

Tinker Academy

Programming Using Java
(Insertion Sort)

Insertion Sort

Simple Sorting Algorithm

5 2 1 3 4

Unsorted Array

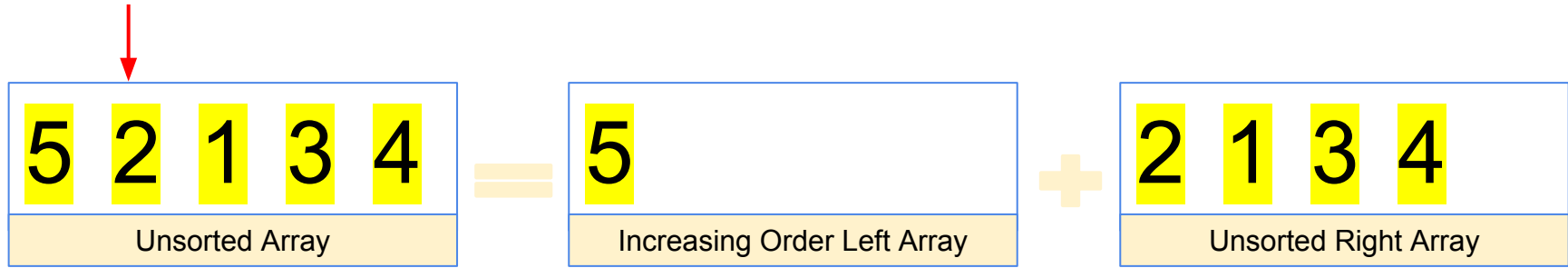
1 2 3 4 5

Sorted Array

Sorting is "slow", which means it takes more cpu time to complete sort

Insertion Sort

Uses a Pivot just like Bubble Sort. Pivot Starts at index 1

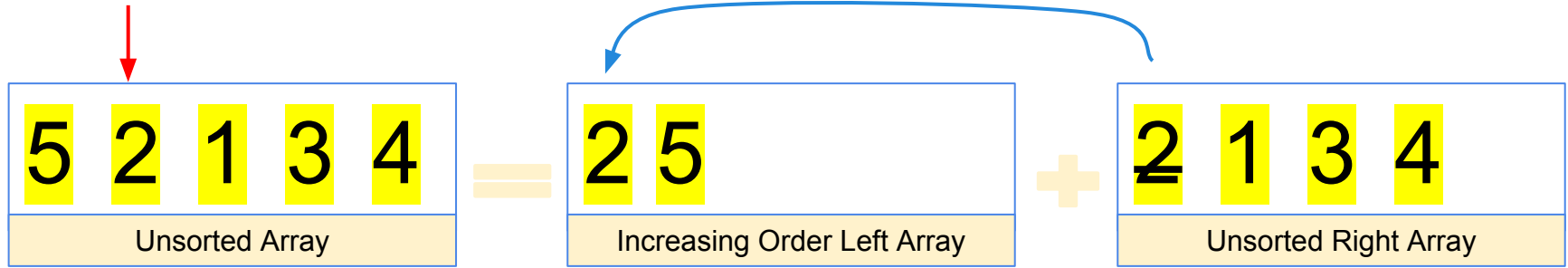


Pivot divides the array into 2, a left subarray in increasing order

Pivot divides the array into 2, an unsorted right subarray

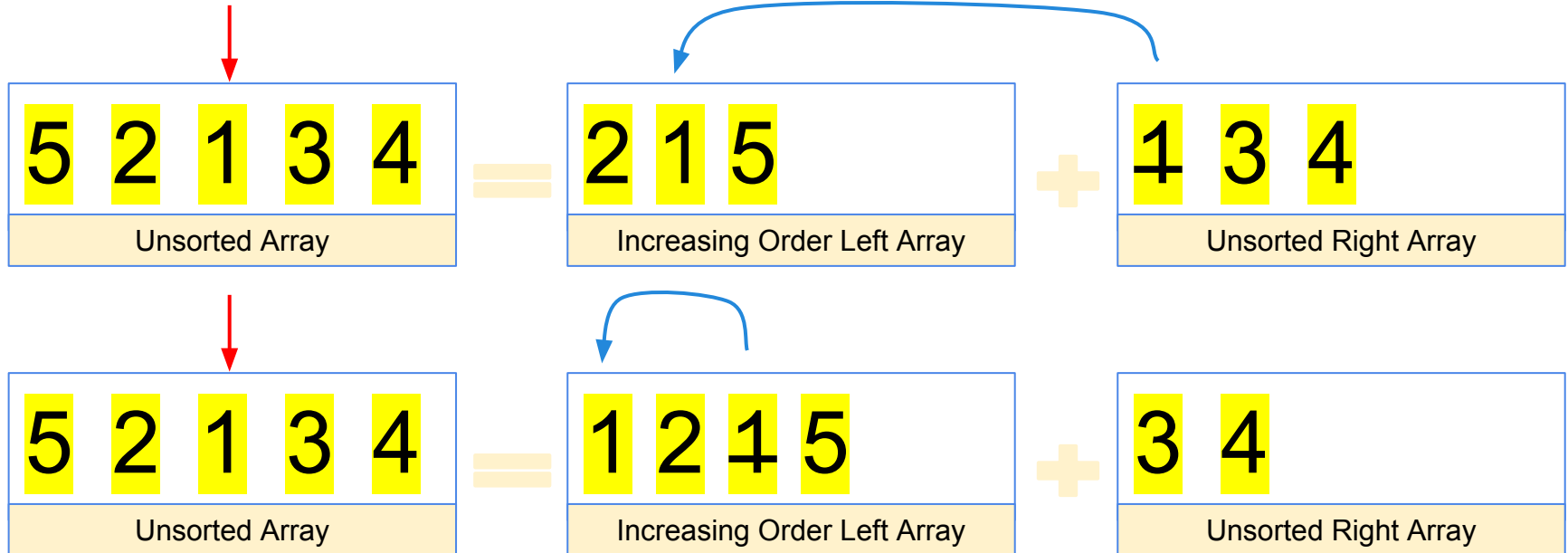
Insertion Sort

Insertion Sort inserts the pivot item into left subarray but maintains order



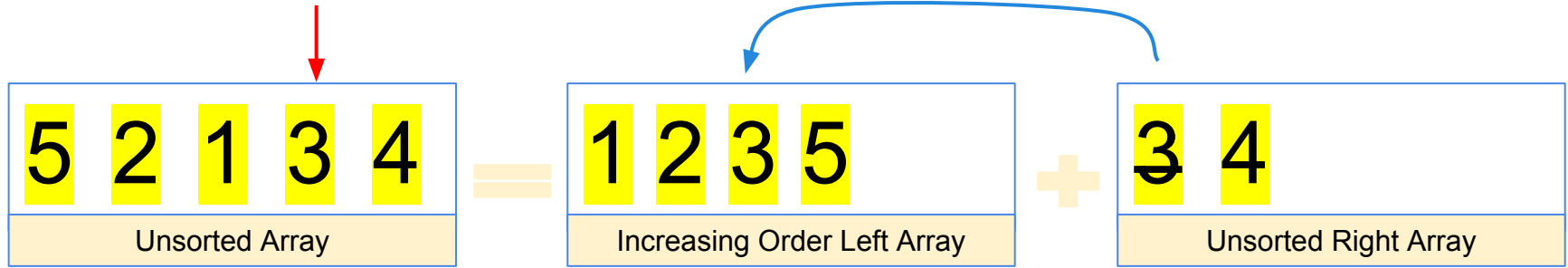
Insertion Sort

