CMPT 280

Topic 12: Deletion from Ordered Binary Trees

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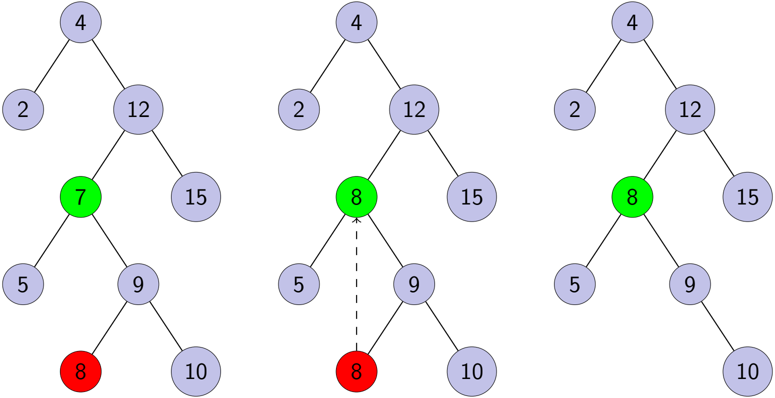
References

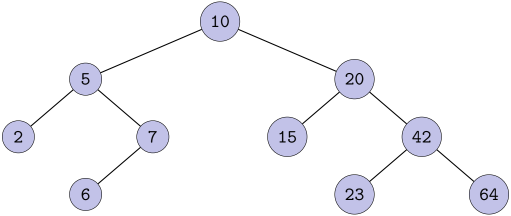
- Textbook, Chapter 12

Deleting an Item in an Ordered Tree

When Deleted Node has 2 Children



Exercise 1



- Starting with the pictured tree each time, what would be the result of deleting
  - element 6?
  - element 7?
  - element 42? 5? 10?

Cursor Position After Deletion

- We want to implement the deletion algorithm for `OrderedSimpleTree280<I>`.
- Desired workflow:
  - Use `search()` to position cursor at element to be deleted.
  - Call `deleteItem()` to remove the element at the cursor.
- Where should the cursor be positioned after deletion? Options:
  - On replacement node
  - On inorder successor or predecessor

Exercise 2

- Implement the `deleteItem()` method for the cases where the node being deleted has 0 or 1 child.

Exercise 3

- Add to the `deleteItem()` method the code for the case where the node to be deleted has two children.
- What is the time complexity of our method?

Exercise 4

- Write some tests to see if our `deleteItem()` method works.

Next Class

- Next class reading: Chapter 13: AVL Trees