About: This document keeps notes for CS 559 in the fall of 2013
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Today we will do…

- data structures - linked list, hash table, binary search tree
- use linked list for
    - stack, queue. Use those to solve problems - post-fix expression evaluation,
- sorting algorithms
- structures/classes to store data
- big integer program
-

You to do before the next class...

New

- strncpm559
- perfect powers
- wordfrequency the slow way.
-

Old

- stack with linked list.
- mergeWithLoop.cpp
  - note: which way is better - copying between A and B, or ...
- Practice program:
  - take command-line arguments, that are numbers alternating with arithmetic symbols (+, -, *, /, %) - and you just evaluate with left-to-right order of operations.
  - Example: ./myprogram 1 + 3 * 2 - 4 / 5 % 2
    - ((((1 + 3) * 2) - 4 / 5) %) 2
- getting size of file without reading every character.
- Quiz next time on writing a C/C++ program that takes command line arguments and processes them. The arguments could be strings or numbers.
  - MWF noon right after 420/520 in 017 lab?
- practice programs:
  - command line arguments are numbers, program should test each one to see if it is prime.
  - command line argument is a file. program prints how many characters, words, and lines in the file (like wc).
- Get putty installed, login to CS, do your 558 take home quiz
- Note - class files are in
  ~jkinne/public_html/cs559-f2013/code/
- do the take home quiz for 558 for one hour and save that for that class.
- then keep working on it for this class.
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Jeff to do…

- correct versions for strncmp559 and perfect powers.
- run grading script on word frequencies.
- middle of file example, persons/people example.

Useful Links…

- Putty, FileZilla, Emacs
- math and other lookups
- Javascript: Re-Introduction to Javascript, Eloquent Javascript, Error Console, JS Tutorial

Practice Exercises...

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History and Fun Stuff…

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Class Notes…

Big Integer Arithmetic
- Decimal is base 10, binary is base 2, hexadeimcal is base 16.
- We can do base 2^64, using a long as our "big digit".
- Then do things like we've learned in primary school, but doing it on longs instead of digits…

Compiling using gcc and g++
- edit with nano
- compile by typing
    gcc program.c -o outputFileName
    g++ program.cpp -o outputFileName
- run the program by typing
    ./outputFileName
- GNU debugger
    - compile with -g flag
        - g++ fact.cpp -o f -g
    - run gdb to start the debugger
        - gdb f
    - commands in gdb once it is open
        - run - runs the program
        - print n - prints the variable n if it is in scope where the program stopped.
        - before you run the program, can set break points
            - break 5 - sets a breakpoint on line 5.
        - commands to step through line by line
            - step
    - for more details - search online.

GNU debugger

Javascript

Language
- Syntax similar to C/C++/Java.
- Dynamic type - never declare what type a variable is.
- All variables have a .toString() method.

- interpreted - only looks at the code when it needs to. (not compiled; C/C++/Java are compiled).
- Math.floor(Math.random()*10);

Use in webpages

- Put functions, code in <script> tag in <head>.
- Get function to run using…
  - onLoad, onClick property of a tag. Also onMouseOver, etc. See http://www.w3schools.com/js/js_htmldom_events.asp
- Get access to html tags…
  - var canvas = document.getElementById('plot');
- Once you have access to an html tag, you can…
  - put html code inside of it
    canvas.innerHTML = "laksjdflkajsdf";
  - change its attributes
    canvas.setAttribute("name of attribute", "new value");

More Information

Re-Introduction to Javascript, Eloquent Javascript, Error Console, JS Tutorial