

# Arrays and Its Problems

Find the greatest number from the array.

7	3	4	5	1	3	9	4	6
0	1	2	3	4	5	6	7	8

Sort array { 1 3 3 4 5 6 7 **9** } *largest*

4

2	3	4	5	7	3	9	4	6
0	1	2	3	4	5	6	7	8

int largestNum ( arr[], N )

}

int largest = arr[0]

O( $N$ )

for ( i=1 ; i < N ; i++ )  
 {     if ( arr[i] > largest )  
 {         largest = arr[i]  
 }  
 }

return largest

Find the second greatest number from the array.



The number 7 at index 7 is circled in red. A blue arrow points from this circled 7 to a large blue '9' on the left. A blue curved arrow points from the circled 7 to the number 9 at index 8. A pink curved arrow points from the circled 7 to the number 9 at index 9.

1 3 3 4 7 9 9 9 9

9

# sort (q[n])

N = 1

```
for (i = n-2 ; i ≥ 0 ; i--)
```

```
    if (a(i) ≠ a(i+1))
```

```
        return a(i)
```

```
}
```

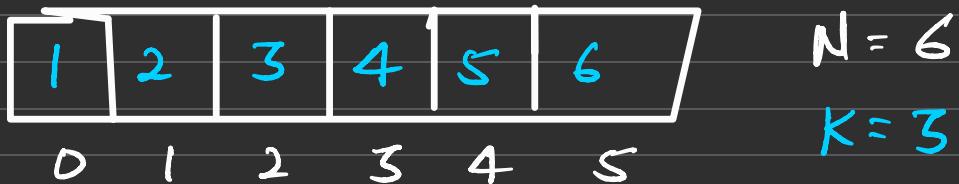
```
return -1
```

(7)

-1

if ( $n == 1$ )  
return -1

## Rotate array to left by K Position



1	2	3	4	5	6
---	---	---	---	---	---

0 1 2 3 4 5

$N = 6$

$K = 3$

for ( $j = 1 : j \leq K : j++$ )  $O(K)$

}

$temp = a(n-1)$

$O(N)$

for ( $i = n-2 : i \geq 0 : i--$ )

?

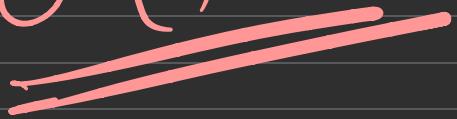
$a(i+1) = a(i)$

4

$a(0) = temp$

}

$O(N \times K)$



$$4 \cdot 1 \cdot N = 4$$

1	2	3	4	5
0	1	2	3	4

$$N=5$$

$$K = 9 \% \cdot N = 4$$

$$\left. \begin{array}{c} K=1 \quad 5 \ 1 \ 2 \ 3 \ 4 \\ K=2 \quad 4 \ 5 \ 1 \ 2 \ 3 \\ K=3 \quad 3 \ 4 \ 5 \ 1 \ 2 \\ K=4 \quad 2 \ 3 \ 4 \ 5 \ 1 \\ K=5 \quad 1 \ 2 \ 3 \ 4 \ 5 \end{array} \right\}$$

$$\left. \begin{array}{c} K=6 \quad 5 \ 1 \ 2 \ 3 \ 4 \\ K=7 \quad 4 \ 5 \ 1 \ 2 \ 3 \\ K=8 \quad 3 \ 4 \ 5 \ 1 \ 2 \\ K=9 \quad 2 \ 3 \ 4 \ 5 \ 1 \\ K=10 \quad 1 \ 2 \ 3 \ 4 \ 5 \end{array} \right\}$$

$$K = K^o / N$$

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

$$K = 3$$

$$N = 7$$

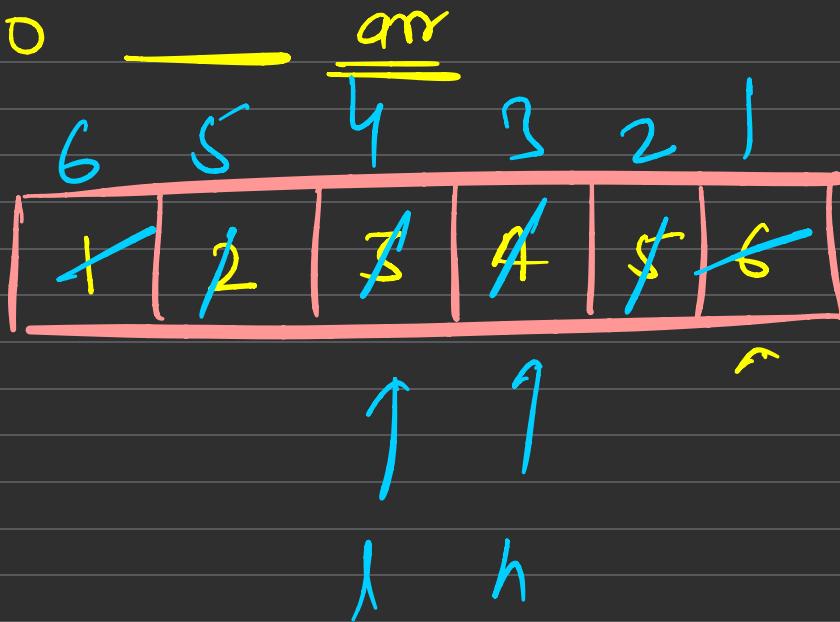
5 6 7 1 2 3 4

7 6 5 4 3 2 1

K  $N-K$

5 6 7 1 2 3 4

$$K \% N = 0$$



- find smallest element from array
- ~~1~~ = second smallest
- Rotate Right by K times

1 2 3 4 5

$K=2$  3 4 5 1 2

# Find Union of two arrays.

**Input:** a[] = [1, 2, 3, 4, 5], b[] = [1, 2, 3, 6, 7]

**Output:** 1 2 3 4 5 6 7

**Explanation:** Distinct elements including both the arrays are: 1 2 3 4 5 6 7.

**Input:** a[] = [2, 2, 3, 4, 5], b[] = [1, 1, 2, 3, 4]

**Output:** 1 2 3 4 5

**Explanation:** Distinct elements including both the arrays are: 1 2 3 4 5.

**Input:** a[] = [1, 1, 1, 1, 1], b[] = [2, 2, 2, 2, 2]

**Output:** 1 2

**Explanation:** Distinct elements including both the arrays are: 1 2.