

```
package queueusingarray;
```

```
import java.util.Arrays;
```

```
class ArrayQueue {
```

```
    private int[] items;  
    private int rear;  
    private int front;  
    private int count;
```

```
    public ArrayQueue(int capacity) {  
        items = new int[capacity];  
    }
```

```
    public void enqueue(int item) {  
        if (isFull()) {  
            throw new IllegalStateException();  
        }  
        items[rear] = item;  
        rear++;  
        count++;  
    }
```

```
    public int dequeue() {  
        if (isEmpty()) {  
            throw new IllegalStateException();  
        }
```

```
        var item = items[front];  
        items[front] = 0;  
        front++;  
        count--;  
        return item;  
    }
```

```
    public int peek() {  
        if (isEmpty()) {  
            throw new IllegalStateException();  
        }
```

```
        return items[front];  
    }
```

```
    public boolean isEmpty() {  
        return count == 0;  
    }
```

```
    public boolean isFull() {  
        return count == items.length;  
    }
```

```
@Override
    public String toString() {
        return Arrays.toString(items);
    }
}
```

```
public class QueueUsingArray {
```

```
    public static void main(String[] args) {
        ArrayQueue queue = new ArrayQueue(5);
        queue.enqueue(10);
        queue.enqueue(20);
        queue.enqueue(30);
        System.out.println(queue);
        //[10, 20, 30, 0, 0]
        System.out.println(queue.dequeue());
        //10
        System.out.println(queue);
        //[0, 20, 30, 0, 0]
        System.out.println(queue.dequeue());
        //20
        System.out.println(queue);
        //[0, 0, 30, 0, 0]
        queue.enqueue(40);
        queue.enqueue(50);
        System.out.println(queue);
        //[0, 0, 30, 40, 50]
        queue.enqueue(60);
        //    Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException: Index 5 out of bounds for
length 5
        //        at queueusingarray.ArrayQueue.enqueue(QueueUsingArray.java:20)
        //        at queueusingarray.QueueUsingArray.main(QueueUsingArray.java:80)

    }
}
```