

Next Greater on left

$n = 5$

$arr = [3, 4, 3, 2, 1]$

Output

$[-1, -1, 4, 3, 2]$

Solution:-

1. We start loop from left
 $\text{for}(\text{int } i=0; i < \text{arr.length}; i++)$
2. We will push values into stack
 $\text{st.peek}()$ value should be greater.
3. If value in stack is smaller then we will keep popping, until value in stack is greater.

Code:- $\text{Stack} < \text{Integer} > \text{st} = \text{new Stack} < > ();$
 $\text{int res}[] = \text{new int} [n];$

$\text{for}(\text{int } i=0; i < \text{arr.length}; i++) \{$
 $\text{if}(\text{st.isEmpty}()) \{$
 $\quad \text{st.push(arr[i]);}$

if (st.isEmpty())

res[i] = -1;
st.push(arr[i]);

} else {

if (st.peek() > arr[i]) {

res[i] = st.peek();

st.push(arr[i]);

} else {

while (!st.isEmpty() && st.peek() <= arr[i]) {

st.pop();

}

if (st.isEmpty()) {

res[i] = -1;

st.push(arr[i]);

} else {

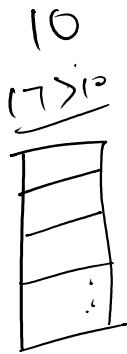
res[i] = st.peek();

st.push(arr[i]);

}

}

return res;

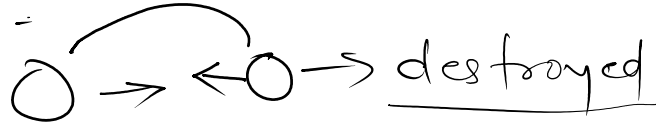


```
}  
for (int i=0; i<n; i++) {  
    s.o.p (arr[i] + " ");  
}
```

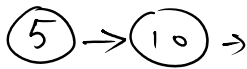
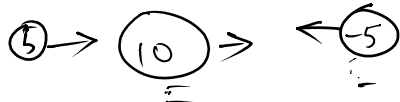
Asteroid Collision

$$n=3$$

$$arr = [5, 10, -5]$$



$$\circ \rightarrow$$



$$\underline{5, 10.}$$

$$n=3$$

$$arr = [10, 2, -5]$$

$$10 \rightarrow 2 \rightarrow \leftarrow 5$$

$$10 \rightarrow \leftarrow 5$$

$$\underline{10}$$

$$n=6$$

$$arr = [2, 5, -10, 10, 5, -5]$$

$$2 \rightarrow 5 \rightarrow \leftarrow 10$$

$$2 \rightarrow \leftarrow 10$$

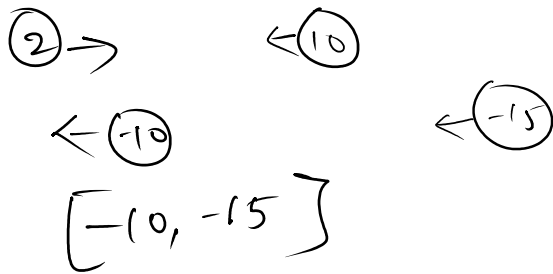
$$\begin{array}{cc} -10 & 10 \\ \leftarrow & \rightarrow \end{array}$$

$$[-10, 10]$$

$$n=6$$

$$arr = [2, 5, -10, 10, 5, -15]$$

arr = [2, 5, -10, 10, 5, -15]

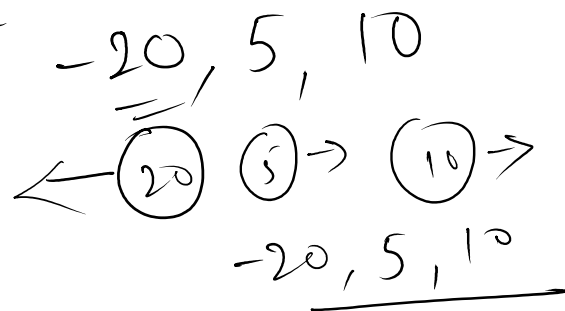


Solution:-

```
Stack<Integer> st = new Stack<>();
```

```
for (int i=0; i<arr.length; i++) {
```

```
    boolean isPresent = true;
    if (arr[i] > 0) {
        st.push(arr[i]);
    } else {
```



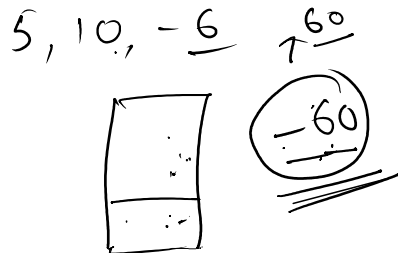
```
    while (!st.isEmpty() && st.peek() > 0) {
```

```
        if (Math.abs(arr[i]) > Math.abs(st.peek())) {
            st.pop();
```

```
        } else if (Math.abs(arr[i]) == Math.abs(st.peek())) {
```

```
            st.pop();
            isPresent = false;
```

```
        } else {
            isPresent = false;
            break;
        }
    }
}
```



```

}
if (is Present) {
    st.push(arr[i]);
}
}

```

| | |
|---|-----|
| 2 | 10. |
| 1 | 5. |
| 0 | -20 |

```

}
}
ArrayList<Integer> al = new ArrayList<>(st);
1st way { Print all values of arrayList
}

```

```

2nd way { int arr[] = new int[st.size()];
           for (int i=0; i<st.size(); i++) {
               arr[i] = st.get(i);
           }
           Print all values of arr[]
}

```

```

7 // Enter your code here. Read input from stdin and write to stdout.
8 Scanner sc = new Scanner(System.in);
9 int n = sc.nextInt();
10 int arr[] = new int[n];
11 for (int i=0; i<n; i++) {
12     arr[i] = sc.nextInt();
13 }
14 Stack<Integer> st = new Stack<>();
15 for (int i=0; i<arr.length; i++) {
16     boolean ispresent = true;
17     if (arr[i]>0) {
18         st.push(arr[i]);
19     } else {
20         while (!st.isEmpty() && st.peek()>0) {
21             if (Math.abs(st.peek())<Math.abs(arr[i])) {
22                 st.pop();
23             } else if (Math.abs(st.peek())==Math.abs(arr[i])) {
24                 st.pop();
25                 ispresent = false;
26             } else {
27                 ispresent = false;
28                 break;
29             }
30         }
31         if (ispresent) {
32             st.push(arr[i]);
33         }
34     }
35 }
36 int res[] = new int[st.size()];
37 for (int i=0; i<st.size(); i++) {
38     res[i] = st.get(i);
39 }

```

```
40     for(int i=0;i<res.length;i++){
41         System.out.print(res[i]+" ");
42     }
43
44 }
45 }
```
