

Homework #9 (due 06/01/17)

Covers Chapters 9-10

Chapter 9: Pages 287-288

1. Exercise #7 (20 pts)

For each of the classes `ArrayList` and `LinkedList`, implement the method `contains`, as described in Exercise 7 of Chapter 8.

Chapter 10: Pages 320-322

1. Exercise #1 a, b, c, d, e, f (6 pts)

Using Big O notation, indicate the time requirement of each of the following tasks in the worst case. Describe any assumptions that you make.

- a. After arriving at a party, you shake hands with each person there.
 - b. Each person in a room shakes hands with everyone else in the room.
 - c. You climb a flight of stairs.
 - d. You slide down the banister.
 - e. After entering an elevator, you press a button to choose a floor.
 - f. You ride the elevator from the ground floor up to the nth floor.
 - g. You read a book twice.
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2. Exercise #3 a, e, f, i (4 pts)

Using Big O notation, indicate the time requirement of each of the following tasks in the worst case.

- a. Computing the sum of the first n even integers using a for loop.
 - e. Displaying one array element
 - f. Displaying the last integer in a linked chain.
 - i. Adding and item to a stack on n items.
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3. Exercise #5 (5 points)

Consider the following C++ function `f`, which calls the function `swap`. Assume that `swap` exists and simply swaps the contents of its two arguments. Do not be concerned with `f`'s purpose. How many comparisons does `f` perform?

```
void f(int theArray[], int n) {
    for (int j = 0; j < n; j++) {
        int i = 0;
        while( i <= j) {
            if(theArray[i] < theArray[j]
                swap(theArray[i], theArray[j]);
            i++
        } //end while
    } //end for
} //end f
```
