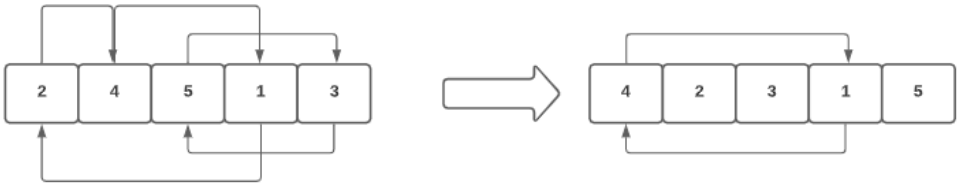
Cyclic-Sort



Sorted Array

* Cyclic Sort (Sort the elements from 1 to n)

arr = { 3, 4, 6, 2, 1, 5 }

0 1 2 3 4 5

{ 1, 2, 3, 4, 5, 6 }

1 == 1

T.C (n-1) + O(n)

S.C (1) O(n)

3-1 = 2

0 1 2 3 4 5

3, 4, 6, 2, 1, 5

6, 4, 3, 2, 1, 5

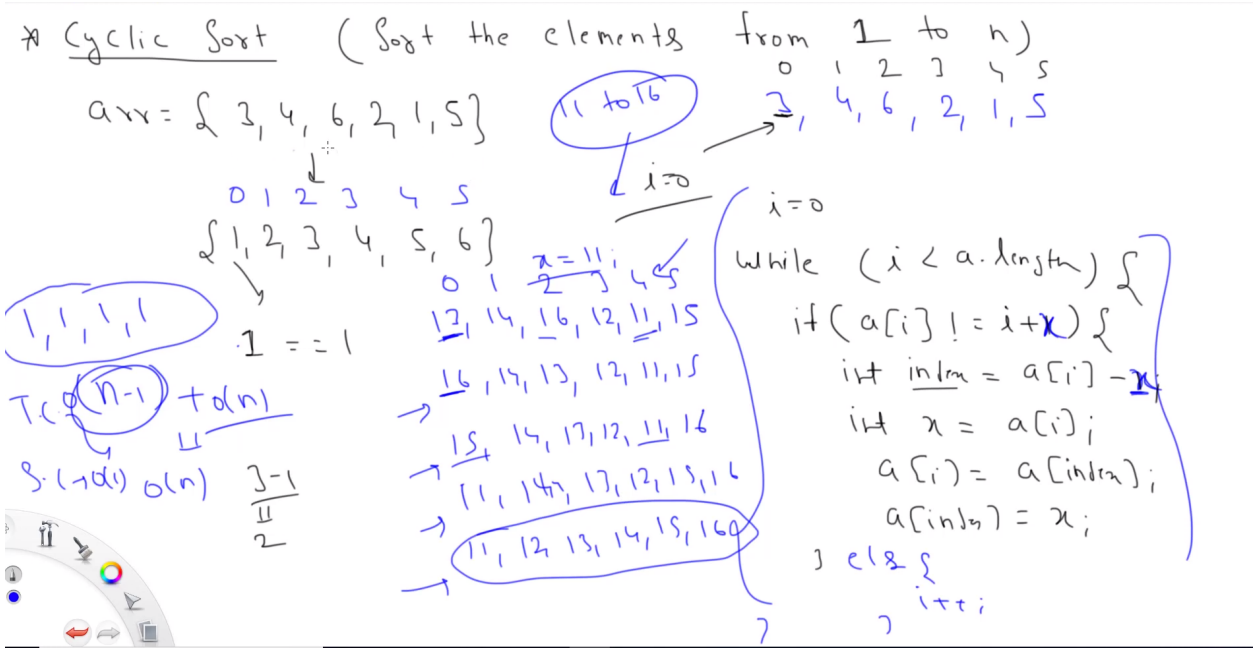
5, 4, 3, 2, 1, 6

1, 4, 3, 2, 5, 6

1, 2, 3, 4, 5, 6

i = 0

```
i = 0
while (i < a.length) {
  if (a[i] != i+1) {
    int inIdx = a[i] - 1;
    int x = a[i];
    a[i] = a[inIdx];
    a[inIdx] = x;
  } else {
    i++;
```




```java
public static void cyclicSort(int[] arr) {
  if(arr.length <= 1) {
    return;
  }

  int i = 0;
  while(i < arr.length) {
    if(arr[i] - 1 != i) {
      int otherIndex = arr[i] - 1;

      int x = arr[i];
      arr[i] = arr[otherIndex];
      arr[otherIndex] = x;
    } else {
      i++;
    }
  }

}
```

LeetCode 268 - Missing Number [*easy*]

LeetCode 442 - Find All Duplicates in an Array [*medium*]

LeetCode 448 - Find All Numbers Disappeared in an Array [*easy*]

LeetCode 645 - Set Mismatch [*easy*]