# CMPE 108 - Experiment 5 Repetitive Structures

### **OBJECTIVES:**

- Understand how to edit, compile and execute C computer codes.
- Understand C programming: repetitive structures

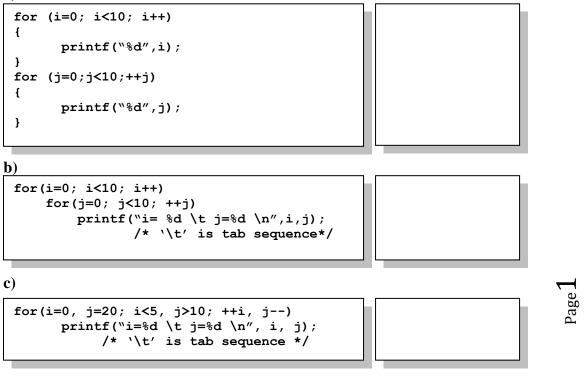
## **NOTES:**

- You should prepare the preliminary work before coming to the laboratory session and bring soft or hard copies of the preliminary work with you.
- Before writing a computer code, you should do the following steps: 1) understand and analyze the problem,
  - 2) develop an algorithm and/or flowchart,
  - 3) convert the algorithm and/or the flowchart into a C code.

# **PRELIMINARY WORK:**

**1.** Write a complete C program to evaluate each the following C program fragments and write the output into the given boxes on the right and explain the produced results of each C program.

a)



d)

```
i=0;
for (; i<10; i++)</pre>
       for(j=0; j<10; )</pre>
       {
           printf("i=%d \t j=%d \n", i, j);
           j++;
       }
for(; i>=0; )
{
       j=0;
       for(; j>=0; )
       {
          printf("i=%d \t j=%d \n", i, j);
          j--;
       }
       --i;
}
```

e)

```
for(i=1; i<=50; i++)
{
    printf("i=%d", i);
    if (i%5==0)
    {
        printf("\n");
        break;
    }
    printf("\t");
}</pre>
```

f)

```
for(i=1; i<=50; i++)
{    printf("i=%d", i);
    if (i%5==0)
    {       printf("\n");
            continue;
    }
    printf(" \t");
}</pre>
```

### TASKS in the LAB hours:

1.

a) Write a C program that sums the positive numbers up to 50 using a for-loop tructure, finds the average and prints the sum and average on the screen.

b) Modify your program in such a way that it will sum unknown number of positive integers, find the average and print the sum and average on the screen. *Hint: Use infinite for-loop.* 

**2.** Write a C program that prompts the user to enter a number. If the number is an even number other than a multiple of 8 (8, 16, 24, 32 ...), the program will calculate the square of the number and print it on the screen, and ask for another number. If the number is odd, other than a multiple of 7 (7, 14, 21 ...), the program will calculate the cube of the number, print it on the

screen, and then ask for another number. The program will continue until the user enters the number 0 (zero). You should use for-loop structure with "*continue*" and "*break*" statements.

Hints:

- The program should use the statement "continue", whenever the user input is a multiple of 7 or 8, in order to skip to the next iteration of the loop.
- The program should use the statement "break" when the user input is equal to 0 (zero).