**ITCS 1212L**

**Pre-Lab 6**

# Iteration structures (Loops)

**Learning Objectives:**

* **Learning about different types of iteration structures (Loops)**
* **Learn how to generate random numbers.**

1. **Answer the following questions by filling the blanks:**
2. A block of code that repeats forever is called infinite loop.
3. To keep track of the number of times a particular loop is repeated, one can use a(n) counter.
4. An event controlled loop that is always executed at least once is the post test.
5. An event controlled loop that is not guaranteed to execute at least once is the pre test
6. A loop within a loop is called a nested loop.
7. To write out the first 12 positive integers and their cubes, one should use a(n) for loop. (Could also use while or do while loops. We know how many iterations are desired in this scenario and any of them could realistically be used)
8. A(n) sentinel value is used to indicate the end of a list of values.

It can be used to control a while loop. (also commonly called: flag value, trip value, rogue value, signal value, or a dummy value)

1. In a nested loop the loop goes through all of its iterations for each iteration of the loop. (Choose inner or outer for each blank.)

Not sure what the question 1 h is asking. Need to remove or replace it.

Can be replaced by:

In a nested loop the loop goes through all of its iterations for each iteration of the loop. True or False? True. The inner loop must perform all of its iterations EVERY time that outer loop goes through a single iteration.

1. What is the purpose of using a loop? Populating matrices with values…. Also, to avoid redundant code.
2. Which of the followings is not a nested loop?

a. for(i=0;i<10;i++)  
        for(j=1;j<i+2;j++)

b. for(i=0;i<10;i++)  
       cout<<"i="<<i;   
    for(j=1;j<i+2;j++)

cout<<"j="<<j;

c. for(i=0;i<10;i++)  
        while(j%2!=0){

cout<<j<<"\t";

j++;

}

C is not a nested loop. It is a strangely conditioned loop, but it is not a nested loop.

1. Trace the following program and write the output if the input is 6.

#include <iostream>

using namespace std;

int main ()

{

int n;

cout << "Enter the starting number > ";

cin >> n; // n=6

while (n++<=10) {

cout << n << ", ";

n++;

}

cout << "FIRE!\n";

return 0;

}

**7, 9, 11, FIRE!**

1. What is the output of the following program?

#include <stdio.h>

#include <stdlib.h>

#include <time.h>

int main ()

{

srand (time(NULL));

printf ("Random number: %d\n", rand() % 100);

srand (1);

return 0;

}

Random number: [a random number between 0 and 99 is shown here]

//after that phase and random number, the \n gives a space for the end program chatter.