$a_0\ a_1\ a_2\ a_3 \cdots a_i \leq \cdots a_j \leq a_{n-1}$

If a_i, a_j are swapped

contradicts sorted property

$a_{i-1} a_i\ a_{i+1} \cdots a_{j-1} a_j$

$\rightarrow a_{i-1} \leq a_j \geq a_{i+1} \cdots a_{j-1} \geq a_i \leq a_{j+1}$

① $a_j = a_{i+1}$, $a_{j-1} = a_i$ ⇒ no need to do anything

② $a_j > a_{i+1}$, $a_{j-1} = a_i$ ⇒ $a_i = a_{i+1} = a_{i+2} \cdots a_{j-1}$

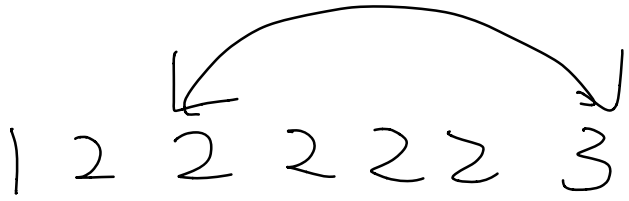
$a_i != a_{j+1}$ ⇒ otherwise contradiction

③ $a_j = a_{i+1}$, $a_{j-1} > a_i$ ⇒ $a_{i+1} = a_{i+2} \cdots = a_{j-1} = a_j$ — tricky

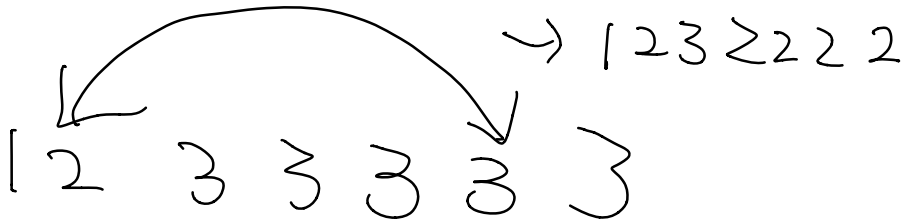
$a_{i-1} != a_j$ → otherwise contradiction

④ $a_j > a_{i+1}$, $a_{j-1} > a_i$ ⇒ normal case

② Ex.



③ Ex.



→ 1 3 3 3 3 2 3

cannot be 3