CS 008
Lecture notes
4/25/24

Pre-lecture notes:

Exam scores are out, grades are released on canvas.
Most of the grading will be based off of assignments and lab-work.

1 Direct Access Arrays and Hash Tables pt. 2

Outline:

Another lecture on these topics:

- Motivation
- Word RAM model
- Direct access arrays
- Hash tables

2 Motivation

3 Word RAM model

4 Direct access arrays

A direct access array is an array where every index in the array is associated with a specific element. Each element has it's own place in the array. Direct access arrays are very fast but have a major flaw where it takes up too much space.

Operations:

As previously stated, direct access arrays are fast however they are very spacially inefficient.

- $build() = O(n)$
- $find(k) = O(1)$
- $add(k) = O(1)$
- $delete(k) = O(1)$

In summary, direct access arrays are great for speed however for larger ranges of values, the size of the array would be too big. With smaller ranges of numbers.

5 Hash tables