ESC101 : Fundamental of Computing

Lab 3 for 11th August 2008

1. **Sum of squares of odd numbers between 100 and 1000 :**
   Write a program using `while` or `for` loop to compute and print the sum of squares of all odd numbers between 100 and 1000.

2. **Sides of a Triangle :**
   Declare three variables `sideA, sideB` and `sideC` of type `double`. Initialize them with positive values. If `sideA, sideB` and `sideC` were lengths of sides, write JAVA code to determine if they form a triangle.

3. **Maximizing a function :**
   Write a program in Java to find the integer value of x between 0 and 50, for which the value of the expression $(x-18)(x+1)(x-20)/5$ is maximized.

Exploratory problem [this problem is optional and not to be graded]:
Write a JAVA program in which you first declare two integers `a` and `b`. Set them to various values as described below and compute `a/b` and `a%b`.

1. $a > 0$ and $b > 0$
2. $a > 0$ and $b < 0$
3. $a < 0$ and $b > 0$
4. $a < 0$ and $b < 0$

Can you conclude the following assertions ?

1. In case a is not a multiple of b, let x be the integer such that the exact quotient obtained by dividing a by b lies in interval $(x, x+1)$. Then for all the four cases mentioned above, the value of a/b computed by JAVA will be that integer from $\{x, x+1\}$ which is closer to zero.
2. $b(a/b) + a\%b = a$ for all the four cases of a and b.