ESC101 : Fundamental of computing

Tutorial sheet 2 **7 August, 2008**

1. **Block of code and scope of variable**
   A set of statement enclosed between { } defines a block of code. The scope of a variable is defined as the portion of the code in which it is visible (where its value can be accessed or modified). In Java, to find the scope of a variable, find the innermost block of code in which it is declared. The portion of this block which appears after this declaration is the scope of the variable. Kindly revise the above portion and discuss the following JAVA program. You may call the block of the main method as block 1 (lines 4-19) and the block inside as block 2 (lines 8-13).

```
1.class scope_example
2.{
3.   public static void main(String args[])
4.   {
5.     System.out.println(‘‘this is an example to understand scope of variable’’);
6.     int i;
7.     i = 15;
8      {
9.       System.out.println(‘‘We are in a new block’’);
10.      int j;
11.      j = i*i;
12.      System.out.println(‘‘i and j in new block are ’’+i+’’ ‘‘+j);
13.    }
14.    int k;
15.    k = i+2;
16.    int j;
17.    j = k+100;
18.    System.out.println(‘‘i and j out of the new block are ’’+i+’’ ‘‘+j);
19.  }
20.}
```

   Consider some variants of the above program, for example - what will happen if we attempt to declare `i` inside block 2 (compilation error)? Stress that the scope of `i` is visible inside the block 2 as well, and the variable `j` declared at line 16 is different from the variable `j` declared at line 10 (the scope of the latter is finished as soon as we come out of block 2).

2. **if and if-else statements**
   I also discussed if and if-else statement in the class. Please involve the class to write a JAVA program to sort three number as follows :

   Declare three variables `a, b` and `c` of type `double` and assign them some values. Write a piece of code to print the numbers in increasing order of their values. Try to write two types of code - one using only if statements and another using if-else statements and parentheses.

NOTE : Please show the execution of each program step by step interacting with the students.