15-213 Recitation: Data Lab

The TAs
Jan 29, 2018
Agenda

- Course Details
- Data Lab
  - ANSI C
- Floating Point
Course Details

■ How do I get help?
  ■ Course website: [http://cs.cmu.edu/~213](http://cs.cmu.edu/~213)
  ■ Office hours: **5-9PM** from Sun-Thu in Wean 5207
    ▪ Plus Friday hours
  ■ Piazza
  ■ *Definitely* consult the course textbook
  ■ *Carefully read the assignment writeups!*
■ All labs are submitted on Autolab.
■ All labs should be worked on using the shark machines.
Data Lab: What is ANSI C?

This is not ANSI C.

```c
unsigned int foo(unsigned int x)
{
    x = x * 2;
    int y = 5;

    if (x > 5) {
        x = x * 3;
        int z = 4;
        x = x * z;
    }

    return x * y;
}
```

Within two braces, all declarations must go before any expressions.
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Form Groups of 3 - 4

- Series of exercises
  - Operators
  - Floating point
  - Puzzle
Floating Point: Rounding

1. **BBGRXXX**

- **Guard Bit**: the least significant bit of the resulting number
- **Round Bit**: the first bit removed from rounding
- **Sticky Bits**: all bits after the round bit, OR’d together

Examples of rounding cases, including rounding to nearest even number:

- **1.1011**: More than $\frac{1}{2}$, round up: 1.11
- **1.1010**: Equal to $\frac{1}{2}$, round down to even: 1.10
- **1.0101**: Less than $\frac{1}{2}$, round down: 1.01
- **1.0110**: Equal to $\frac{1}{2}$, round up to even: 1.10
- **1.0100**: Equal to 0, do nothing: 1.01
- **1.0000**: Equal to 0, do nothing: 1.00

All other cases involve either rounding up or down - *try them!*
Questions?

- Remember, data lab is due this Thursday!
  - You really should have started already!
- Read the lab writeup.
  - Read the lab writeup.
    - Read the lab writeup.
    - Please. :)