Announcements

- Weiss, Chapter 0
  - Read by today
  - Quiz 0 before start of class today
- Weiss, Chapter 1
  - Read for Monday
  - Quiz 1 before start of class Monday
- Recitations begin next week
- Expect PA1 to be handed out Wednesday
  - Due 1 week from Wednesday
- Piazza link added to top of web page

Review: Graded Class Components

- Quizzes (10%)
- Recitations (10%)
- Midterms (20%)
- Final Exam (20%)
- Programming Assignments (40%)

To get a grade of C or better, you must have a total weighted score of 70 or better AND scores of 65 or better in both the programming assignments and the tests (midterms & final)

Academic Integrity

- All graded work in this course is individual
- And because of the law of large numbers
  - Likely someone here now will try to cheat.
- We will actively look for all such students.
  - ... and impose punishments (see guidelines).
- Also, in cheating, giving is as bad as taking.
- Question: “Can’t I talk with my classmates?”
  - Yes you can and you should:
    • exam study groups, concepts, etc.
    • You can’t design/write code for/with them.

Exceptions

- Deadlines are deadlines, except in the case of unforeseeable emergencies
- For example
  - Death in the family
  - Illness requiring hospitalization
  - House fire
- In such cases, talk to the instructor

Question #1: Why are you here?

1. ________________________________
2. ________________________________
3. ________________________________
4. ________________________________
5. ________________________________
6. ________________________________
7. ________________________________
8. ________________________________
Why are you here?
1. Because it's required
2. True, but only pushes the question back one level. Why do the faculty require this course? It's required for the CS major, its required for every concentration in the ACT, it satisfies requirements for ECE.
3. Why? What do we expect you to learn in this course that is so important?
4. To learn C++.
5. To learn a 2nd language
6. To bridge the gap between CS200 & CS270.
7. To learn what is going on "under the hood".
8. To learn more about Java!
9. To learn how to select a language
10. To learn about memory management.
11. To learn to write efficient programs.
12. To learn (through experience) to write re-usable code
13. To learn tools for developing code in unix
14. To learn to write, maintain and test large programs

Weiss Chapter 0:
Ten Reasons to Use C++

1. C++ is still widely used
2. Templates
3. Operator overloading
4. Standard Template Library
5. Automatic reclamation of resources
6. Conditional compilation
7. Distinctions between accessors and mutators
8. Multiple inheritance
9. Space efficiency
10. Private inheritance

Reasons to Program in C++

1. To interface with legacy code
2. To directly interact with hardware
3. To optimize machine efficiency
4. Real-time performance

Better.... Bigger themes. But still not a basis for picking a programming language.

How to pick a language?

• Choose a language designed for a similar purpose
  – Languages are complex ecosystems
• C was designed to write operating systems
• C++ was designed to add OO to C
  – Inherits OS goals from C
• Java was designed to write web applications
Reasons to Program in Java

- To optimize programmer efficiency
  - Sometimes at the expense of machine efficiency
- For portability
  - Execute the same way on any machine
- For security
  - Java sandbox makes foreign code safer

Friction: C++ vs Java Goals

- Direct access to hardware vs Security
- Direct hardware access vs Portability
- Machine Efficiency vs Programmer Efficiency
- Legacy code vs Portability

Weiss’ High-level Differences Redux

- Security & robustness: absolutely
  - Security is a goal of Java, not C++
  - Robustness is part of programmer efficiency
  - Robustness is also part of security
- Compiled vs interpreted code
  - Reflection of importance of machine efficiency vs. portability
- Multi-threading / API
  - Java has large API for portability
  - C++ has smaller API for efficiency