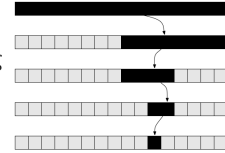


1 Binary Search

Problem Introduction

In this problem, you will implement the binary search algorithm that allows searching very efficiently (even huge) lists, provided that the list is sorted.



Problem Description

Task. The goal in this code problem is to implement the binary search algorithm.

Input Format. The first line of the input contains an integer n and a sequence $a_0 < a_1 < \dots < a_{n-1}$ of n pairwise distinct positive integers in increasing order. The next line contains an integer k and k positive integers b_0, b_1, \dots, b_{k-1} .

Constraints. $1 \leq n, k \leq 10^4$; $1 \leq a_i \leq 10^9$ for all $0 \leq i < n$; $1 \leq b_j \leq 10^9$ for all $0 \leq j < k$;

Output Format. For all i from 0 to $k - 1$, output an index $0 \leq j \leq n - 1$ such that $a_j = b_i$ or -1 if there is no such index.

Sample 1.

Input:

```
5 1 5 8 12 13
5 8 1 23 1 11
```

Output:

```
2 0 -1 0 -1
```

In this sample, we are given an increasing sequence $a_0 = 1, a_1 = 5, a_2 = 8, a_3 = 12, a_4 = 13$ of length five and five keys to search: 8, 1, 23, 1, 11. We see that $a_2 = 8$ and $a_0 = 1$, but the keys 23 and 11 do not appear in the sequence a . For this reason, we output a sequence 2, 0, -1, 0, -1.

Need Help?

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