Announcements

• Final: same style as midterms
  – Cumulative, but with emphasis on templates
  – Code will be released on Friday
    • Two files
      – Image.hpp
        » Templates for an Image class
        » Templates for an ImageIterator class
      – Pixel.hpp
        » Declarations for Pixel, Byte and RGB classes
        » All methods inline, so no Pixel.cpp file
      – Main.cpp is not provided
    • g++ -l -std=c++14 main.cpp -o main
      – Expect 33 questions (instead of 25)

Final Exam Process

• Thursday May 12th @ 4:10
• In this room (CSB 131)
• Bring your student ID
• No
  – Cellphones
  – Calculators
  – Hats with forward brims
• This exam is closed everything, including
  – Neighbors
  – Internet
  – Textbook
  – Notes

The Exam Itself

• You will receive two packets
  1. Code packet
     1. Same files as released today
     2. Plus a main.cpp file
     3. You may remove staples, mark, etc.
     4. We will not grade anything on this packet
  2. Question & Answer packet
     1. 33 questions about the code
     2. Do not remove staples
     3. Partial credit?
        1. Yes
        2. But providing additional, wrong information may cost you

Topics

• C++ Basics
  – Organization (.h, .cpp, .hpp)
  – The C++ compiler
  – Functions vs methods
• Parameter passing
  – By value
  – By reference
  – By const reference
  – By pointer
• Variable scoping
• Memory management
  – Basics of new & delete
  – Strategy #0: use the stack
  – Strategy #1: header classes
  – Strategy #2: unique pointers
  – Strategy #3: shared pointers

Topics (cont.)

• Memory primitives: arrays & C-strings
• The “Big 3” header class methods
  – Copy constructors
  – Destructors
  – Assignment operators
• Operator overloading
• Inheritance & Polymorphism
  – Inheritance as union
  – Virtual vs static dispatch
  – Static variables & methods
  – Multiple inheritance
  – The problem of slicing
  – Pure virtual methods / abstract classes

Lecture 15c
Review for Final

May 6th, 2016
Topics (III)

- Uses and benefits of const
- Type casting (all forms)
- Efficiency
- Friends
- Incomplete class declarations
- Templates
  - Functions
  - Classes
- The Standard Template Library (STL)
- Anything else related to C++

Questions?

It's been a good semester. I hope you had fun. I also hope you learned a lot...