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Pre-Assignment Statement Count Worksheet
CSCI 132, Fall 2013

Do the following, giving the answers directly in the worksheet.

For each of the following pseudocode program snippets, count the lines that are executed in the following program snippet when it is executed. As done in class on Wednesday, October 2, give the line count in front of each line and then give the overall line count formula below the snippet. Count each line encountered except for comment lines and lines that just contain a brace.

1-1

```
// assert a is an array of integers
1     n = a.length-1;
1     sum = 0;
1      i = 1;
n+1      while (i <= n){
n       sum = sum + a[i];
n        i++;
      }
1     print sum;
```

line count = $3n + 5$

1-2

```
// assert a is an array of n elements
1    i = 0;
n+1    while (i < n) {
n      print a[i];
n      i++;
   }
1    i = n-1;
n+1    while (i >= 0) {
n      print a[i];
n      i--;
   }
```

line count = $6n + 4$

1-3

```
// assert a is an array of n elements
1      i = 0;
n+1    while (i < n){
n      j = n-1;
n(n+1)      while (j >= 0) {
n²        print a[i] * a[j];
n²        j--;
      }
n      i++
   }
1    print "done";
```

line count = $3n^2 + 4n + 3$

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2-1. Do a walkthrough of the following pseudocode. In a walkthrough you write the names of the variables as column headers. Then as you walk through the code a line at a time, you change variable values if the line you are executing by hand changes the variable values. Do not erase values when on value changes. Rather simply cross out the old value and write the new value below it. In this case the variables m, i, and sum are listed as column headers below. Just write the values in below those variable names as the variable values change.

```
public static void main {
        print "The value of addem(4) is " + addem(4);
}

public static int addem (m) {
        int i = m;
        int sum = 0;
        while (i >=1) {
                sum = sum + i;
                i--;
        }
        return sum;
}
```

//	m	i	sum
	4	~~4~~	~~0~~
		~~3~~	~~4~~
		~~2~~	~~7~~
		1	9

3.1 Attempt to do a walkthrough of this program.

```
public static void main{
        print "The value of addem(4) is " + addem(4);
}

// Since addem is a recursive method , a number of copies of addem are given below as was
// done in class for walking through a recursive method. Use as many of the copies as
// needed for the walkthrough

public static int addem (m){                    m=4, return 4 + addem(3): 4+6 = 10
        if (m == 1)
          return 1;
        else
          return m + adem(m-1);
}



public static int addem (m){                    m=3, return 3 + addem(2): 3+3 = 6
        if (m == 1)
                return 1;
        else
                return m + adem(m-1);
}



public static int addem (m){                    m=2, return 2 + addem(1): 2+1 = 3
        if (m == 1)
                return 1;
        else
                return m + adem(m-1);
}



public static int addem (m){                    m=1, return 1
        if (m == 1)
                return 1;
        else
                return m + adem(m-1);
}



public static int addem (m){
        if (m == 1)
                return 1;
        else
                return m + adem(m-1);
}
```