Monday, 23 January 2017

Crux

Data Structures

Hashtables

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Maps

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Map

```
class Map{
    // accessor methods
    int size();
    boolean isEmpty();
    Object get(Object key);
    // update methods
    void put(Object key, Object value);
    void remove(Object key) ;
    Object[] keys();
    Object[] values();
}
```

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Implement a Map using Linked List

1. Find
2. Add
3. Remove

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Any Other Options?

Hashtables

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Components of Hashtables

1. Bucket Array
2. Hash Function
   a. Hash Code
   b. Compression Function

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What if two keys map to same bucket?

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Collision Handling

1. Separate Chaining
2. Linear Probing
3. Double Hashing

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Running time for separate chaining?

1. Find
2. Add
3. Remove

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Load Factor and Rehashing

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1. Hashmap (new, not synchronized)
2. Hashtable (old, synchronized)
3. Lets look at an example for Hashmap

Java implementation of Map

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Lets discuss few problems

1. Find intersection of two sorted arrays. What about unsorted arrays?

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Your Turn

1. Remove Duplicates from an array
2. Find pairs of elements in an array which sum to zero

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Thank You!

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