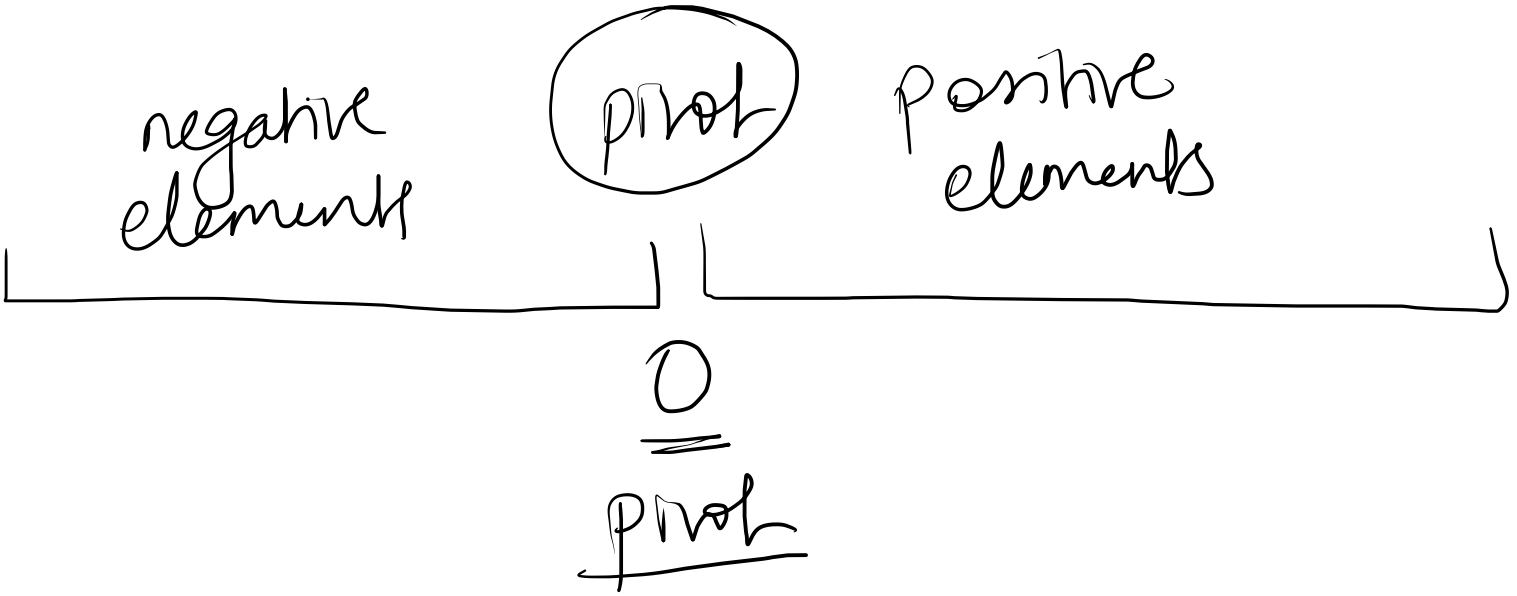
Q2. Given an array of positive and negative integers, segregate them in linear time and constant space.
The output should print all negative numbers, followed by all positive numbers.

Input: arr[] = {19, -20, 7, -4, -13, 11, -5, 3}
Output: arr[] = {-20 ,-4, -13, -5, 7 ,11 ,19 ,3}

Input: arr[] = {7, -3, 2, 8, -4, 11, -6}
Output: arr[] = {-3 ,-4 ,-6 ,8 ,7 ,11 ,2}

