CSIS112 – 8.27.2020

Class Notes

Name

Class and section

Program/file name and name of .cpp

Explanation of what program does

Citations

Libraries (IOStream, string, IOManip, etc) – do not clutter

Using namespace std;

* Introduction to cerr (programable to print error message)
* std:: is used to scope to the std namespace.
  + Use this for header file
* Boost C++ libraries @ [www.boost.org](http://www.boost.org) (do not use on assignments)
* C++ smart pointers and RAW Pointers
  + Dangerous… point to memory, can cause memory leak.
    - Security vulnerabilities
* In CSIS215, you will use a lot of pointers.
* Use comments liberally!!! – throughout your programs
  + Remember there are buttons to do that instantly.
  + Every function must have a comment
  + Every variable declaration must have a comment
* If you do not need it… DON’T USE IT (code bloat)
  + - This should be the final thing you check
* NO GLOBAL VARIABLES… unless they are constant
  + - Causes security issues
    - Can cause erase condition (can be grabbed by any processor)
      * Creates outdated data and clobbers info
      * Delay between grab and write where another grab can occur
        + Synchronization techniques in OS can lock data
* Only one main()… must be kept lean!
  + - Have main() call functions that do all the processing.
      * You will need to pass variables to do this
* Error checking is a MUST!
  + Try and crash your own program and find loopholes… fix them!

Lab 1 – Loan Payment Calculator

* Error check amount user enters
  + - For letters vs. numbers
    - For decimal
    - For amount able to be borrowed based on credit score
    - Loan duration and interest rate
    - Check for negative values!
    - CHECK FOR FAIL STATE – deals with cin
      * Flush the cin array – input stream/buffer (Flush the Buffer)
        + Remember chocking PacMan
        + Cin.clear() and Cin.ignore()
    - What if the user can never figure out what a number is???
    - Keep prompting the user until s/he can get it right
    - Credit rating should be an enum switch statement
      * Rand for 220 as 2.2
      * The rand() function is not truly random
    - There is a function more random that rand()
    - To raise a number to an exponent in C++, use the pow function
* Zip Word doc with screenshot of program running and all 4 honor code statements
* Your coding style will be critiqued
  + Get the right answer
  + Be direct… do not circumvent unnecessarily
    - Do not go around the block… be efficient
  + READ THE INSTRUCTIONS
    - If you miss something, you will lose points
* SINGLE ENTRY… SINGLE EXIT when dealing with functions
  + - ONE return statement per function
* We will be learning about recursion next week

Always end program with this:

System(“pause”); - This is platform dependent (only for Windows)

Return 0;

* + - * This calling of the system is dangerous.
      * Alternative is cin.get() and wait for a key or cin.ignore()
      * The return calls errors.

Remember!!!

* Function prototypes above main()
* Function declarations below main()

\*\*\*\*\*Error Check Every Input\*\*\*\*\*

Use escape sequences...

Use fancy for loops… this is safer

&& for short circuit evaluation

ALWAYS initialize variables except string