

Greedy Magic ($A[]$, L)

$n = \text{length of } A[]$

$\max = A[0] \cdot A[1]$

$\text{start} = \text{end} = \min = \text{magic} = \text{sum} = 0$

if $A[i+1] \geq A[i-1]$

 if $i = n-1$

$j = i+1$

 else

$j = L$

$L = i-1$

else

 if $i = 0$

$j = L$

$L = i-1$

else

$j = L+1$

while $(j-L) < n$

$\text{magic} = \min(A[L, \dots, j]) \cdot \text{sum}(A[L, \dots, j])$

 if $\text{magic} > \max$

$\max = \text{magic}$

$\text{start} = L$

$\text{end} = j$

 (Check for either $L+1$ or $L-1$)

- (Final check of whole array since it stops at $n-1$)

return $[\max, \text{start}, \text{end}]$

Since it starts with one element of A , then continues to loop through, adding one more element at a time, until the entire array has been checked. This means it loops through $n-1$ times, with constant time inside the loop making the algorithm $\Theta(n)$ time.