

Idea for a $\Theta(n)$ Algorithm: Let the array be represented as $A[0..n-1]$. Start with an empty Stack. Push the first element (element at index 0) of the array into the Stack. Now, run a loop for elements at index 1 to $n-1$. When you pick an element at index i in this loop, pop the elements (from the top of the Stack) that are less than $A[i]$ and stop popping if the top of the Stack has an element that is greater than or equal to $A[i]$. Print $A[i]$ is the NGE for all such popped elements and then push $A[i]$ to the Stack. After exiting from the loop, if the Stack is still not empty, pop the elements of the Stack until it is empty and print -1 to be the NGE for all such popped elements.