Lab/Homework 06 – Decisions

1. Before doing any coding for this lab I want you to just trace the following code section and predict what it will output. Assume `scan` is a `Scanner` that reads from the standard input. For each listed set of input values, show your trace in the section labeled memory and the predicted output in the section labeled output. I’ve done the first part for you.

```java
int i = 5, j = 0, k = 0;
j = scan.nextInt();
k = scan.nextInt();

if (i < j)
    System.out.print("A");

if (i <= k)
    System.out.print("B");
else
    System.out.print("C");

k = j - i;
if (k > 0)
    System.out.print("D");
else
{
    System.out.print("E");
i = i * 2;
}

if (i < 0)
    System.out.print("F");
else
    if (i > j)
        System.out.print("G");
    else
        System.out.print("H");

System.out.println();
System.out.println(i + j + k);
```

Input: 3 6 
Memory: i 5 10
Output: B E G j 0 3 

Input: 6 3 
Memory: i
Output: j

Input: 6 6 
Memory: i
Output: j

Input: 1 3 
Memory: i
Output: j

How long did you spend on this problem? ________
2. See the web site's Projects section for a program that allows you to test your answers to the previous problem. Use it to verify that your answers were correct. If they were not correct then try to figure out what you did wrong. If you can't figure it out, raise your hand and get some help. Write a sentence about how all of this turned out:

How long did you spend on this problem? __________

3. Create a program that declares int variables to hold the cost of a new pair of shoes and the number of pairs of shoes Julie wants to buy, prompts for and reads in that information, and then calculates and prints out the total cost. If the total cost is $50 or less the program also prints "Julie enjoys her shopping spree". If the total cost is more than $50 it prints "Julie does not have enough money". Get this initialized or create a report and attach it to this sheet. Your report should include an example run for each type of output. An example run might look like this:

How much is a pair of shoes > 32
How many pairs does Julie want to buy > 3

The total cost is $96. Julie does not have enough money.

How long did you spend on this problem? __________

4. If you still have time then try this one: Prompt for and read in three integers and output whether the integers were entered in strictly increasing order. For example 1 2 3 is strictly increasing, -5 0 234 is strictly increasing, 3 27 20 is not strictly increasing, 5 17 17 is not strictly increasing. A sample run might look like this:

Enter an integer > 12
Enter an integer > 23
Enter an integer > 15

The numbers 12 23 15 are not strictly increasing.

How long did you spend on this problem? __________