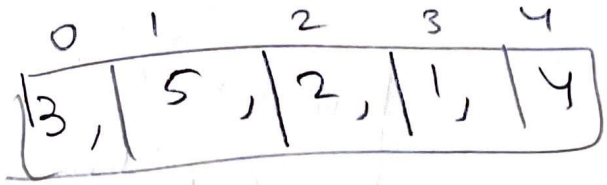
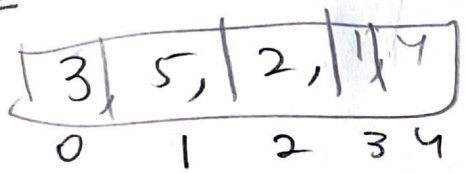
→ Let's say you have unsorted array.

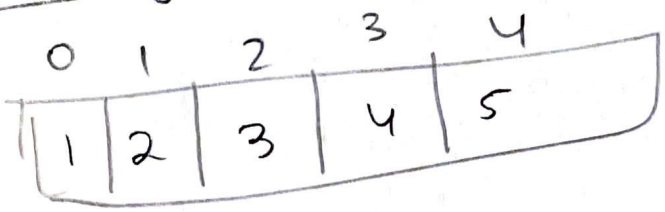


★ when given numbers from numbers from 1 to N. ⇒ Use Cyclic Sort.

Algorithm



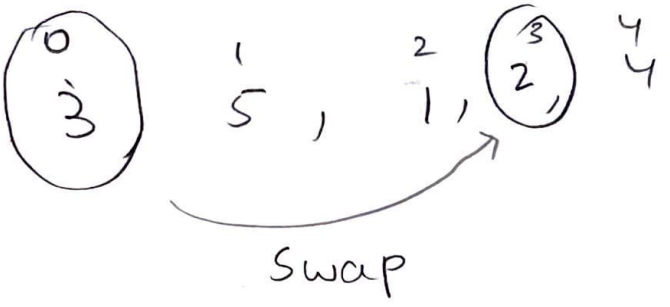
After Sorting

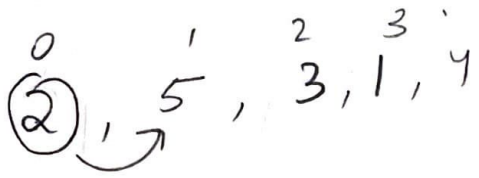


index = value − 1

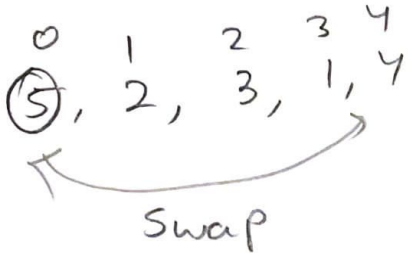
Why? Because it ^index starts from 0.

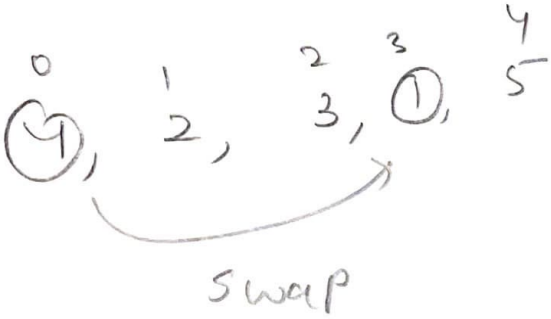
How do we sort ?





Swap





1, 2, 3, 4, 5 ⇒ Answer.

no. of swaps

$n-1$ ⇒ swaps

n = size of Array

$(n-1)+(n)$

worst case:

$O(n)$ linear.

Psedo Code

```
int i=0
while (i < arr.length)
    int correct = arr[i]-1
if (arr[i] != arr[(correct)])
        swap (arr[i], arr(correct));
    else
        i++.
```