

CS21 Lab 10 Worksheet, Swarthmore College, Fall 2011

Name:

Print this out and write your answers on the printout. There are questions on both sides. This worksheet is **due Tuesday, November 15 in class**.

1. Given the following:

```
l = ["Arald", "Caren", "Erik", "Freya", "Fritz", "Hans", "Lars", "Lena", "Ole", "Sven"]
```

- (a) How many steps does it take to search for the value "Freya" in the list using Linear Search?

- (b) How many steps does it take to search for the value "Freya" in the list using Binary Search?

- (c) Show the values for lo, hi, and mid for each comparison step in searching for the name "Soren" in the list using Binary Search.

2. Given the following list:

```
    0     1     2     3     4     5
-----
| 16 | 45 | 81 | -3 | 17 | 6 |
-----
```

Show the resulting list after every big step (outer loop iteration) of using Bubble Sort to sort this list. Also, list the number of compares in each big step and the number of swaps in each big step. One **compare** is comparing two values in the list, and one **swap** is exchanging the position of two values in the list. We have started organizing your output for the first two big steps, continue in this fashion for EVERY BIG STEP:

```
After Step 1) List:    0     1     2     3     4     5
                      -----
                      |     |     |     |     |     |
                      -----
```

Number of compares: Number of swaps:

```
After Step 2) List:    0     1     2     3     4     5
                      -----
                      |     |     |     |     |     |
                      -----
```

Number of compares: Number of swaps: