Kth Smallest Number in M Sorted Lists

Try to solve the Kth Smallest Number in M Sorted Lists problem.

We'll cover the following

- Statement
- Examples
- Understand the problem
- Figure it out!
- Try it yourself

Statement

Given an m number of sorted lists in ascending order and an integer, `k`, find the k^{th} smallest number among all the given lists.

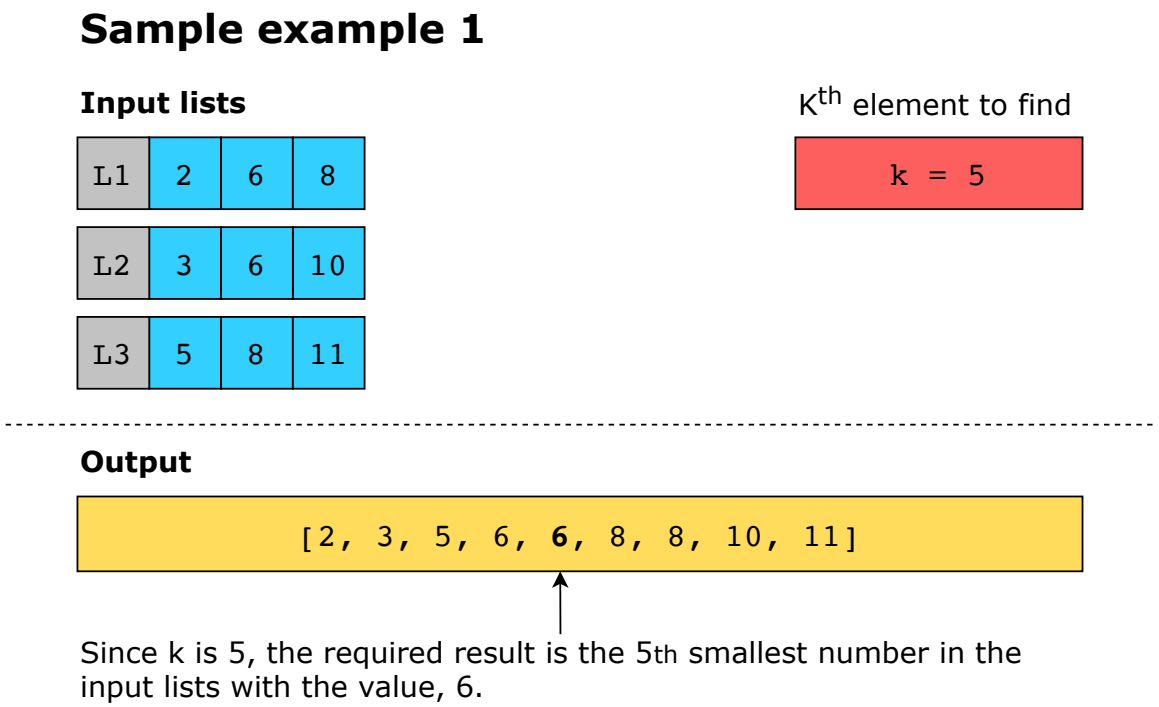
Although there can be repeating values in the lists, each element is considered unique and, therefore, contributes to calculating the k^{th} smallest element.

If `k` is greater than the total number of elements in the input lists, return the greatest element from all the lists, and if there are no elements in the input lists, return 0.

Constraints:

- $1 \leq$ `m` ≤ 300
- $0 \leq$ `list[i].length` ≤ 300
- $-10^9 \leq$ `list[i][j]` $\leq 10^9$
- $1 \leq$ `k` $\leq 10^9$

Examples



Understand the problem

Let's take a moment to make sure you've correctly understood the problem. The quiz below helps you check if you're solving the correct problem:

K^{th} Smallest Number in M Sorted Lists

1

What is the output if the following lists and the value of k are given as input?

1^{st} list = [1, 4, 5]

2^{nd} list = [4, 7, 8]

3^{rd} list = [2, 6, 9]

k = 5

A) 7

B) 5

C) 6

Submit Answer

Question 1 of 3
0 attempted

Reset Quiz

Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.

Drag and drop the cards to rearrange them in the correct sequence.

Push the first element of each list in the min-heap.

Remove the top (root) of the min-heap.

If the popped element has the next element in its list, push the next element in the min-heap.

If k elements have been removed from the heap, return the last popped element.

Reset | Show Solution | Submit

Implement your solution in `FindSmallestNumber.java` in the following coding playground.

Java

usercode > FindSmallestNumber.java

```
1  import java.util.*;
2
3  class FindSmallestNumber {
4    public static int kSmallestNumber(List<List<Integer>> lists, int k) {
5
6      // Your code will replace this placeholder return statement
7
8      return -1;
9    }
10 }
```

Powered by AI | Submit

Test Cases | Results

Case 1 | Case 2 | Case 3

Input #1

[[2,6,8],[3,7,10],[5,8,11]]

Input #2

5

Back

Solution: Merge Sorte...

Next

Solution: Kth Smallest...

Mark as Completed