Final Lecture

Learning Objectives

1. Reflect on all the knowledge and experience gained

C++

Memory Management

- Valgrind
- Dynamic Memory
- Pointers

Abstraction

- Templates
- Inheritance

1. *Navigate, organize, compile C++ projects of moderate complexity in Linux.*
2. *Use basic editing and debugging tools such as GDB and Valgrind.*

Data Structures

Implement classic and adapted data structures and algorithms

Analyze the efficiency of implementation choices.

Data Structure Overview

Lists

- Linked (Singly, Doubly)
- Array Lists
- Stacks/Queues

Trees

- BST
- AVL
- BTrees
- KD
- Huffman

Data Structure Overview

Trees

- Heaps
- Disjoint Sets

Graphs

- Representations
- Algorithms
  - Minimum Spanning Tree
  - Shortest Path Algorithms

Data Structure Overview

Probabilistic Data Structures

- Hash Tables
- Bloom Filters

Assignments

Decompose a problem into its supporting data structures such as lists, stacks, queues, trees, etc.

Labs:

1. *Debug*
2. *Memory*
3. *Quacks*
4. *BST*
5. *AVL*
6. *BTrees*
7. *Heap*
8. *Huffman*
9. *Flow*
10. *Dict*
11. *Hash*

Diagnose appropriate approaches or algorithms to solve problems involving graph search, tree traversal, optimization, data organization, etc.

MPs:

1. Stickers
2. Lists
3. Mosaics
4. Mazes
5. Puzzles

Reflect

You've learned lots of material!

1. Hard Work
2. Late Nights
3. Bug Hunting

Be Proud!

Final Exam Details

Window: 8/7 at noon (12pm) CDT until 8/9 11:59pm CDT (not 7am)

Points: 190 pts

Time: 1 hour and 50 minutes

Material:

- Comprehensive
- Practice for Bloom Filters
- No FRQ Question
- 3 Coding Questions
    - Trees
    - Hash Tables
    - ??

ICES Forms

Emailed have been sent out

Anonymous feedback about the course

Extra credit will be given if ⅔ of the class fills out the survey

Due by reading day (August 7th at noon, CDT)

Letter to Future Students EC on Canvas