Question Set 3: Loops

Note:

- **Concentrate on Naming Conventions, Readability and Reusability of Functions.**
- **Don't get too comfortable using a particular looping structure.**
- **Try solving each of these problems using for, while and do while for better practice.**
- **Identify the most appropriate loop for each problem.**

1. Given N, print all numbers from 1 upto N.
2. Given M, N, print all numbers from M upto N, where (M<N)
3. Given N, print all even numbers from 1 upto N.
4. Given N, print all odd numbers from 1 upto N.
5. Given M, N print all even numbers from M upto N, where (M<N)
6. Given M, N print all odd numbers from M upto N, where (M<N)
7. Print all Numbers between 1 upto N that are divisible by a given number K.
8. Display the multiplication table upto 20 for a given number N.
   (1 * N= 1
   ….
   20* N =…..)
9. Given N, print the sum of all numbers between 1 and N.
10. Given N, print the sum of all even numbers between 1 and N.
11. Given N, print the sum of all odd numbers between 1 and N.
12. Given K and N, print the sum of all multiples of K between 1 and N.
13. Given N, Write a program that takes each number less than or equal to N and print Fizz if the number is a multiple of 3, Buzz if the number is a multiple of 5, FizzBuzz if the number is a multiple of 3 and 5, otherwise print the number.
14. Find the Factorial of a given positive number.
15. Given N, the number of subjects in the current semester and the marks for each of those subjects as input, find the Total and Average marks.
16. Given N, the number rounds in a match and the score for each of those rounds, print the running score (cumulative score) after each round.
17. **Display Multiplication tables for 1, 2, 3, 4 & 5 upto 20 rows in each. Format the output and layout the tables horizontally next to each other, for better readability.**
18. **Improve the menu driven calculator to get input for calculations continuously till the user types quit. After every calculation, ask the user to type yes to continue or quit to exit.**
19. **Improve the RPS game to get the number of rounds X to be played (odd number) from the user (X = 3,5 or 7). Play the game for X rounds or till one user wins more than (X/2) + 1 rounds. Maintain score for each user separately and based on the outcome of X rounds, determine the output of the game - Draw, User Wins or AI Wins.**
20. **Implement a number guessing game where you prompt the user to guess a number between 1 and X (20 for example) and inform them whether the entered number is larger or smaller than the magic (random) number and the number of attempts they took to guess the magic number correctly.**