

**Department of Computer Science,
Data Structures (CSC212), Semester: Fall, 2008
HomeWork-4
Due Date: Monday January 4th 2009**

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Question1. What is an equivalent non-recursive version of the following method?

Recursive Version:

```
public static int method(int n)
{
    if (n == 0)
        return 0;
    else
        return 1 + method(n-1);
}
```

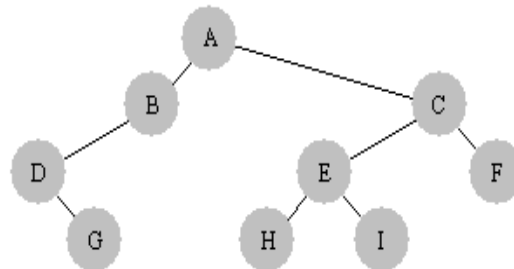
Question2. The following is a recursive definition for $f(a,b)$, where a and b are integer values.

```
public static int f(int a, int b)
{
    if (a == 0 || b == 0)
        return a-b;
    else
        return f(a-1,b) + f(a,b-1);
}
```

Display the "calling tree" that lists the method calls that are required to execute $f(3,2)$.

Question3: We consider the following recursive method.

```
public static int g(Node t)
{
    int n = 0;
    if (t != null)
    {
        n++;
        n += g(t.left);
        n += g(t.right);
    }
    return n;
}
```



For the figure on the right, display the "calling tree" that lists the method calls that are required to execute the following statement:

```
System.out.println(g(root));
```