

Sorting and Searching Review

Given the following declarations:

```
int[] list = {8, 12, 3, -6, 9, 1, 0, 5}
int key;
// Answer
           0  1  2  3  4  5  6  7
// int[] list = {-6, 0, 1, 3, 5, 8, 9, 12}
```

Answer the questions which follow:

- After sorting the array in ascending order (least to greatest), how many checks will you have to make in order to locate the following key values using the linear search algorithm:
 - 8 // 6 checks
 - 6 // 1 check
 - 15 // 8 checks to determine it's not there
- After sorting the array in ascending order (least to greatest), how many checks will you have to make in order to locate the following key values using the binary search algorithm:
 - 8 // 2 checks
 - 6 // 3 check
 - 15 // 3 checks to determine it's not there
- Using the bubble sort algorithm with ascending order, show what array variable list looks like after each pass through the outer loops completes.

```
int[] list = {8, 12, 3, -6, 9, 1, 0, 5}
int[] list = {8, 3, -6, 9, 1, 0, 5, 12}
int[] list = {3, -6, 8, 1, 0, 5, 9, 12}
int[] list = {-6, 3, 1, 0, 5, 8, 9, 12}
int[] list = {-6, 1, 0, 3, 5, 8, 9, 12}
int[] list = {-6, 0, 1, 3, 5, 8, 9, 12}
```

- Using the bubble sort algorithm with descending order, show what array variable list looks like after each pass through the outer loops completes.

```
int[] list = {8, 12, 3, -6, 9, 1, 0, 5}
int[] list = {12, 8, 3, 9, 1, 0, 5, -6}
int[] list = {12, 8, 9, 3, 1, 5, 0, -6}
int[] list = {12, 9, 8, 3, 5, 1, 0, -6}
int[] list = {12, 9, 8, 5, 3, 1, 0, -6}
```

- Using the selection sort algorithm with ascending order, show what array variable list looks like after each pass through the outer loops completes.

```
int[] list = {8, 12, 3, -6, 9, 1, 0, 5}
int[] list = {-6, 12, 3, 8, 9, 1, 0, 5}
int[] list = {-6, 0, 3, 8, 9, 1, 12, 5}
int[] list = {-6, 0, 1, 8, 9, 3, 12, 5}
int[] list = {-6, 0, 1, 3, 9, 8, 12, 5}
int[] list = {-6, 0, 1, 3, 5, 8, 12, 9}
int[] list = {-6, 0, 1, 3, 5, 8, 9, 12}
```