**Lab 5: If-else, if-elif-else, repetition**

**Objective:**

The objective is to practice the concepts of conditionals and repetitions in Python.

**Questions:**

**1.** Prompt the user to enter a mark between 0 and 100 and to print “This is a pass” if the mark is 40 or over, and “This is a fail” if the mark is below 40. Hint: use >=

**2.** Prompt the user to enter two integer numbers, and output if the first is larger, smaller or equal to the second one. Use if-elif-else

**3.** Write a small calculator simulator – ask the user to enter two numbers and an operation (+, -, \*, /), and either add, subtract, multiply or divide the numbers, and print the result.

**4.** Prompt the user for three numbers and print which is the largest of the three.

**5.** What output occurs for the following program on the given input?

user\_str = input(**"Enter a positive integer:"**) *# Line 1*

my\_int = int(user\_str)

count = 0

**while** my\_int > 0:

**if** my\_int % 2 == 1:

my\_int = my\_int//2

**else**:

my\_int = my\_int - 1

count = count + 1 *# Line 2*

print(count) *# Line 3*

print(my\_int) *# Line 4*

(a) Given user input of 11, what value is output by # Line 3 of the program? - 4

(b) Given user input of 12, what value is output by # Line 4 of the program - 0

(c) What type is referenced by (associated with) user val in # Line 1 of the program? - String

(d) What is the purpose of the = (equal sign) on #Line 2 of the program? – It reassigns the variable to itself + 1

(e) What is the purpose of the : (colon) at the end of the while

statement? – It separates the condition for the while loop from the contents of the while loop

**6.** Implement the solutions of Lab 4 adding the inputs for each possible parameters:

a) Ask the user to input the number of cigars and if it is the weekend or not.

b) Ask the user to input the temperature and if it is summer or not.

c) Ask the user to input the speed and if it is your birthday or not.

**7.** How many three-digit numbers are divisible by 17? Write a program to print them.

**8.** Sum of consecutive integers

(a) Write a program that prompts for an integer — let’s call it X — and then finds the sum of X consecutive integers starting at 1. That is, if X = 5, you will find the sum of 1 + 2 + 3 + 4 + 5 = 15.

(b) Modify your program by enclosing your loop in another loop so that you can find consecutive sums. For example, if 5 is entered, you will find five sums of consecutive numbers:

1 = 1

1 + 2 = 3

1 + 2 + 3 = 6

1 + 2 + 3 + 4 = 10

1 + 2 + 3 + 4 + 5 = 15

(c) Modify your program again to only print sums if the sum is divisible by the number of operands. For example, with the sum 1 + 2 + 3 + 4 + 5 = 15, there are five operands and the sum, 15, is divisible by 5, so that sum will be printed. (Do you notice a pattern?)