

## Insertion Sort

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```
/**
 * this is the insertion sort method
 * @param arr array to sort
 */
public void insertionSort(int[] arr){
    int n = arr.length; // max index is amount of elements
    // sort
    for (int x = 1; x < n; x++) { // no matter what always runs through every card (amount - 1)
        int currentElement = arr[x]; // set current element to check
        int i = x; // sets current working index
        // shift array
        while (i > 0 && arr[i - 1] > currentElement) { // i > 0 to avoid IndexOutOfBoundsException and
            // comparing every element to the left of currentElement to check if it's larger
            arr[i] = arr[i - 1]; // if larger than set the current index to the larger number
            i--; // decrement i
        }
        arr[i] = currentElement; // assign current value to the position it belongs based on the outcome of
        // the previous while structure
    }
}
```