CSE 202: Design and Analysis of Algorithms

Sai Bi

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Problem 1

Let N be the length of the array A. The algorithm works as following:

1. Do a pass to the array and get the array B where $B[i] = \max_{1 \le k \le i} A[k]$.
2. Do a pass to the array and get the array C where $C[i] = \min_{i \le k \le N} A[k]$.
3. Return $\max_{1 \le k \le N-1} (B[i] - C[i+1])$.

The time complexity of the algorithm is $O(N)$.

Problem 2