# 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.