So that for adding 1 million items, we need resize 13 times, for 1 billion, we need resize 23 times, for 1 trillion items, we need resize 33 times.

3. ```
   public String dequeue(){
       Stack temp = new Stack();
       while(!isEmpty()){
           temp.push(pop());
       }
       String result = temp.pop();
       while(!temp.isEmpty()){
           push(temp.pop());
       }
       return result;
   }
   ```

4. For list implementation, since we just change the front pointer, so the time complexity is O(1).
   For the array implementation, the same, the time complexity is O(1).
   For the stack, we have to move the entire stack to another and delete the bottom one, then move the items again to the original stack, so the time will be 2*n, the time complexity is O(n).

5. For the extra credit one, when the arrayqueue is full, I double the size to create space for new items by using a private method.
   Furthermore, in the executor, in the first step, I create a map to store the questions instead of using an array suggested because I feel more comfortable to manage a Map.

6. I do enjoy the aspect that by doing this assignment, I get further understanding of the structure of the queue than just using a queue. Similarly, this practice help me learn more about the array and list. Maybe one point I do not enjoy the assignment is that I spend a lot of time to
   ```

understand the logic of the executor. I think more details and examples should be listed in the introduction pdf especially for the part how the questions correspond to the oracles/whether there can be an empty oracle/how the answers relate to the oracles. At least one picture or diagram should be given to emphasize one case or one example of the distribution of questions. What's more, I believe that there should be a ListQueueTest.java file. As for how to improve my assignment, I think one point is that I should try using the array instead of the map in the executor.

7. No more things specifically. Maybe I will try using the Stack-based queue to do it again.