

Stock Span

4. Stock span is defined as the number of days passed between the current day and the first day before today when price was higher than today.

next greater element on left index

for the array [2 5 9 3 1 12 6 8 7]

span for 2 is 1

span for 5 is 2

span for 9 is 3

span for 3 is 1

span for 1 is 1

span for 12 is 6

span for 6 is 1

span for 8 is 2

span for 7 is 1



↓

8 6 4 5 7 10
 0 1 2 3 4 5

ans

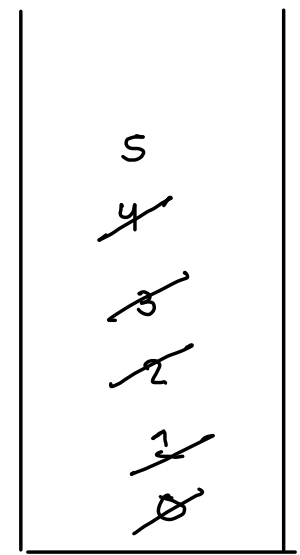
1 1 1 2 4 6

```
ans[0] = 1;
st.push(0);

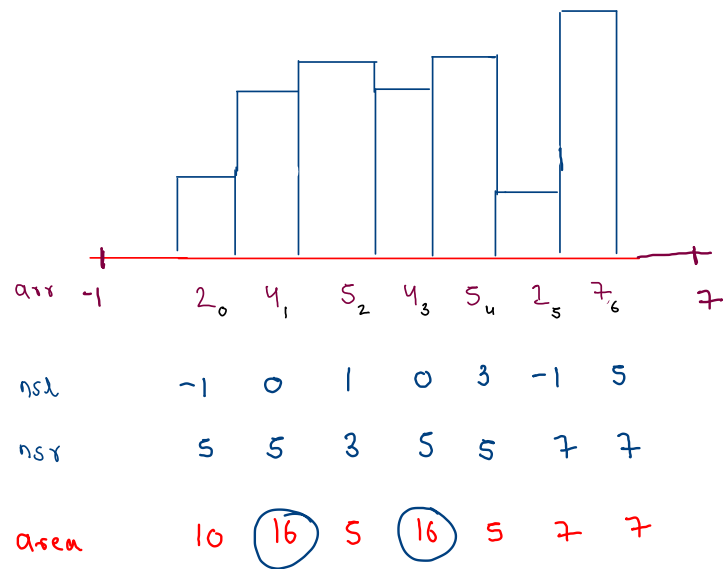
for(int i=1; i < arr.length;i++) {
    while(st.size() > 0 && arr[st.peek()] <= arr[i]) {
        st.pop();
    }

    if(st.size() == 0) {
        ans[i] = i+1;
    }
    else {
        ans[i] = i - st.peek();
    }

    st.push(i);
}
```



Largest Area Histogram



next smaller
on left &
next smaller
on right-

nsL doesn't exists

→ -1

nsr doesn't exists

→ arr.length

$$\text{area} = h * w$$

$$= \text{arr}[i] * (\text{nsr}[i] - \text{nsl}[i] - 1);$$

0 1 2 3 4 5

i

j

$$\text{count} = j - i + 1$$

```

public static int largestAreaHistogram(int[] ht) {
    int[] nsl = nextSmallerLeft(ht);
    int[] nsr = nextSmallerRight(ht);

    int omx = 0;

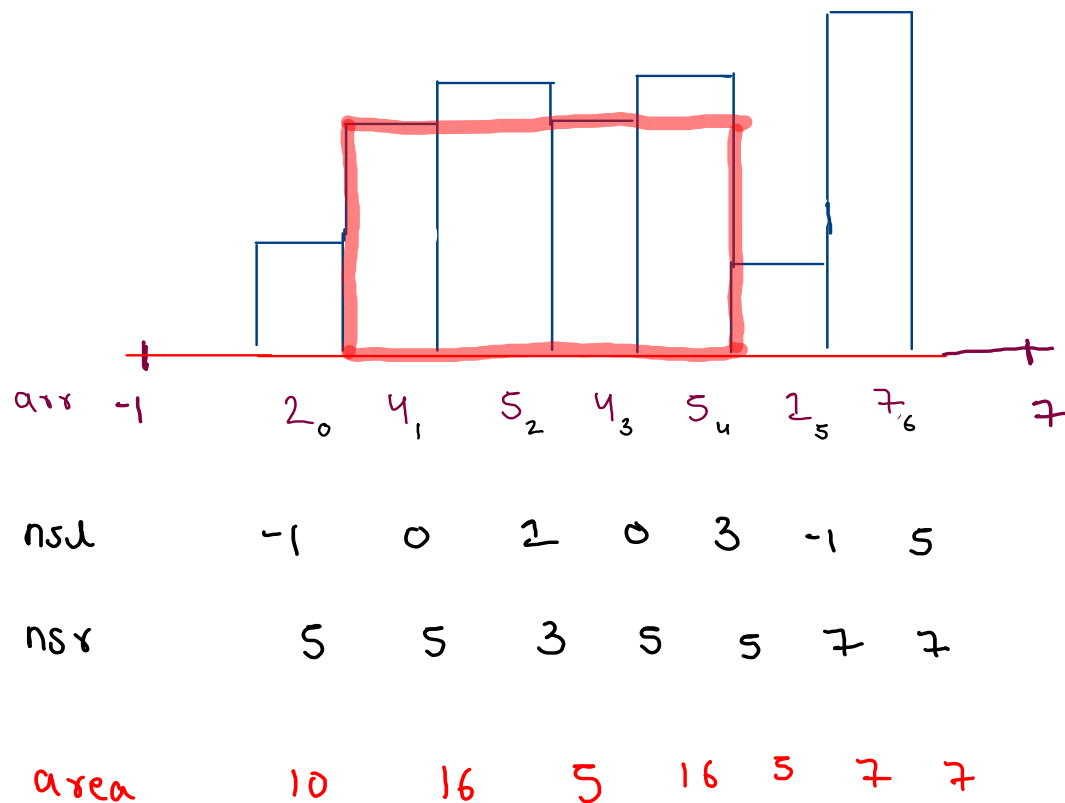
    for(int i=0; i < ht.length; i++) {
        int h = ht[i];
        int w = nsr[i] - nsl[i] - 1;

        int area = h * w;

        if(area > omx) {
            omx = area;
        }
    }

    return omx;
}

```



~~omx = 0~~
~~16~~
 16