

CS 161

Intro to CS I

Beginning to Program

Odds and Ends

- Class Website (not Canvas)
 - Labs, assignments, and recitations are posted
 - Lab/recitation times, office and grading hours, and TA/instructor information
 - Slides and course videos
- Labs (laptop)/Recitations (no laptop) meet this week!!!
- **Recitation Quiz #1** posted, **due Friday 11:59pm** (email to TA with “CS 161 Recitation Quiz” in subject)
- **Assignment #1** posted, **due Sunday 11:59pm** submit on TEACH

Reading/Assignments

- Read/Start Assignment 1 and Recitation Quiz
- Read assigned online resources!!!
- Recitations, Labs, and Office Hours are happening this week
 - Wed. 4-6 lab is in KEC 1005
 - All others DEAR 222
- Laptop required for Lab.
- Assignments must compile and run on ENGR!
- Demos start next week (no laptop required).
- Sign-up for demo on home page, after you submit your assignment.
- **Don't be scared!!!!**

More Binary

- What is each digit called? *bit*
- What is a Byte? *8 bits*
- How many numbers can be expressed in a Byte?
2⁸ 256
POS + neg positives
– Signed/Unsigned *0 - 255*
- What is the smallest number?
- What is the largest number? *0-127 128 pos.*
-1 - -128 128 neg

Programming

- Writing **code** that a computer can **execute**
 - Does that mean we have to write in binary?
- High-level language
 - Translated Continuously during runtime
 - Interpreted *slow*
 - Just in time compilation/caching
 - **Translated Prior/Ahead of time to runtime**
 - High-level -> machine language
 - High-level -> intermediate language *faster*

C++ Programming Environment

- Type a program in a .cpp file, vim hello.cpp *editor file or source code*
- Compile program file, g++ hello.cpp -o hello *compiler file exe*
- Run the compiled version, hello *executable*
- Example: **hello.cpp**

```
#include <iostream>
```

```
int main() {
```

```
    std::cout << "Hello CS 161 Class!!!";
```

```
    return 0;
```

```
}
```

Our first C++ program!

- Libraries

- Example: #include <iostream>

preprocessor directive

- Functions

- Perform particular action/computation

- Requires special function: **main**

- int main() {...}

where to start execution

- Statements

- Ended by semicolon

- Examples:

- `std::cout << "Hello World";`

- `return 0;`

error code 0 means we don't have an error

Comments

- Ignored by compiler
- Comment a block of code: /* */
- Comment one line of code: //
- Why use these?
- What are you required to have right now?

– Header at beginning of program

```
/******  
** Program: hello.cpp  
** Author: Jennifer Parham-Mocello  
** Description: This program prints hello world to the console  
** Input: none  
** Output: hello world text  
*****/
```


