CS 271
October 3, 2017

Starting C++

```
#include <iostream>   // C++ libraries do not have .h on the end
#include <iomanip>

#include "myFunctions.h"  // for your header files, you'll still need the .h

using namespace std;

int main( ) {

   int x, y, z;
   double a, b;
   char ch;

   x = 3 * y + 25;
```

Printing

cout is called an output stream

<< is the stream insertion operator

```
   cout << "The value of ";
   cout << x << " is stored in x." << endl;
```

Getting Input

cin is called an input stream

>> is the stream extraction operator

```
   cout << "Enter the value of y";
   cin >> y;
   cin >> z >> a >> b;
```

Input with cin stops when it reaches a whitespace.

cin >>   is not good for inputting strings that have spaces in them.

Formatting Output

Formatting of output is done with stream manipulators

```
   endl   newline
   setw( int )    -  sets field width for printing
                  -  not sticky, must be placed before EVERY variable

   cout << setw(5) << x << " " << setw(5) << y;
   cout << endl;
```

Here's the same thing using printf:

```
   printf("%5d %5d\n", x, y);

   setprecision( int )  - used to set the number of digits to
                          the right of the decimal point

                        - setprecision is sticky, stays set until you change it
   setfill( char ) - sets the character to fill empty space in the field
```

The default fill character is a space ' '.

```
   cout << setfill('0') << setw(5) << 36 << endl;

   output will be   00036
```

Out of courtesy to the next function, return setfill to the default before the function ends.

```
   cout << 8 << endl;
```

Just prints 8 and newline.

```
   cout << setfill(' ');
```

for loops in C++ allow you to declare the loop control variable in the header of the loop.

```
   for (int i = 0; i < 10; i++) {


   } // end loop
```

After the loop is over, i is no longer in scope.

While, if-else, switch all the same as C.

Compiling C++ Source Code

g++ is the c++ compiler

```
   -o  flag placed before the executable name
   -c  compile only, and create object file
```

makefile: just change gcc to g++

C++ source files end with .cpp