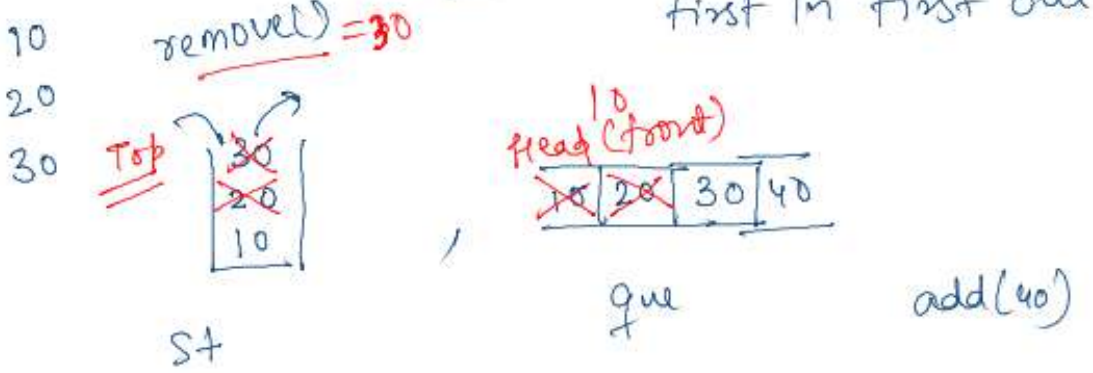
Queue

first In first out



1.) It follows fist In first out approach

2.) .add() → It will add my element in the last

3.) .removel() → It will remove my head from queue and also return.

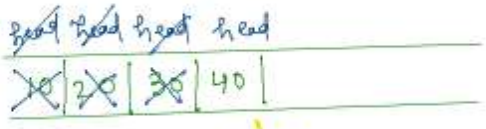
4.) Size () → It tells us about size of queue

5.) .isEmpty() → It will return T/F based on size of queue.

6.) .peek() → It just return the head of Head.

1) add 10 ✓
2. add 20 ✓
3. add 30 ✓
4. remove() ✓ → 10
5. peek() ✓ → 20
6. size() ✓ → 2
7. add 40 →
8. remove() ✓
9. remove() ✓
10. size() ✓ 1
11. peek() = 40

