

Important Terms:

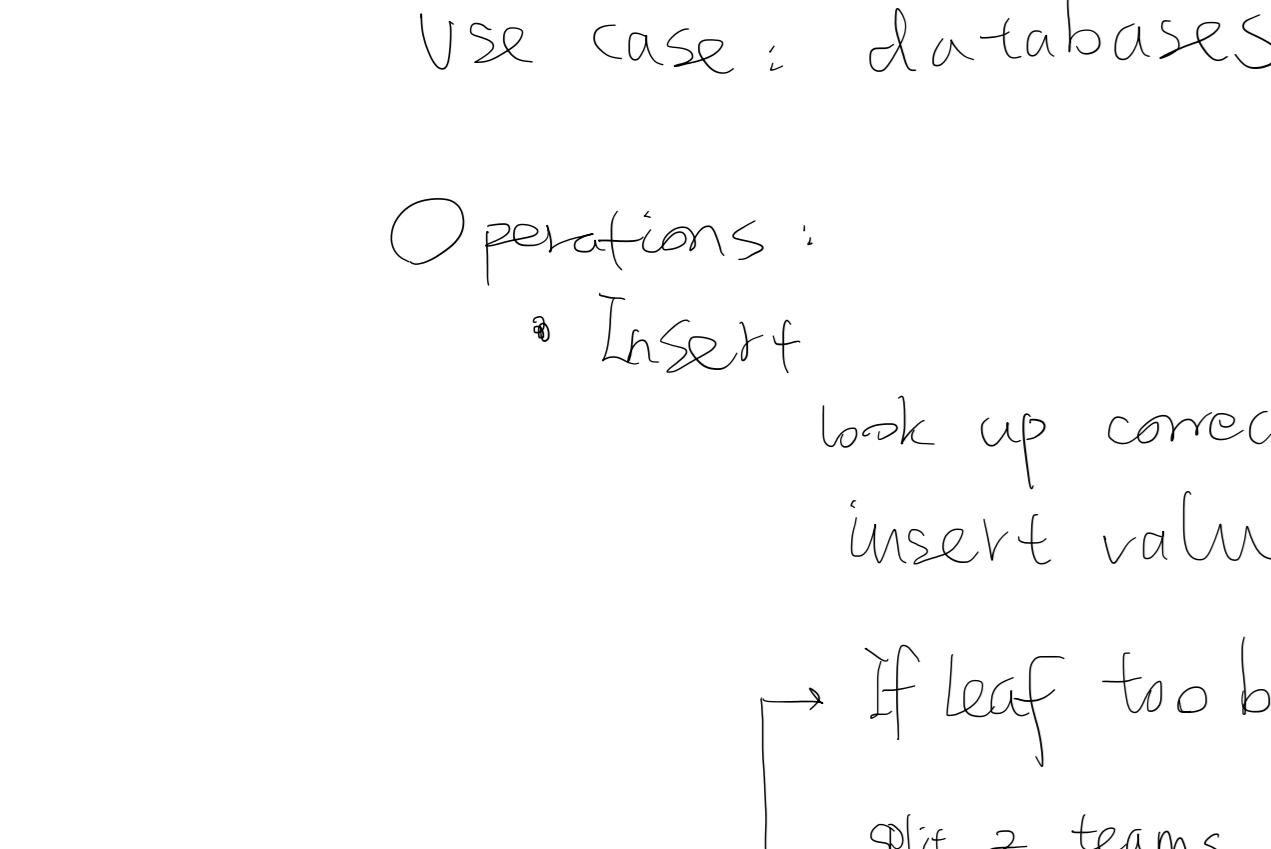
