

CS121 SI Week 1 Worksheet – Pt. I

Concept & Syntax Questions:

1. What are the three types of loops used in C++? How does each work? What are some example scenarios of when each is preferred?

Loop Name	How it works	Example Scenarios

BONUS: Can each loop replace the others? Explain.

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

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

3. If you were asked to make a program that managed a football team's information (e.g. individual player statistics, team roster, team name, and so on), what programming concepts could be applied?

HINT: One answer would be something like "if statements".

4. 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?

5. What are two reasons we should use both descriptive, yet simple/short identifiers?
6. What is the output of the following statements when ran?

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 && c || !d) << endl;
```

BONUS: Could you avoid including "using namespace std;" in the above code? Explain.

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).

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).

2. Write a code segment that asks the user for an integer to compute the factorial of a number and print out its factorial. If the integer is negative, print an error message.