CSC 230 Notes

1/24/17

C++ Overview

* .cpp 🡪 .out 🡪 M 🡪 hardware
* Superset of C
* Statically typed (compile-time check, not run-time)
* System and Application programming
* Case sensitive

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How to Define/Use a Function

* int func() {
  + return 200;
* }
* int main() {
  + cout << func() << endl;
* }
* Keyword “extern” gets a function/variable from a different file
  + Must compile both files

Namespace

* Namespace defines a scope
* The names within the same scope cannot be the same
* The names of two different namespaces (scopes) can be the same

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Number Format

* 0b10 = 1 \* 2^1 + 0 \* 2^0
* 0x10F = 1 \* 16^2 + 0 \* 16^1 + 15 \* 16^0
* 0125 = 1 \* 8^2 + 2 \* 8^1 + 5 \* 8^0

Storage Classes

* Define the scope (visibility) and life-time of variables and functions
  + auto – only for local variables inside functions
  + register – should be stored in a register, not RAM (no guarantee)
  + static
    - local variable – stay in memory during program life-time
    - global variable – data scope is the file itself, not visible to other files
    - member of class – one copy for all objects of that class
  + extern
  + mutable

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Pointer and Reference

* The unary operator \* is the indirection or dereferencing operator; when applied to a pointer, it accesses the object the pointer points to
* The unary operator & gets the address of a variable
* Pointer can be reassigned, reference cannot
* Pointer can point NULL (nowhere), reference cannot
* Pointer has “arithmetic” operators, reference does not

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Vector

* Can hold an arbitrary number of elements
  + Up to whatever physical memory and the operating system can handle
* That number can vary over time
  + “push\_back()”