SNS COLLEGE OF ENGINEE

Kurumbapalayam(Po), Coimbatore – 641 107
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Department of Artificial Intelligence an

Course Name: 23ITB201 Data structures a

II Year / III semester

Unit III – Sorting, searching and ha

Topic: Bubble Sort

is an elementary sorting algorithm, which works by repeatedly

djacent elements, if necessary. When no exchanges are requir

ist is an array of n elements. We further assume that swap func

lues of the given array elements.

function:

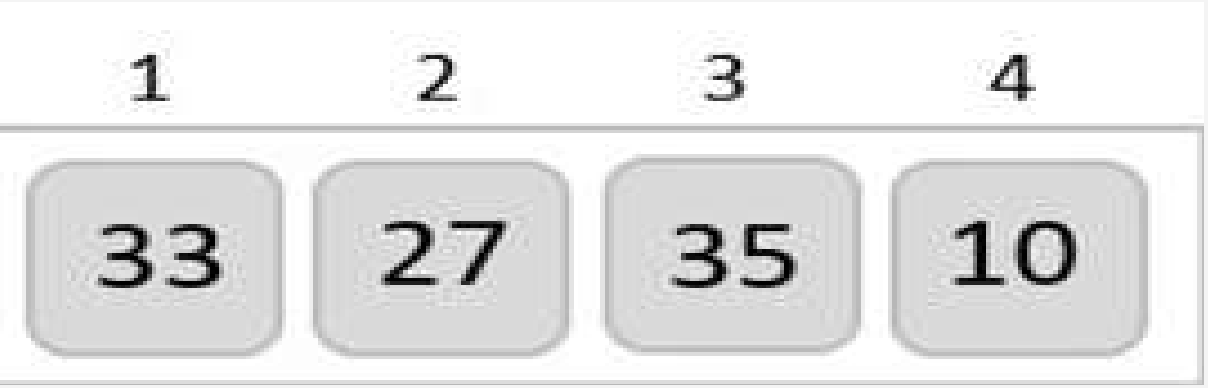
```
eSort (int array[], int size){
0; i<size; i++) {
= 0; j<size-i-1; j++) {
y[j] > array[j+1]) { //when the current item is bigger

emp;
p = array[j];
y[j] = array[j+1];
y[j+1] = temp;
```

Analysis

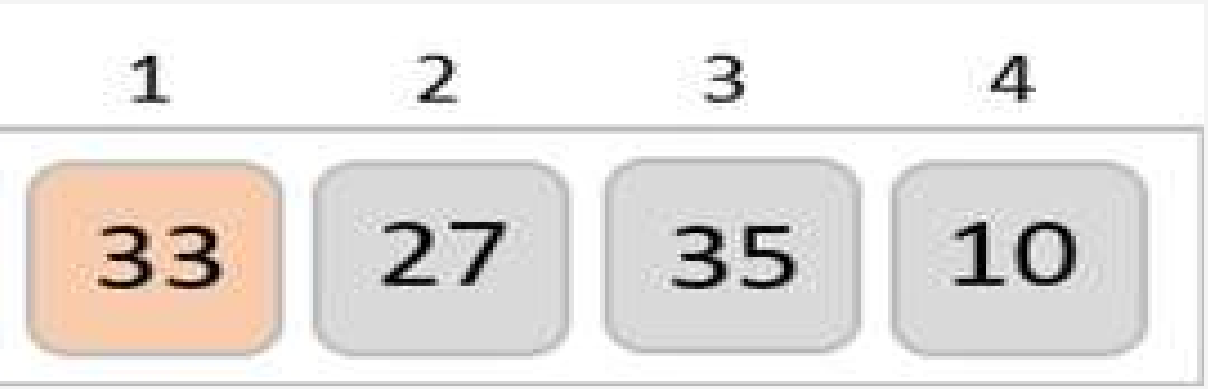
Here, the number of comparisons

$1 + 2 + 3 + \ldots + (n - 1) = n(n - 1)/2$

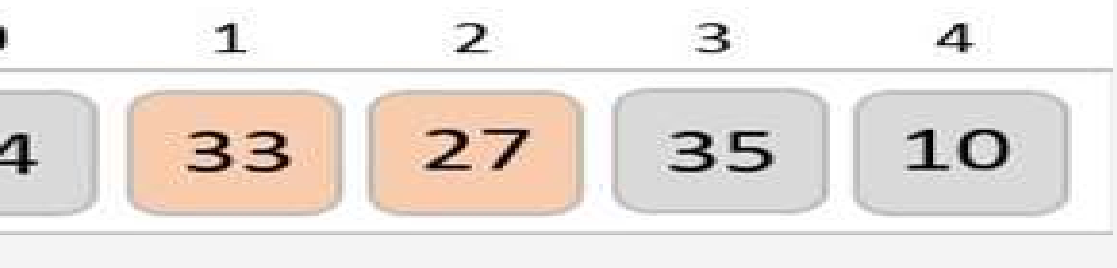
an unsorted array for our example. Bubble sort takes O(n2) ti
eping it short and precise.



ort starts with very first two elements, comparing them to ch
eater.



case, value 33 is greater than 14, so it is already in sorted locations.
we compare 33 with 27.



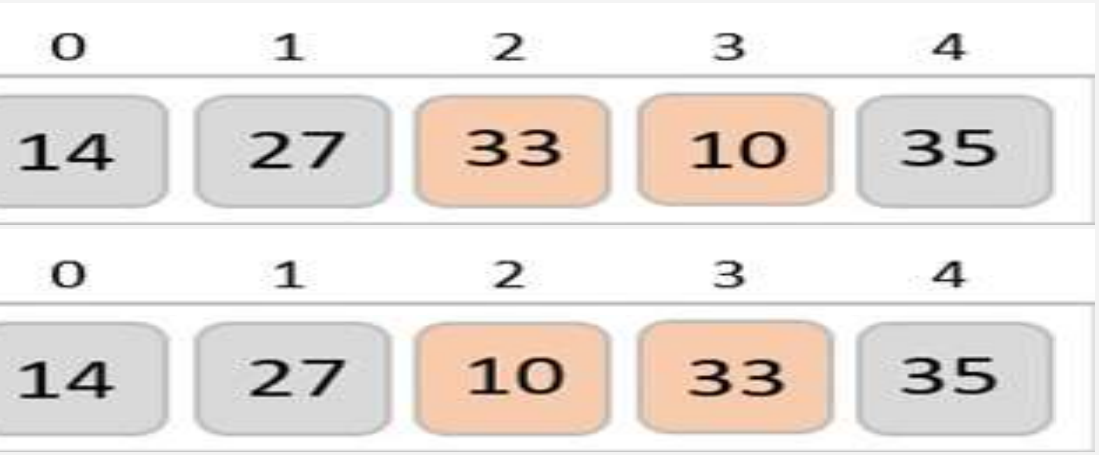
nd that 27 is smaller than 33 and these two values must be swapped.

we compare 33 and 35. We find that both are in already sorted positions

we move to the next two values, 35 and 10.

now then that 10 is smaller 35. Hence they are not sorted. We swap thes
s. We find that we have reached the end of the array. After one iteration,
ray should look like this –

be precise, we are now showing how an array should look like after each
ration. After the second iteration, it should look like this –



tice that after each iteration, at least one value moves at the end.