ESC101 : Fundamental of Computing

Lab 4 for 26th August 2008

1. **Perfect Number :**
   The *proper divisors* of an integer n are defined as the positive divisors of n other than n itself.

   e.g. the proper divisors of 10 are 1, 2 and 5.

   A number is called a *Perfect Number* if the summation of all of its proper divisors is equal to the number itself. For example, 6 and 28 are perfect numbers because

   $1 + 2 + 3 = 6$ and,
   $1 + 2 + 4 + 7 + 14 = 28$.

   Write a JAVA program to find the perfect numbers between 1 and 1000.

2. **Summation of Fibonacci Series :**
   The nth term of the *Fibonacci series* is given by,

$$F_n = \begin{cases} 0 & \text{if } n = 0, \\ 1 & \text{if } n = 1, \\ F_{n-1} + F_{n-2} & \text{if } n > 1. \end{cases}$$

   Write a JAVA program to find the sum of the first 10 terms of the *Fibonacci series*. i.e. find $\sum_{i=0}^{9} F_i$

   Programming Hint: Declare and initialize an integer variable `sum` with 0. In a loop find the *Fibonacci* numbers one by one and add them to `sum`.