

## 1 Exercises

**Exercise 1.** Consider sorting an array `a[]` containing the following keys, by calling the `sort()` method (shown below) from insertion sort:

E   A   S   Y   Q   U   T   I   O   N

```
def sort(a, key=None):
    n = len(a)
    for i in range(1, n):
        for j in range(i, 0, -1):
            v, w = a[j], a[j - 1]
            if key:
                v, w = key(v), key(w)
            if v >= w:
                break
            _exchange(a, j, j - 1)
```

What is `a[i]` when `i = 5` (ie, 5th iteration of the outer loop) and the inner loop (lines 4 – 10) is complete?

**Exercise 2.** Which of the following sequences can be merged using the merge operation?

a. H E L L O and W O R L D

b. E H L L O and D L O R W

## 2 Solutions to Exercises

**Solution 1.** A E Q S U Y T I O N

**Solution 2.**

a. No.

b. Yes.