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material

```

class Queue {
    private int front;           // the array index of the front item of the queue
    private int rear;            // the array index for the next item to insert
    private int count;           // the number of items in the queue
    private int capacity;        // the number of available array positions
    private int capacityIncrement; // the amount to increase the capacity
                                    // during array expansion
    private Object[] itemArray;  // the array that holds queue items

    /*-----*/

    // here, we need the no-arg constructor

    public Queue() {
        front = 0;
        rear = 0;
        count = 0;
        capacity = 10;
        capacityIncrement = 5;
        itemArray = new Object[capacity];
    }

    /*-----*/

    public boolean empty() {
        return (count == 0);
    }

    /*-----*/

    public void insert(Object newItem) {
        // if the itemArray does not have enough capacity,
        // expand the itemArray by the capacity increment
        if (count == capacity) {
            capacity += capacityIncrement;
            Object[] tempArray = new Object[capacity];
            if (front < rear) { // if the items are in itemArray[front:rear-1]
                for (int i = front; i < rear; i++) {
                    tempArray[i] = itemArray[i];
                }
            } else { // otherwise, move the items in two separate sections
                // section one:
                for (int i = 0; i < rear; i++) {
                    tempArray[i] = itemArray[i];
                }
                // and section two:
                for (int i = front; i < count; i++) {
                    tempArray[i+capacityIncrement] = itemArray[i];
                }
            }
            front += capacityIncrement; // then change front to point to
                                    // its new position
        }
        itemArray = tempArray;
    }
}

```

If $count == capacity$

then

 $front == rear$ so the Boolean
expression $front < rear$

is false. As

result, this code
will never be
executed.

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