

Week 7 - Wednesday

COMP 2100

Last time

- What did we talk about last time?
- Breadth first (level order) traversals
- 2-3 trees
- Red-black trees

Questions?

Project 2

Infix to Postfix Converter

2-3 and Red-Black Trees

Red-black tree practice

- Add the following keys to a 2-3 tree:
 - 112
 - 44
 - 309
 - 464
 - 456
 - 81
 - 353
 - 364
 - 79
 - 220
- Convert to a red-black tree

Analysis of red-black trees

- The height of a red-black tree is no more than $2 \log n$
- Find is $\Theta(\text{height})$, so find is $\Theta(\log n)$
- Since we only have to go down that path and back up to insert, insert is $\Theta(\log n)$
- Delete in red-black trees is messy, but it's also $\Theta(\log n)$

Quiz

Upcoming

Next time...

- AVL trees
- Balancing trees by construction
- Hash tables

Reminders

- **Finish Project 2**
 - **Due Friday!**
- **Read Section 3.4**