Recurring Section 9

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Announcements

- BYOW is coming up!
- Algorithms are also coming up!
  - Make sure you pay attention to heaps and paid (review) attention to disjoint sets – they'll become relevant for many of the graph algorithms in the days to come.
  - Heaps themselves are basically trees but with more requirements (basically all of the data structures are important).

Content Review

Hash Stuff

- We use an array with indices as “buckets”.
- We can hash things in constant time, and comparing these are pretty easy, so we can find the right bucket.
- Ideally, there’s only one thing in each bucket so it’s really easy; sometimes that’s not the case, but it’s fine since it’s constant amortized time.
  - This is why a good hash function is important!
  - Consider if you had a hash code that was always the same – you’d have one big bucket of everything, which makes this pretty useless.
- Why do we even use buckets (external chaining)?
- Collisions! They’re inevitable, but that’s ok!
- We also resize to create a lot of available hashcodes so that it’s efficient.

Hash Stuff

- Put procedure:
  - Compute hashcode
  - Access right bucket in the array
  - Iterate through the bucket present
    - If the “equals” method finds the key, override the vale.
    - Otherwise, insert the new key value pair at the end.
- This is specific to hashmaps, but the same general principles apply for hashtables (without the key value pair).