

BASIC SORTING SOLUTIONS

Solution (a): Bubble Sort

ALIVA

Solution (b): Selection Sort

```
public static void selectionSortDescending(int arr[]) {
    for(int turn=0; turn<arr.length; turn++) {
        int minPos = turn;
        for(int j=turn+1; j<arr.length; j++) {
            if(arr[minPos] < arr[j]) {
                minPos = j;
            }
        }
        //swap
        int temp = arr[turn];
        arr[turn] = arr[minPos];
        arr[minPos] = temp;
    }
}</pre>
```

Solution (c): Insertion Sort

```
public static void insertionSortDescending(int arr[]) {
```

```
for(int i=1; i<arr.length; i++) {
    int curr = arr[i];
    int prev = i-1;
    //to find the index where curr is to be inserted
    while(prev >= 0 && arr[prev] < curr) {
        arr[prev+1] = arr[prev];
        prev--;
    }
    arr[prev+1] = curr;
}</pre>
```

Solution (d): Counting Sort

```
public static void countingSortDescending(int arr[]) {
    int largest = Integer.MIN_VALUE;
    for(int i=0; i<arr.length; i++) {
        largest = Math.max(largest, arr[i]);
    }

    int count[] = new int[largest+1];
    for(int i=0; i<arr.length; i++) {
        count[arr[i]]++;
    }
    int j = 0;
    for(int i=count.length-1; i>=0; i--) {
        while(count[i] > 0) {
            arr[j] = i;
            j++;
            count[i]--;
        }
    }
}
```