Programming – DT228/1

Lab 5 – Tuesday, October 22nd, 2013

Note: You are expected to finish all programmes in your own time if you do not get these done during the lab session. This is your own responsibility.

Iteration – Loops (while, do….while, for)

Write separate programs to:

1. Write a program using a *while* loop to print out the numbers 1 - 10 in <u>descending</u> order on the same line and each number is separated by a comma (e.g. 1,2,3,4,5,6,7,8,9,10)

2. Write a C program that will input a positive integer value, and compute the following sequence:

    If the number is even, halve it; if it is odd, multiply by 3 and add 1.

    Repeat this process until the value is 1, printing out each value. Finally print out how many of these operations you performed.

    Typical output might be:

```
Initial value is 9
Next value is   28
Next value is   14
Next value is    7
Next value is   22
Next value is   11
Next value is   34
Next value is   17
Next value is   52
Next value is   26
Next value is   13
Next value is   40
Next value is   20
Next value is   10
Next value is    5
Next value is   16
Next value is    8
Next value is    4
Next value is    2
Final value 1, number of steps 19
```

If the input value is less than 1, print a message containing the word "Error" and ask to re-enter another number.

3. Write a program that asks the user to enter a number between 1 - 5. Your program should display all the numbers between 1 - 20 that are **<u>evenly divisible</u>** by this number. You will need to use a loop. (*Tricky question* - think first and design your solution. Don't hack code !!).

4. Write a program that counts from one to ten, prints the values on a separate line for each, and prints a message stating "This number is three" and "This number is seven" when the count is 3 and when the count is 7 respectively.

5. Using a loop, print out all the **<u>even</u>** numbers from 1 - 100, separated by commas (*Hint*: use the modulus operator, i.e. %)

6. Chapter 6 - Q6

NB: Use comments, white-space and indent your code.