ESC101 : Fundamental of Computing

Lab 3 for 22nd August 2008 (make up lab for 15 august)

1. **Finding if three numbers form an arithmetic progression :**
   Declare three variables `x, y` and `z` of type `int`, and assign them some integer values. Write the JAVA code to determine if these three numbers form an arithmetic progression (A.P.).

2. **Sum of digits of a number :**
   Declare a variable `num` of type `int` and assign it some positive value. Write JAVA code to find the sum of all digits of `num`.

   e.g. if $num = 37865$, then $sum = 3 + 7 + 8 + 6 + 5 = 29$.

   Please note that `num` may have any arbitrary `int` value.

3. **searching for an element in a sequence :**
   Let f be a function defined as $f(x) = 3x - 16$. Consider a sequence $\mathcal{S}$ of numbers defined by the function f on natural numbers. That is,

   $$\mathcal{S} = \{f(0), f(1), f(2), ...\}$$

   Declare a variable `num` of type `int` and assign it some value. Write JAVA code to determine if `num` is an element of the sequence $\mathcal{S}$. If yes, the program should print the value of integer i such that $f(i) = num$, otherwise it should print that `num` is not present in the sequence $\mathcal{S}$.