queue

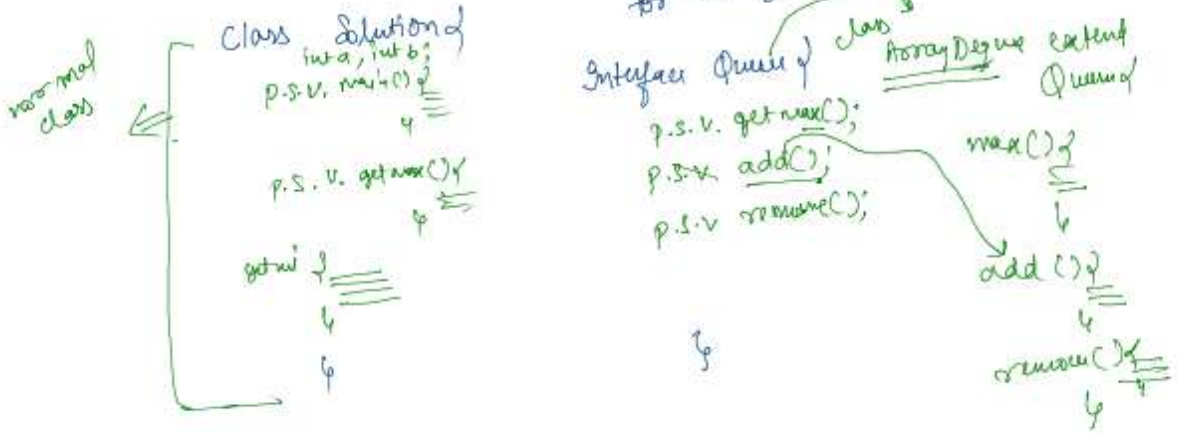


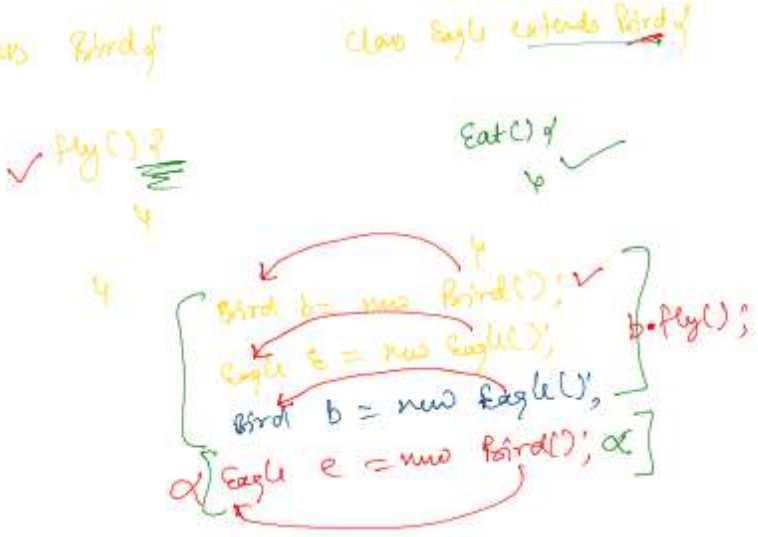
Syntax

```
Queue<Integer> que = new ArrayDeque<>();
```

Queue<>() ✗

That cannot create constructor for interface

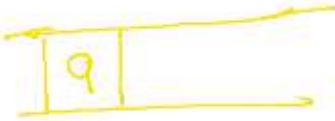




Queue Implementation

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();
    int i=0;

    Queue<Integer> que = new ArrayDeque();