More C++

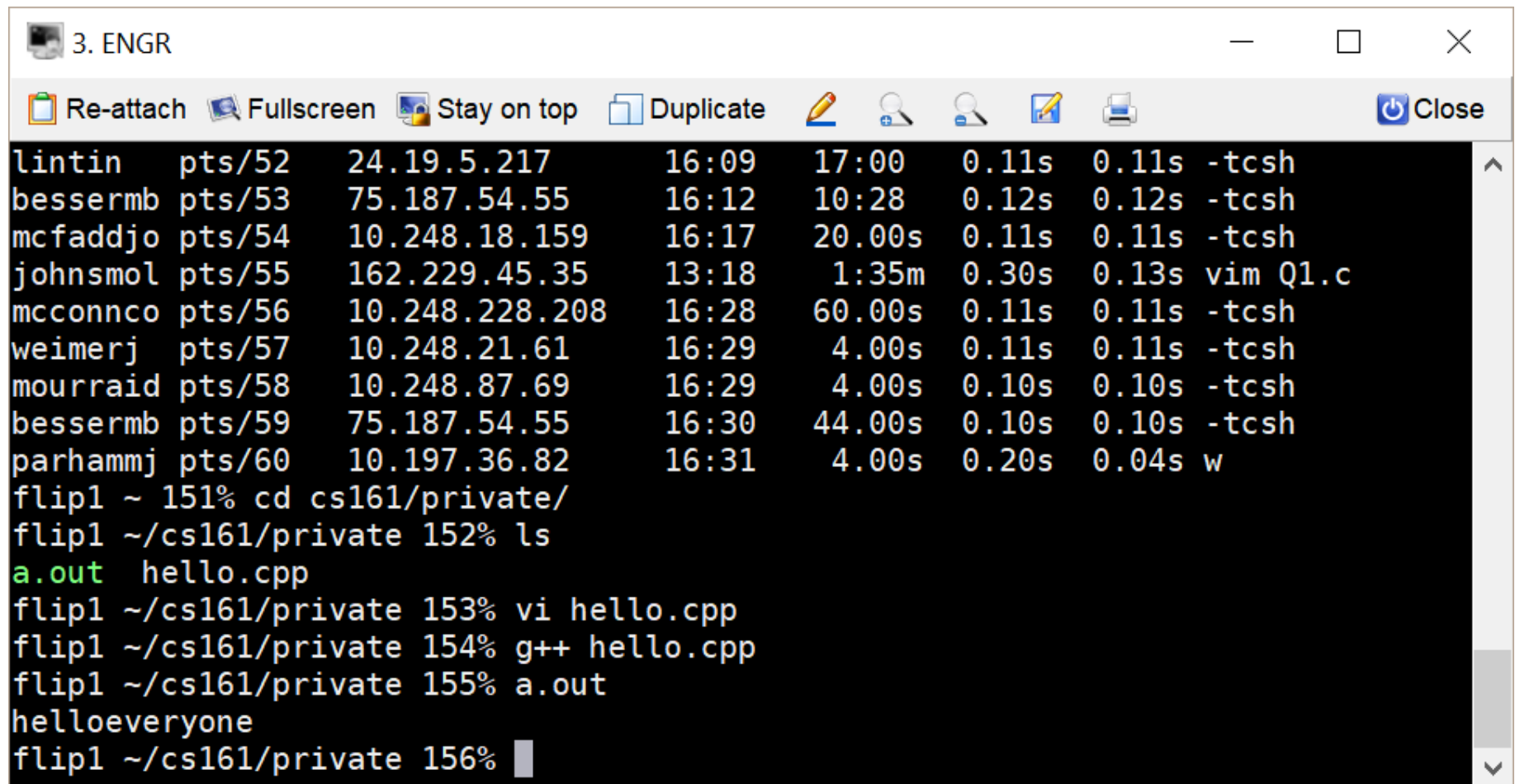
- Programming Style: please read your class style guide
 - Program Header/Description
 - Placement of {}
 - Indentation: spaces vs. tabs
- String Literals (Strings)
 - Quotation marks not single quotes!
 - INCORRECT: `std::cout << 'Hello World';`
 - Do not span more than one line!
 - INCORRECT: `std::cout << "Hello
World";`

Demo...

```
1 #include <iostream>
2 using namespace std; //need std:: in front of cout and endl without this
3
4 int main() {
5     cout << "hello"
6         "everyone" << endl;
7     return 0;
8 }
```

-- INSERT -- 6,26 All

Demo...



```
3. ENGR
Re-attach Fullscreen Stay on top Duplicate
lintin pts/52 24.19.5.217 16:09 17:00 0.11s 0.11s -tcsh
bessermb pts/53 75.187.54.55 16:12 10:28 0.12s 0.12s -tcsh
mcfaddjo pts/54 10.248.18.159 16:17 20:00s 0.11s 0.11s -tcsh
johnsmol pts/55 162.229.45.35 13:18 1:35m 0.30s 0.13s vim Q1.c
mconcnco pts/56 10.248.228.208 16:28 60.00s 0.11s 0.11s -tcsh
weimerj pts/57 10.248.21.61 16:29 4.00s 0.11s 0.11s -tcsh
mourraid pts/58 10.248.87.69 16:29 4.00s 0.10s 0.10s -tcsh
bessermb pts/59 75.187.54.55 16:30 44.00s 0.10s 0.10s -tcsh
parhammj pts/60 10.197.36.82 16:31 4.00s 0.20s 0.04s w
flip1 ~ 151% cd cs161/private/
flip1 ~/cs161/private 152% ls
a.out hello.cpp
flip1 ~/cs161/private 153% vi hello.cpp
flip1 ~/cs161/private 154% g++ hello.cpp
flip1 ~/cs161/private 155% a.out
helloeveryone
flip1 ~/cs161/private 156%
```