Insertion Sort inserts the pivot item into left subarray but maintains order



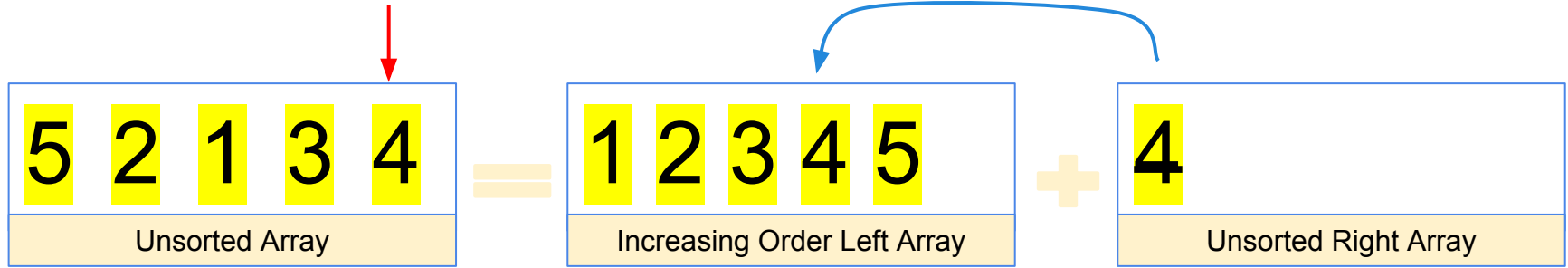
Insertion Sort

Insertion Sort inserts the pivot item into left subarray but maintains order



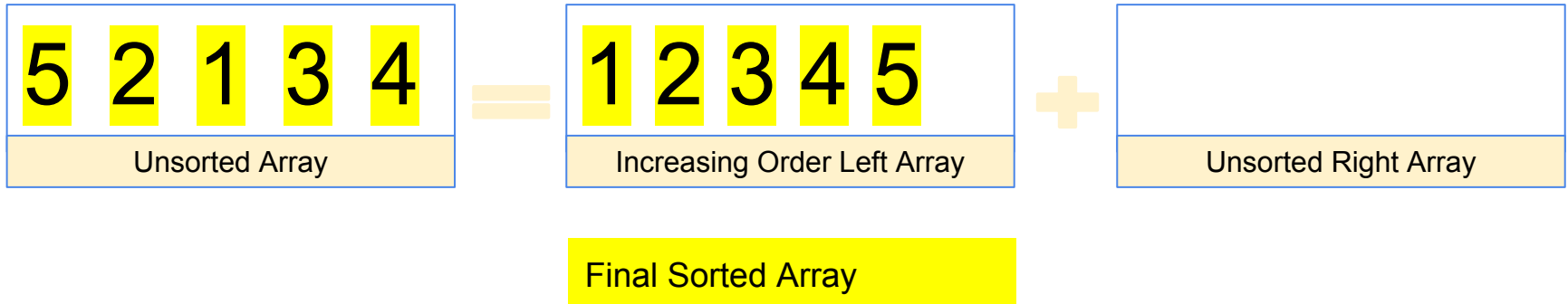
Insertion Sort

Insertion Sort inserts the pivot item into left subarray but maintains order



Insertion Sort

Insertion Sort inserts the pivot item into left subarray but maintains order



Insertion Sort

```
public void sort(int[] input) {  
    for (int i = 1; i < input.length; i++) {  
        int j = i;  
        while (j > 0 && input[j-1] > input[j]) {  
            int tmp = input[j];  
            input[j] = input[j-1];  
            input[j-1] = tmp;  
            j = j - 1;  
        }  
    }  
}
```