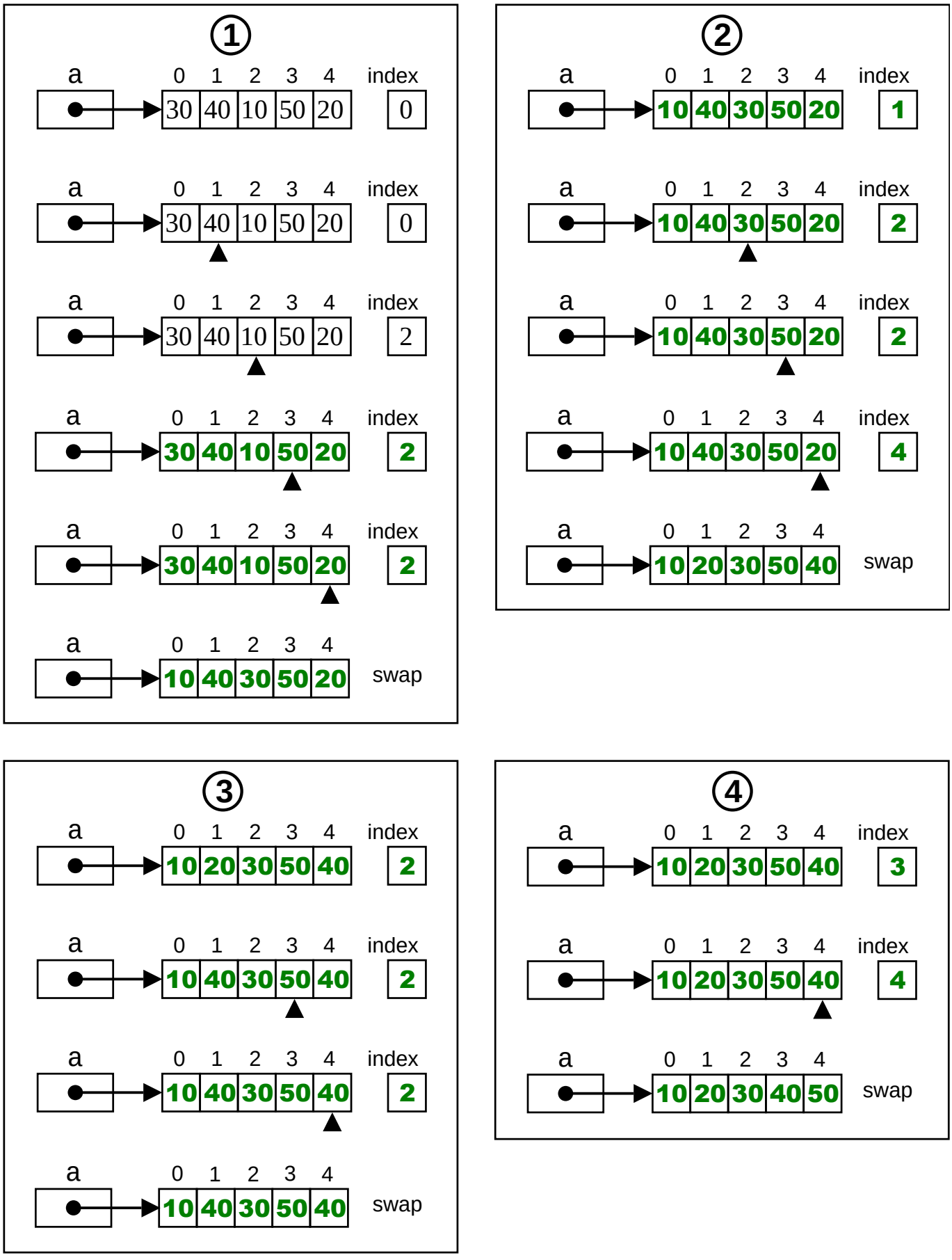
Worksheet – Selection Sort 1 (Coding)

1. Using the selection sort algorithm, complete the diagram below.



Worksheet – Selection Sort 1 (Coding)

2. Once you have implemented, tested and debugged the `selectionSort` method, write the code by hand into the appropriate space below.

```
/** method swap
 * Swaps elements i and j of array a
 * Precondition: indices are not out of bounds
 * @param a the array
 * @param i the first of two elements to swap
 * @param j the second of two elements to swap
 */

private static void swap(int[] a, int i, int j) {
    int tmp = a[i];
    a[i] = a[j];
    a[j] = tmp;
}
```

```
/** method selectionSort
 * Use the selection sort algorithm to sort the array
 * @param a the array to sort
 */

private static void selectionSort(int[] a) {

   // loop through array until penultimate element
   for(int i = 0; i<a.length-1; i++) {

      // loop through the array to find smallest
      int index = i; // index of smallest
      for(int j = i+1; j<a.length; j++) {
         System.out.print(" " + j);
         if(a[j] < a[index]) {
            index = j;
         }
      }

      // if the first is not the smallest, swap
      if(i != index) {
         swap(a, i, index);
      }
   }

}
```