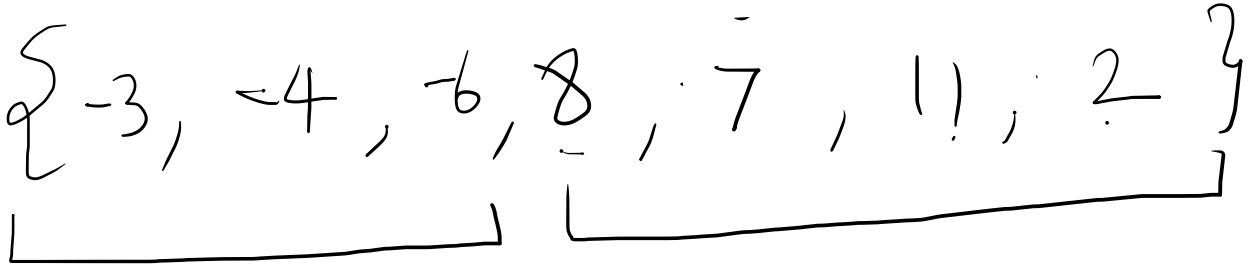

negative elements
pivot
positive elements
0
=
pivot

pivot = 0

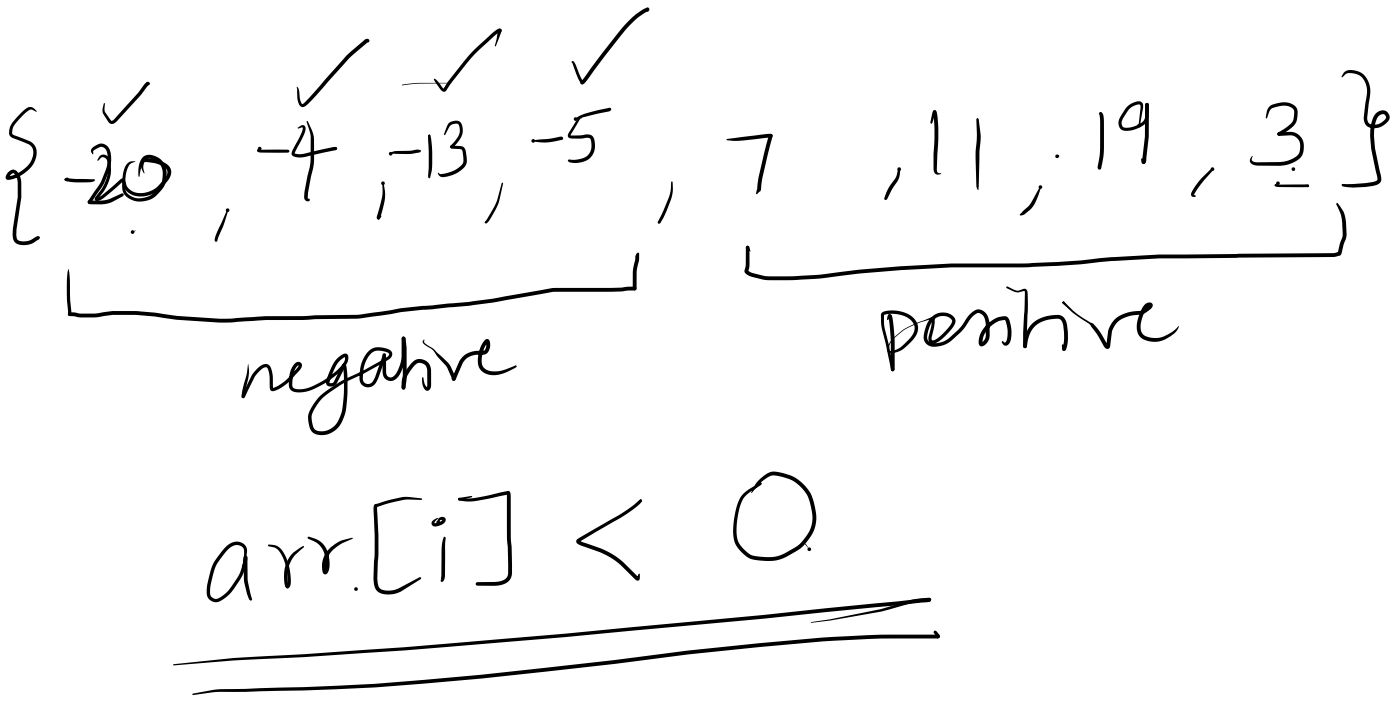
elements < pivot → negative

elements > pivot → positive

{ negative numbers , positive numbers }



(0, n-1)


{ -20 , -4 , -13 , -5 , 7 , 11 , 19 , 3 }
negative
positive
arr[i] < 0

{-3, -4, -6, 8, 7, 11, 2}

negative

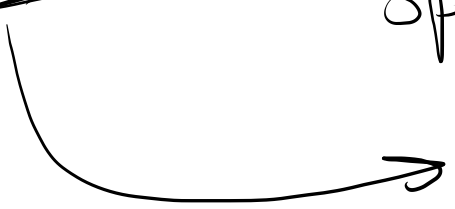
positive

arr[i] < 0

i (s = 0, e = n-1)

T.C = O(n)

S.C = auxiliary space O(1)



O(n)