

Exercise D

Section D. Examples that require loop construct

– **use while or do..while loop construct for the following:**

1. Write a C# program that would keep prompting you to enter an integer number over and over again until you enter the number 88. If you enter 88 the computer should say:
 “Lucky you...”
and exit the program.

2. Use Euclid's Algorithm given below to determine the lowest common multiply (LCM) and highest common factor (HCF) for given two integer numbers.

- Take in as input two numbers A and B.
- Subtract the smaller of the two numbers from the Larger Number and assign the answer to the larger number.
- The above process is repeated until both the numbers are equal, say X.
- Apparently the residual number (X) that we have obtained is the HCF.
- LCM could then be computed using the formula $(A*B)/HCF$
- Print out your answers.

A	B	HCF	LCM
8	4	4	8
120	2000	40	6000

Illustration of this process:

- $A = 120$ and $B = 2000$
 - A is smaller and thus B is subtracted with A, $A=120$, $B=1880$
 - A is still smaller and thus B is subtracted with A, $A=120$, $B=1760$
 - The process continue until eventually $A=120$, $B=200$
 - A is still smaller, and thus B is subtracted with A, $A=120$, $B=80$
 - Now B is smaller so A is subtracted with B, $A = 40$, $B = 80$
 - A is smaller now, so B is subtracted with A, $A=40$, $B=40$
 - A is equal to B. so $HCF = 40$ (taken from either A or B)
 - $LCM = A*B/HCF = 120*2000/40 = 6000$
3. *Guess the Number Game:* Write a C# program that would let you guess the number that the computer has in its “mind”. Computer thinks of an integer between 0 and 9.
 - a. The program uses the random number function to first “think of” a number. It should then prompt you for a guess. If your guess is correct, then it would congratulate you and tell out how many attempts that you took to make the guess.

- b. Modify the program you wrote in 3(a) so that in addition to the basic guessing function, it would also say “You are a Wizard!” if you succeed in the first two attempts or say “You are a good guess” if you make it next three attempts else it would say “You are lousy!” Every time you make a wrong guess, the program would prompt “Try again” and accept another guess. The program repeats until you have made the correct guess.