CPSC 220 11/2

2/3 Operations

remove: if element is root and root has no children, remove element

if element is not a leaf, swap with the left most decendant of right sub tree, and remove element

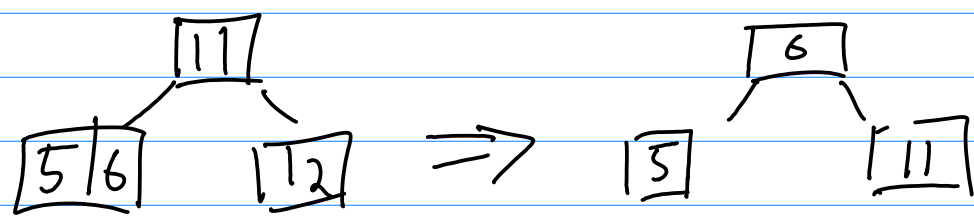
if node has 2 elements, remove element

if node has 1 element, begin recursive fix proceedure

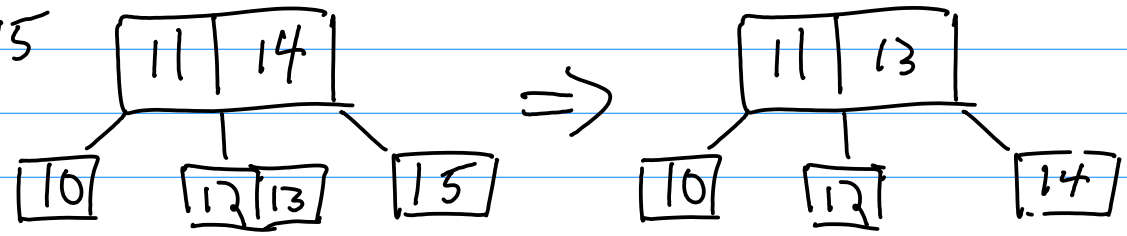
fix: if sibling has 2 elements

- add element in the parent thats separates the siblings to the empty node (ie the node that the removed element was in)
- add closest element in sibling to the parent
- add orphaned child of sibling as child of formerly empty node

remove 12

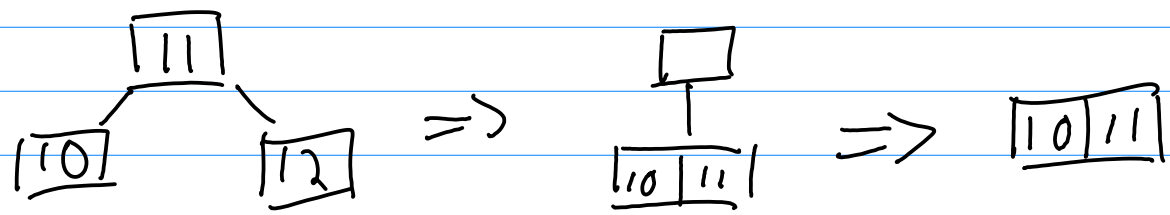


remove 15

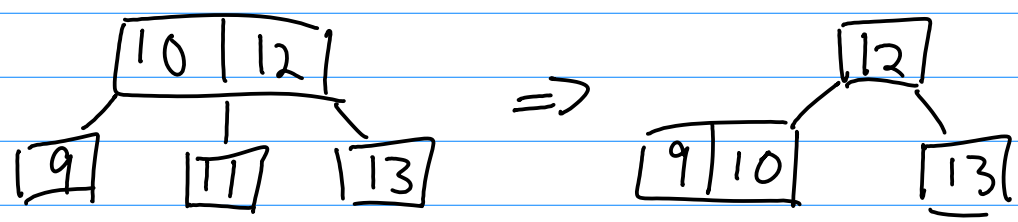


if no siblings have 2 elements
- replace empty node and sibling node with one node that contains sibling element and element in parent separating empty node and sibling
  - if parent has one element
    - done
  - if parent is root and is now empty
    - remove parent
  - if parent is empty (and not root)
    - recurse on parent

remove 12



remove 11



remove 3