    while(i<n){
        int val = scn.nextInt();
        if(val==1){
            System.out.println(que.size());
        }else if(val==2){
            if(que.size()>0){
                que.remove();
            }else{
                System.out.println("-1");
            }
        }else if(val==3){
            int x = scn.nextInt();
            que.add(x);
        }else{
            if(que.size()>0){
                System.out.println(que.peek());
            }else{
                System.out.println("-1");
            }
        }
        i++;
    }
    /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your cl
```

5
1
2
3 9
4
1



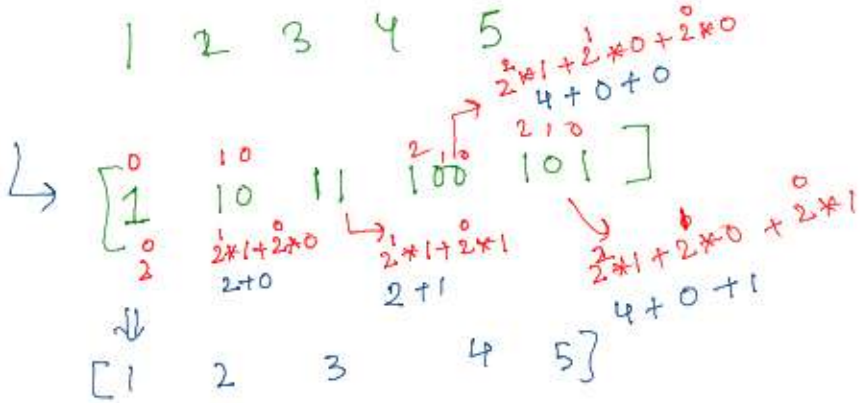
0
-1
9
1

Ques Binary no.

n = 5

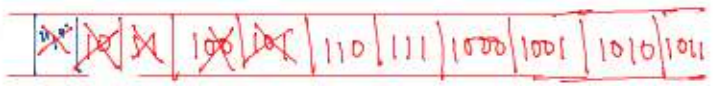
{0, 1}

1 2 3 4 5



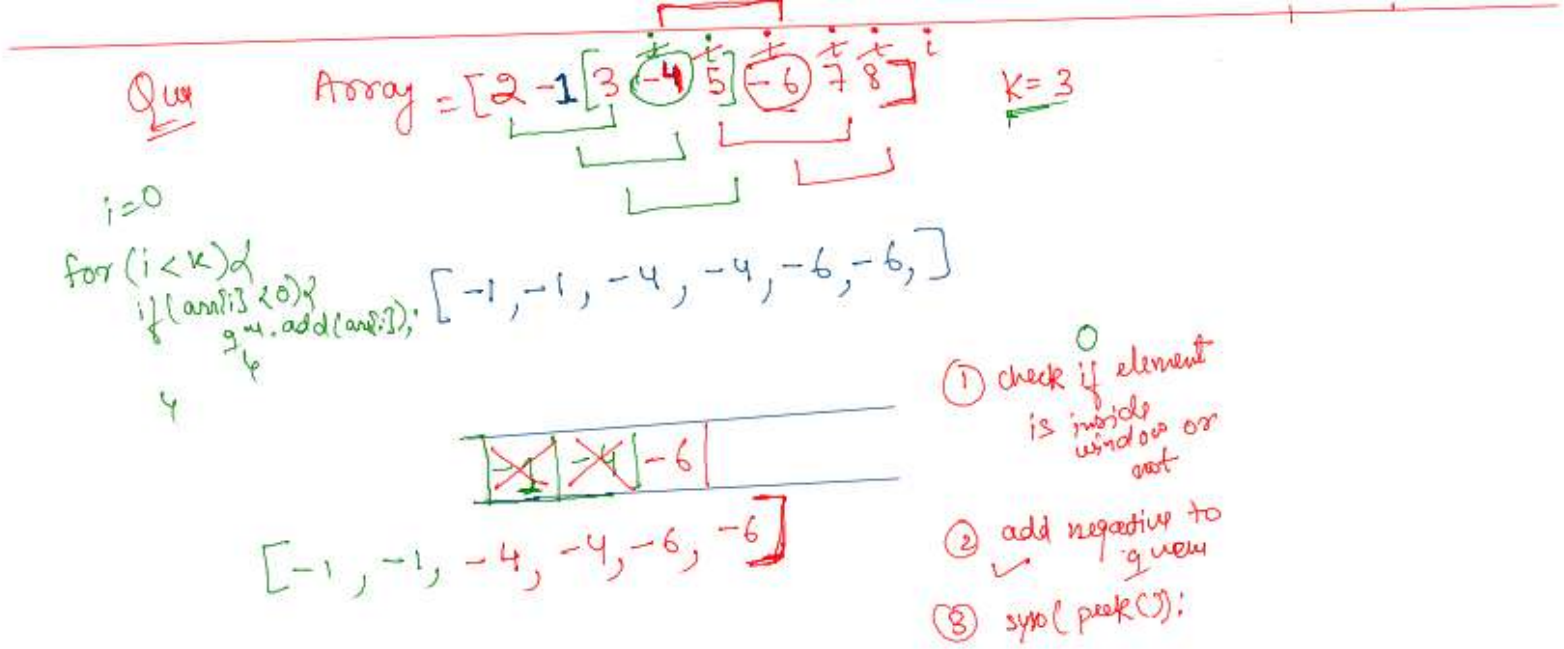
n


```
public class Solution {

    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int n = scn.nextInt();
        Queue<String> que = new ArrayDeque<>();
        que.add("1");
        for(int i=0;i<n;i++){
            String val = que.remove();
            System.out.print(val+" ");

            que.add(val+"0");
            que.add(val+"1");
        }
        /* Enter your code here. Read input from STDIN. Print outpu
    }
}
```



val= 1010
1011

[1 10 11 100 101]




```java
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);
    int n = scn.nextInt();
    int[] arr = new int[n];
    int k= scn.nextInt();
    for(int i=0;i<n;i++){
        arr[i]= scn.nextInt();
    }

    Queue<Integer> que = new ArrayDeque();

    for(int i=0;i<k;i++){
        if(arr[i]<0){
            que.offer(arr[i]);
        }
    }

    if(!que.isEmpty()){
        System.out.print(que.peek()+" ");
    }else{
        System.out.print("0"+" ");
    }

    for(int i=k;i<arr.length;i++){
        if(!que.isEmpty() && que.peek()==arr[i-k]){// to remove element outside window
            que.poll();
        }
        if(arr[i]<0){//add only -ve value
            que.offer(arr[i]);
        }
    if(arr[i]<0){//add only -ve value
        que.offer(arr[i]);
    }
    if(!que.isEmpty()){// print first -ve value of window
        System.out.print(que.peek()+" ");
    }else{
        System.out.print("0"+" ");
    }
}
/* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class s
```