Announcements (1/30/09)

- HW3 due now
- Project 2b went out Wed night, due Feb 11
- No homework assigned this week
- Midterm next Friday
  - Closed notes, book
  - It will cover everything through today, maybe part of Monday’s lecture.
  - It will not be a test of your Java knowledge.
  - It will not have hard proofs.
  - Study guide, sample midterms online
  - Review in section next Thu, special office hour TBA

AVL Deletions

Deletions can be handled in a similar way as insertions, though it’s a little more complicated.

If a deletion creates an imbalance, apply a suitable fix to the tree…

Case #1: deletion \(\rightarrow\) left-left

```
  h+2
  /   \\
 b   a   \\
 /  |  |
X h+1 Y h Z
  h  h+1
```

Delete child on the right

```
  h+2
  /   \\
 b   a   \\
 /  |  |
X h+1 Y h Z
  h  h+1
```

Case #1: deletion \(\rightarrow\) left-left

```
  h+2
  /   \\
 b   a   \\
 /  |  |
X h+1 Y h Z
  h  h+1
```

Single rotation

```
  h+1
  /   \\
 b   a   \\
 /  |  |
X h+1 Y h Z
  h  h+1
```
Case #2: deletion → left-right

Another deletion case?

Another deletion case?
Deletions

There are of course two more mirror image cases (right-left and right-right).

Is this all we need to do after a deletion?

What is the complexity of doing a deletion?