C++ Crash Course

Module 1: The Basics

Human Computer Interaction
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The Basics

- Programming Requirements
  - Source Code
  - IDE
- Comments
- Includes
- Basic Framework
- Text Output
- Hello World!
- Text Input
- Hello <your name>!

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Source Code

- Instructions for the computer
- Syntax varies between languages
  - Java: *System.out.println("Output");*
  - C++: *cout << "Output" << endl;*
- Meaning remains the same
- Learn one language, learn them all…well almost

Integrated Development Environment (IDE)

- Interprets/compiles code and relays those instructions in a way the computer understands.
  - i.e. 1100100100100001001
- IDEs vary as well.
  - Visual Studio
  - GCC
  - Eclipse
- You figure them out eventually.

Comments

- Comments allow you to make notes in the code itself.
  - //Comment out the rest of this line
  - /*Comment
    out a block of text
    over many lines*/
- Several important uses
  - Make notes to yourself
  - Make notes to others
  - Test removing bits of code without deleting them

Includes

- Includes make additional features/toolkits available.
  - #include <iostream>
    - Lets you use the Input/Output features.
  - #include <math.h>
    - Adds functions for square root, powers, etc…
- If you don't include the right header, the compiler won't understand the functions you are trying to use.
- using namespace std;
  - Relates to the includes and how the compiler understands the code

Basic Framework

The main function: This is where the execution of the code begins. It won't always look like this. You'll learn more about it when we discuss functions.

```
int main()
{
//Insert code here
return 0;
}
```

Semicolon. Semicolon. Semicolon. You must place one at the end of every executable line of code.

This return command represents the end of the function. Do not write any code between it and the closing brace.

Double braces: They signify the beginning and the end of the code to execute.

Text Output

- *cout* is part of the <iostream> include
- Usage:
  - cout << "Text goes here";
  - cout << "Text goes here" << endl;
  - cout << "Text \n goes here" << endl;
- Manipulators: endl, hex, dec, …
- Methods: cout.precision(4)
- Escape Sequences: \n, \t, \\, \", \'

Hello World!!!

- See the hello.cpp file for the code.
- Search the web for more methods, manipulators, and escape sequences.
- Try them out.

Text Input

- *cin* can take user input from the keyboard.
- This input needs to be stored somehow.
- Enter the variable *char*
  - Short for character.
  - Characters can be strung together to form words and sentences using what is called an array.
  - We'll discuss variables and arrays in detail a little later.
- cin will halt the program while waiting for user input.
- Press the enter or return key to submit what you typed.

Hello <your name>!

- See cincout.cpp for the code.
- What happens if you enter a name with more than 15 characters?
- Using the existing code as an example, follow the tutorial and write your own input/output example.