

Mandatory Exercise: Range Reporting

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1 Subarray Successor Let A be an array of n numbers from \mathcal{R} . We are interested in a data structure supporting the following operation.

- $\text{successor}(i, j, k)$: return the successor of $A[k]$ among the numbers in $A[i, j]$.

Solve the following exercises.

1.1 Give a solution that uses $O(n \log n)$ space and answers queries fast.

1.2 Give a solution that answers queries in $O(1)$ time and uses little space.

Ignore preprocessing.