ESC101 : Fundamental of Computing

Lab 6 for 8th September 2008

From this lab onwards, you will have to write JAVA programs which receive input from command line. This will be demonstrated during the lecture of 8th September. So do not miss this lecture.

1. **LCM of four numbers** (marks=10)
   Write a JAVA program which receives four integers and it prints the LCM (least common multiple) of these four integers. You have to design and use the following method in your program

   public static long **GCD**(`long i, long j`)

   which takes as input two integers and returns their GCD (greatest common divisor). Your program **must** work correctly for all inputs whose output is with in the range of `long`.

2. **Palindromes again** (marks=10)
   Recall that a number is said to be palindrome if it is identical to its reverse. We define the following operation which finally will yield a palindrome for any given number.

   Add the reverse of the number to the number and repeat the same until we get a palindrome number.

   (a) **Input :** 65
   Output :

   65+56=121
   121 is a palindrome.
   No of Steps = 1

   (b) **Input :** 87
   Output:

   87+78=165
   165+561=726
   726+627=1353
   1353+3531=4884
   4884 is a palindrome
   No of Steps = 4

   Write a Java program which will do the above task showing all the intermediate steps as output (as shown above). You must design and use the following methods in your program.

   (a) **Reverse** : which receives an integer as input, and outputs its reverse.

   (b) **IsPalindrome** which receives an integer as input, and outputs true if the number is palindrome and false otherwise.

   (c) **Add2Nums** which receives two integers as input, and return their sum.

   Use long integers in your program as for some value of input, the no of steps may be too large resulting in a large palindrome number that might not fit in `int`.