

CS 314: Data Structures

April 12, 2021

Sam's Section

Slides available at: www.cs.utexas.edu/~slaberge

Sets Assignment

Retrospective

- A difficult assignment during a busy week
- Many edge cases/efficiency requirements which cost correctness points
- Be careful of unsafe casts
 - No safe way to cast `Object` \rightarrow `ISet<E>`, can only safely do `Object` \rightarrow `ISet<?>`
- Style was overall good, but don't forget the auto formatter

Exam 2

Logistics

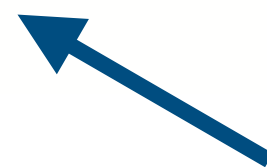
- Exam 2 is this Thursday, April 15
- Same format as last time (Canvas with Proctorio)
- Help Hours are an open, review-session time
 - Come with questions or just to listen to others' questions
 - Typically not busy during exam weeks
- A good way to study is answering your peers' Piazza questions!

Exam 2

Map Programming Problems

- Make sure you're comfortable with `get()` and `put()`
 - What does `get()` return if the key is not present?
 - Does `put()` return something? If so, what?
- Be careful when dealing with immutable values in maps:

```
Map<String, Integer> map = new HashMap<>();  
map.put("A", 1);  
map.get("A")++;
```



This does **not** update the value in the map

```
Map<String, Integer> map = new HashMap<>();  
map.put("A", 1);  
map.put("A", map.get("A") + 1);
```

Exam 2

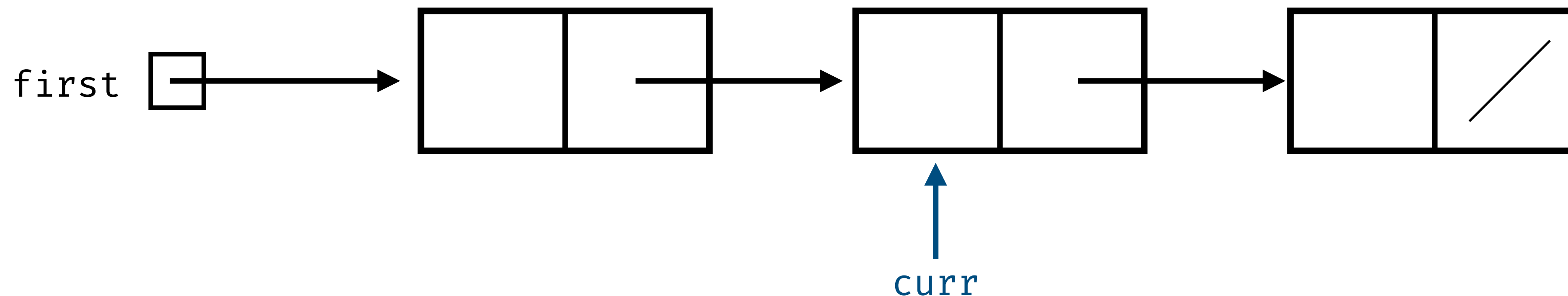
Map Programming Problems

- Make sure you're comfortable with data structures as values
 - Ex: `Map<Integer, ArrayList<String>>`
- Review EvilHangman or section problems if unsure!

Exam 2

LinkedList Programming Problems

- Draw Pictures!
- Be careful of edge cases with empty lists, null references, etc.
- Sometimes you need to update the size instance variable



Exam 2

Recursion Programming Problems

1. How can I break up the problem into steps?
 - Ex: Let's focus on assigning only **one** person at a time to various teams
 - Ex: Let's focus on **one** number and consider the letters for that number
2. What options do you have at each step? Do I need to undo any changes I made?
 - Ex: Which teams can I put this person on?
 - Ex: Which letters could represent this number in a mnemonic?
3. Identify a base case
 - Ex: I've run out of people! or I've run out of numbers!

Exam 2

Other Programming Problems

- Other Potential Programming Problem topics:
 - Stacks
 - Queues
 - A “new” data structure
 - (No Tree questions this time)

Section Problem

LinkedLists Review