LAB 3 PROBLEM STATEMENT

QUESTION 2:

You are required to write a MIPS assembly language program named `queryProcessing.s` that takes the following input:

- An integer `n`, followed by `n` elements, each on a new line.
- An integer `q`, representing the number of queries followed by `q` numbers each on a new line

The program should process the queries in the order they are provided. For each query, if the queried number is present in the array of `n` elements, the program should output the count of elements in the array that are smaller than the queried number. However, if the queried number is not found in the array, the program should output -1. **Each output number should be printed on a new line.**

To run the program, the following command will be used:

```
spim -f queryProcessing.s  < test_input_file_name.txt > test_output.txt
```

INPUT FORMAT:

n

a_1

a_2

.

.

.

a_n

q

p_1

p_2

.

.

.

p_q

OUTPUT FORMAT:

r_1

r_2

.

.

.

r_q

Where r_1, r_2, …, r_q are the responses of the q queries respectively.

PLEASE TAKE NOTE OF THE FOLLOWING CONSTRAINTS:

- 1 <= n <= 10000
- 1 <= q <= 10000

TIME CONSTRAINTS:

The program must execute within **5 seconds** for each test input.

NOTE:

1. Don't worry about the top lines in the output that are printed by spim itself. We will remove those lines in the output ourselves.