# Assignment 1: Programming Fundamentals

**Dated: 19-2-2020** **BS-SE'19, Morning**

Deadline: Monday, 23-2-2020, before 11:59 pm

## Submission guidelines:

You must submit a single MS Word file (.docx) with solution to all the parts. For programming challenge, implement the program in Visual studio and then copy paste your code in your MS Word file. There is no need to submit (.cpp) files.

## Algorithm tracing challenges:

Design algorithm and trace table for each of the following problems (Problem 1-3).

**Question 1:**

Design a guessing game in which you declare a variable **random** and initialize it with a value "10". User is then given seven tries to guess that random number. The program will tell the user each time whether he guessed high or low, or correctly. That is, if the guessed value is less than 10 then the program should print "You entered low value". Otherwise, print "You entered high value". If 10 is entered then "You guessed correctly!" should be printed.

**Question 2:**

Write a program that prints the numbers from 1 to 100. But for multiples of three print "Fizz" instead of the number and for the multiples of five print "Buzz". For numbers which are multiples of both three and five print "FizzBuzz". Print a new line after each string or number.

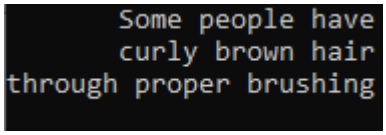
**Question 3:**

Write a program that finds the largest of three numbers WITHOUT using any variable (like we did in class with MAX variable). You can only use comparison operator > while implementing your logic. Relation operator such as AND or OR are NOT allowed to be used.

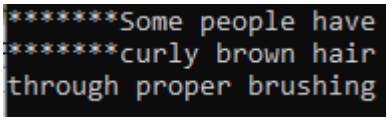
## Programming challenges:

**Question 1:**

(a). Write a program that prints the following text right justified using single cout statement for displaying each line. You must use setw function with appropriate parameter.



(b). Change the program implemented in part (a) such that following output is produced, with '*' used instead of spaces. You must use setFill function. Note: setfill needs to be written only once for a series of cout statements.




**Question 2:**

Write a program that declares four integer variables:

1. British pound
2. French franc
3. German deutschemark
4. Japanese yen

The program should then display the value of each variable on a single line and each value must separated by a single tab space. You must use \t to apply tab spaces.

**Question 3:**

Write a program that displays following output for a number **876.54321** using *setprecision* function for displaying each line. While using setprecision function make sure that you apply that on a literal value, not string. That is:

**cout << setprecision(6) << 876.54321 << endl;**

Setprecision will help in deciding the number of digits in a decimal number (876.54321).

For left padded values, you must use setw to set the width and display the pattern accordingly. Setfill will help to pad the left side with 0s. You must involve the same number (876.54321) in all cout statements.

Hint: You can use setw(7) to print each line with left padded 0s.