**CS121 SI Day One (CS 120 Review)**

Concept & Syntax Questions:

1. What are the three types of loops used in C++? How does each differ from one another? When is each preferred?

BONUS: Can each loop replace the others? Explain your answer.

1. What's the difference between an if/else if/else chain and a switch statement? When would either be preferred?

BONUS: Can an if/else if/else chain replace a switch statement? Can the reverse occur? Explain.

1. If you were asked to make a program that recorded a football team's information (e.g. individual player statistics, team roster, team name, and so on), what concepts would you require to include? HINT: One answer would be something like "if statements". Just try to think of as many as you can.
2. Write a code segment to generate a (psuedo-)random integer between 1 and 100, another between 4 and 20, and a last one between 1900 and 2014.

BONUS: What library is required to use the "rand()" function?

1. What are two reasons we should use both descriptive, yet simple/short identifiers?
2. What is the output of the following statements when ran? Assume all other code required exists

HINT: Think about operator precedence (i.e. rules for which operator acts before/after others).

bool a, b, c, d;

a = c = true;

b = d = false;

cout << (a == c) << endl;

cout << (!a == d) << endl;

cout << (0 == a) << endl;

cout << (!a && !b || !c && !d) << endl;

cout << ((true == b) || -1) << endl;

cout << (!a || b && a && b || !d) << endl;

BONUS: Assuming it's in there already, could you avoid including "using namespace std;" in the above code? Explain your answer.

Practice Project(s):

1. Write a code segment (in C++) that asks a user for a temperature and if it is in Fahrenheit or Celsius. If it is in Fahrenheit, print out its Celsius equivalent (and otherwise if it is in Celsius initially). Let the user know that you converted it to Celsius/Fahrenheit after conversion as well.

BONUS: Make functions for the integer grab and each conversion. You should have three to four functions in total (depends on if you include main).

1. Write a code segment that asks the user for an integer to compute the factorial of a number. If the integer is invalid (e.g. a negative value; disregard that it's possible), print an error message.