**CS-111 Intro Structured Programming**

**Activity 5 – Iteration**

**1.** Write a program to calculate the sum of all odd numbers between 10 and 100 (use range function)

*Note: range() function in Python has the following syntax; range(start, stop, step).*

* *If you need the numbers from 0 to another number, you just specify the ending point(not included), so range(6) gives you 0,1,2,3,4,5.*
* *If you need a series of numbers within a range, you specify the starting and the ending point(not included), so range(2,6) gives you 2,3,4,5.*
* *If you need the numbers within a range to increment according to a pattern instead of one-by-one, you specify the increment, so range(2,16,3) gives you 2,5,8,11,14.*
* *You can use a for loop to go through each number and print them.*

*Ex: for i in range(2,16,3) :*

print(i)

* Create a variable to show the sum of the numbers.
* Construct a loop that iterates through all the numbers in the specified range.
* Check the condition for each number inside the loop.
* Add up the numbers.

**2.** Convert the following while loop into a for loop using the range function.

num = 6

while num <= 20 :

print(num \* 5)

num = num + 2

**3.** A microorganism divides itself into two every 4 hours. Write a loop code to calculate the final number of microorganisms in 24 hours.

**4.** While running on the treadmill at the gym, you burn 5.2 calories per minute. Construct a loop to print out the number of calories burned after each 6 minutes in an hour.

**5.** Write a Python program which iterates through the integers from 1 to 100.

* For multiples of three print "Fizz" instead of the number.
* For the multiples of five print "Buzz" instead of the number.
* For numbers which are multiples of both three and five print "FizzBuzz".
* Use continue statements to avoid printing both numbers and the words.

**6.** Write a loop that calculates the total of the following series of numbers (fractions with different numerators and denominators):

7. Create the code for a guessing game.

* Import the random module to use random.randint() method which gives us a random integer.
* Have the user input for low and high limits for the random number. The syntax to specify a range for the random.randint() method is random.randint(x, y)
* Let the user know that they have only 10 chances to guess correctly!
* Create a while loop to get the guesses from the user and keep track of the number of guesses.
* Put a conditional statement to check whether the guess is right. Print out a message if it is and in how many tries.
* Add more conditional statements to inform the user whether his/her guess is higher or lower than the random number it the guess is not right.
* If the user exceeds 10 chances, inform them about the situation, give the correct answer, and wish them good luck next time.