Ari Mermelstein CISC 3110

Review Sheet for the Final Exam

I. Everything on the review sheet for exam 1
   A. Structs
   B. Pointers
   C. C-Strings

II. Everything on the review sheet for exam 2
   A. Command-line argument programs
   B. Exception handling.

III. Classes: (Some of this was already on exam 2).

1. Simple classes
   a. public vs. private

   b. The purposes of getters (accessors) and how to write them

   c. The purposes of setters (mutators) and how to write them

   d. The purposes of constructors and how to write them.

2. The default behavior of classes in C++

   a. The three functions that come for free if you don't write your own
      i. Default constructor and what it does

      ii. Copy constructor and what it does

      iii. Assignment operator and what it does

3. Operator overloading

   a. To be able to overload the following operators:
      + - * / == != > < <= >= <<

outside of the class using “friend”

b. To be able to overload the += -= ++ and -- (both versions) operators

4. Overriding the default behavior of the functions that come for free

A. When is it necessary to write our own assignment operator, copy constructor and destructor?

B. How to write our own when this a necessity.

5. Recursion

A. How to trace through the execution of a recursive function

B. The difference between an iterative and recursive solution to a problem

C. How to solve a simple problem using recursion.

6. Inheritance / Polymorphism (Extra credit)

Advice: Don’t focus on studying this for the final. However, during the winter break, I encourage you to practice using inheritance and to read the chapter in the book that talks about it. It is something that they will ask you on interviews for jobs in C++. Furthermore, in CISC 3120, you will probably spend some time studying the equivalent in Java, so understanding the basics of inheritance and polymorphism will suit you well.

A. The difference between an “is-a” vs. “has-a” relationship

B. A simple class that uses inheritance.

C. What is a base class and what is a derived class?

D. What does virtual do? What is a purely virtual function?

E. What is the difference between overloading and overriding.

F. What is dynamic member function lookup?

G. How we can use dynamic member function lookup and overriding to achieve polymorphic behavior?

Format of the final: (6 questions in <u>exactly</u> 2 hours, no more!)

1 Question of fill in the blanks and UNIX commands from the whole course.

2 Questions about the new material (e.g. one question about recursion and one about operator overloading)

1-2 Questions about the test 1 material

1-2 Questions about the test 2 material.

Reminder: TY3 final is on Thursday, December 14 from 3:30-5:30PM (NOT 3:40!) room TBA

ERQ6 final is on Thursday, December 14 from 6:00-8:00PM (NOT 6:30!) room TBA.