CSE 4321 Homework 1

# Chapter 1

## Exercise 5

### findLast Program

1. The for loop terminates when the index is 1, therefore the element in the index 0 isn’t observed by the program. The for loop needs to terminate at i >= 0 instead of i > 0.
2. Test: x = [2, 3, 5]; y = 3; Expected = 1, Actual = 1
3. It is not possible to test a code that execute the fault and does not result in an error state because if there’s a fault then the output will be wrong where the program returns a (-1) which means there’s an error state.
4. Test: x = [2,3,4]; y = 2; Expected = 1; Actual = 0
5. The first error state occurs when the program is i is 0 and the for loop terminates.
6. To repair the findLast program, we need to change the line from:  
   for (int i = x.length-1; i > 0; i--)

to:

for (int i = x.length-1; i >= 0; i--)

### countPositive

1. The condition in the if statement also checks for values that are zero, not just positive. The condition in the if statement needs to check for x[i] > 0 instead of x[i] >= 0.
2. Test: x = [-4, 2, -1, 2]; Expected = 2, Actual = 2
3. It is not possible to test a code that execute the fault and does not result in an error state because if a fault occurs then the output will be wrong which will be an error state.
4. Test: x = [-4, 0, 0, 4]; Expected = 1; Actual = 3
5. The first error state occurs when the condition i >= 0 in the if statement executes.
6. To repair the countPositive program, we need to change the line from:  
   if (x[i] >= 0)

to:

if (x[i] > 0)