

Ex.

[0 0 0 1 9]

[0*, 0, 0, 1, 9] [1*, 0, 0, 0, 9] [9*, 0, 0, 0, 1]

Q: Why don't we need to swap back after each iteration?

A: So that duplicate numbers after * will be consecutive

[a₀, a₁, a₂, a₃, a₄, a₅, a₆, a₇, a₈]
(a₀ = a₁ = a₂) (a₃ = a₄ = a₅) (a₆ = a₇ = a₈)

Let's say we have several consecutive sections.

The swapping will like this

$[a_0^*, \underbrace{a_1, a_2, a_3, a_4}_{\text{these nums will remain consecutive!}}, a_5, \underbrace{a_6, a_7, a_8}]$
 $[a_3^*, \underbrace{a_1, a_2, a_0, a_4}, a_5, \underbrace{a_6, a_7, a_8}]$
 $[a_6^*, \underbrace{a_1, a_2, a_0, a_4}, a_5, \underbrace{a_3, a_7, a_8}]$

Q: Why does this behavior happens?

A: Because each time we swap
 two numbers like $\text{swap}(\text{src}, \text{dst})$
 src , dst will at the
 beginning or the end of
 a consecutive section!