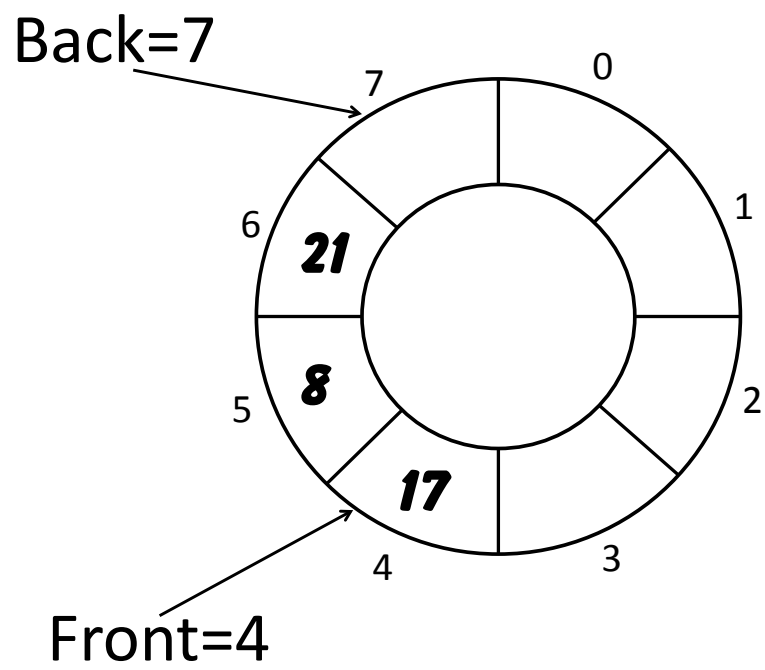




Quiz 4

Instructor: Sandy Irani

1. Suppose we have a queue **q** that stores strings. Show the output for the following statements, assuming we start with an empty queue.

```
q.enqueue("Sulu");
q.enqueue("McCoy");
System.out.println( q.dequeue() );
q.enqueue("Kirk");
q.enqueue("Scotty");
System.out.println( q.dequeue );
System.out.println( q.dequeue );
q.enqueue("Spock");
System.out.println( q.dequeue );
```

2. The figure on the opposite page is a depiction of a queue implemented as a circular array. The data stored in the queue are integers. The small numbers on the outside of the circle indicate the indices of the array. The larger numbers inside the circle are the data stored in the queue. The queue currently consists of the integers: 17, 8, 21 with 17 at the front of the queue and 21 at the back. The variable **Front** holds in the index of the item at the front of the queue. The variable **Back** stores the index after the back of the queue where the next item to be added will be stored.
 - (a) Show what the array will look like after the operations **enqueue(5)**, **enqueue(32)**. You can show your answer by drawing the newly added numbers into the picture of the array on the opposite page.
 - (b) What will be the value of the variables **Front** and **Tail** after the two enqueue operations?
 - (c) If we then perform two dequeue operations, what will be the value of **Front** afterwards?