

Big Integer

Big Integer type is an immutable type that represents an arbitrarily large integer whose value in theory has no upper or lower bounds. Given a list of positive integers, write a C program to order these integers in such a way that they make the highest big integer and print it.

You MUST use quick sort to solve the problem.

Input Format

The first line contains N, the number of elements in the list.

Each of the next lines contains an integer represents an element in the list.

Constraints

- $1 \leq N \leq 10^4$
- $0 \leq \text{number} \leq 10^9$

Output Format

Print the big integer.

Sample Input 0

```
3
9
23
5
```

Sample Output 0

```
9523
```

Sample Input 1

```
4
2
34
1
324
```

Sample Output 1

```
3432421
```

Minimum Distinct Elements

Given an array of numbers and an integer r , write a C program to print the minimum number of distinct elements after r removals using Merge Sorting.

Input Format

The first line contains two integers N and r where N is the number of elements in the list and r is the number of removals.

Each of the next N lines contains an integer represents an element in the list.

Constraints

- $1 \leq N \leq 10^4$
- $0 \leq \text{number} \leq 10^9$
- $0 \leq r \leq N$

Output Format

Print the minimum number of unique integers

Sample Input 0

```
7 3
1
2
2
3
4
4
5
```

Sample Output 0

```
2
```

Sample Input 1

```
4 1
1000
997
997
43
```

Sample Output 1

```
2
```

Shell Sort

Given a list of items and an integer K. Print the Kth largest item in the list.

Input Format

The first line contains two integers N and K.

Each of the next N lines contains an integer represents an element in the list.

Constraints

- $1 \leq N \leq 10^4$
- $-10^9 \leq \text{number} \leq 10^9$
- $1 \leq K \leq N$

Output Format

Print the Kth largest item.

Sample Input 0

```
5 2
4
6
3
8
-6
```

Sample Output 0

```
6
```

Sample Input 1

```
6 5
-4
2
0
4
2
9
```

Sample Output 1

```
0
```