

DivMagic(A[1, ..., n])

n = length of A

half = ⌈ n ⌉

Greed = Greedy Magic(A[1, ..., n], half)

first = DivMagic(A[1, ..., half - 1])

last = DivMagic(A[half + 1, n])

magic = max(Greed[0], first[0], last[0])

; if magic == Greed[0]

return Greed

; if magic == first[0]

return first

; if magic == last[0]

return last

return [0, 0, 0] (Something went wrong)

$$T(n) = 2T\left(\frac{n}{2}\right) + O(n) = \sum_{i=0}^{\log_2 n} C\left(\frac{n}{2^i}\right) 2^i = \Theta(n \log(n))$$