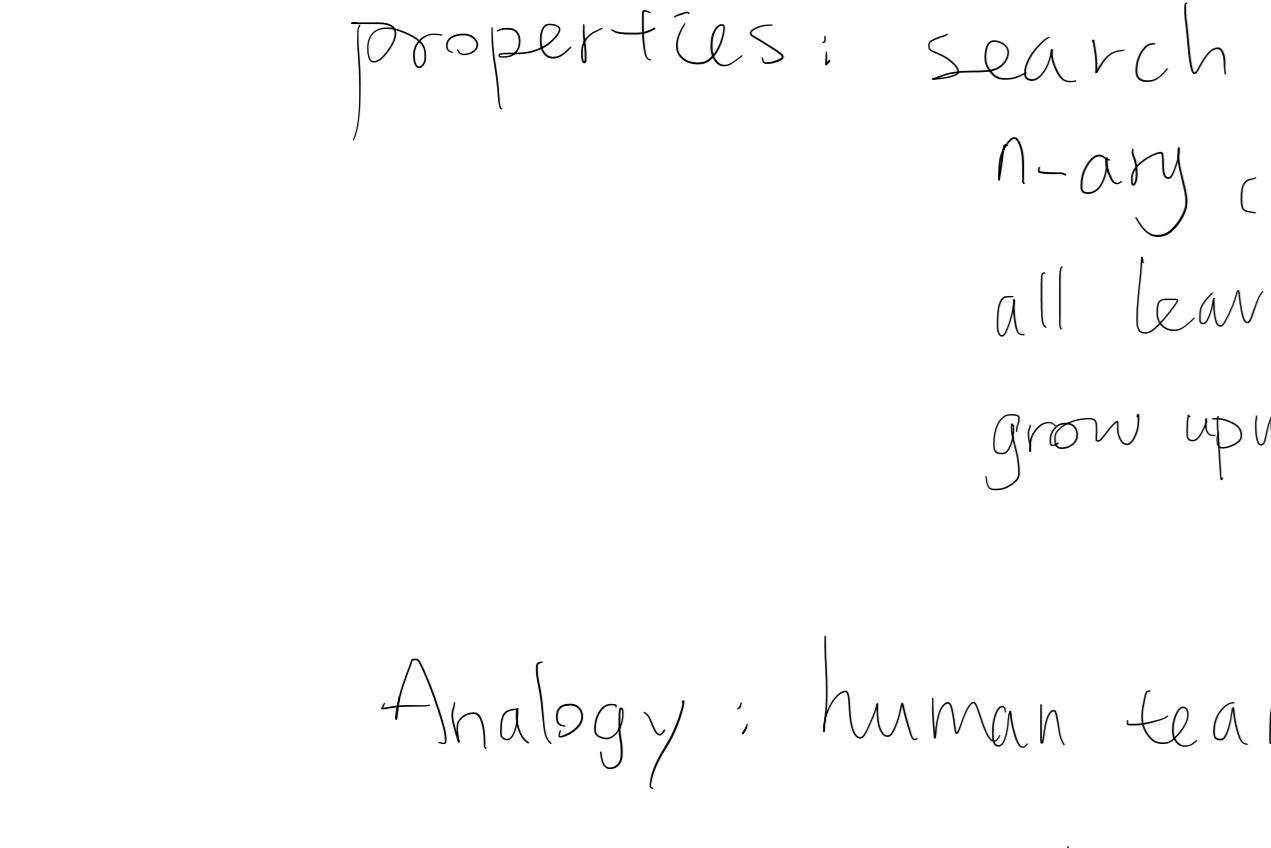
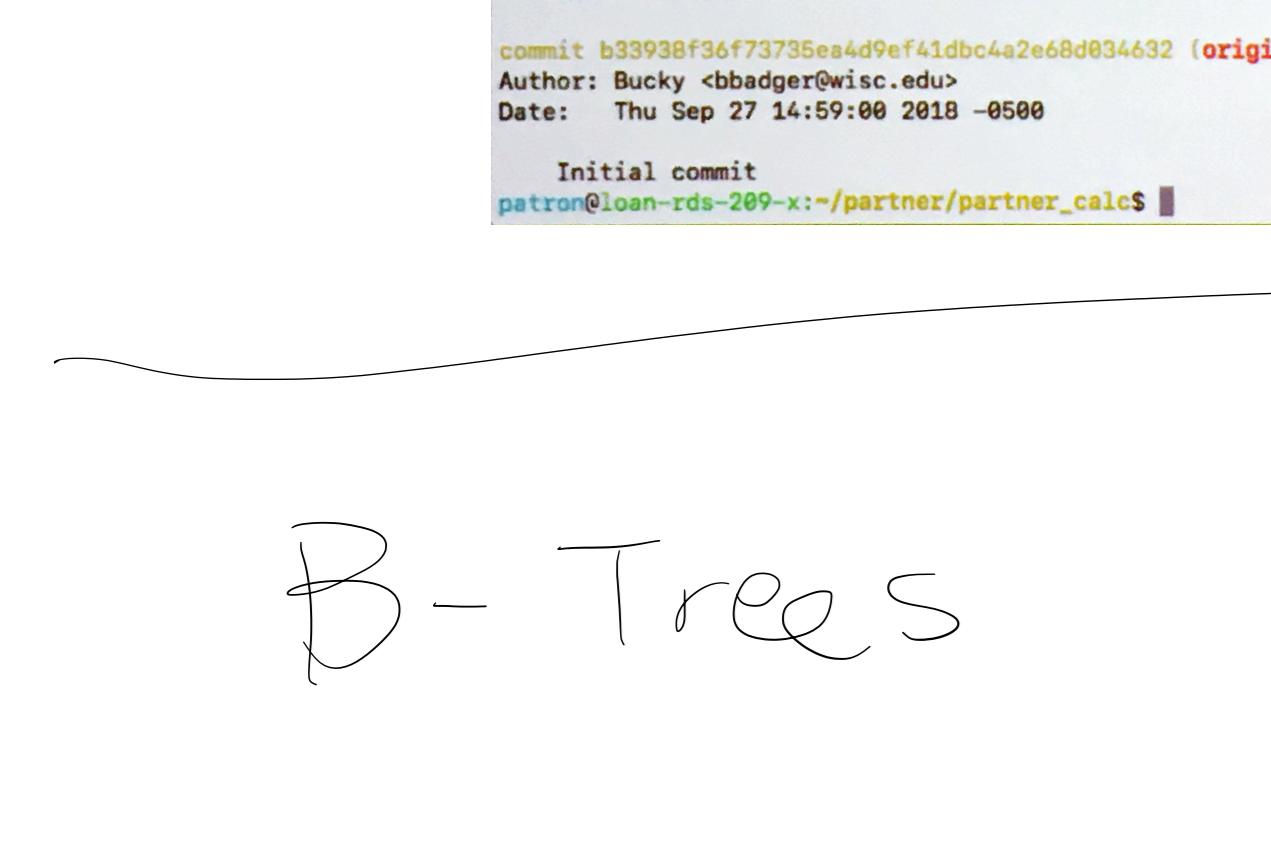
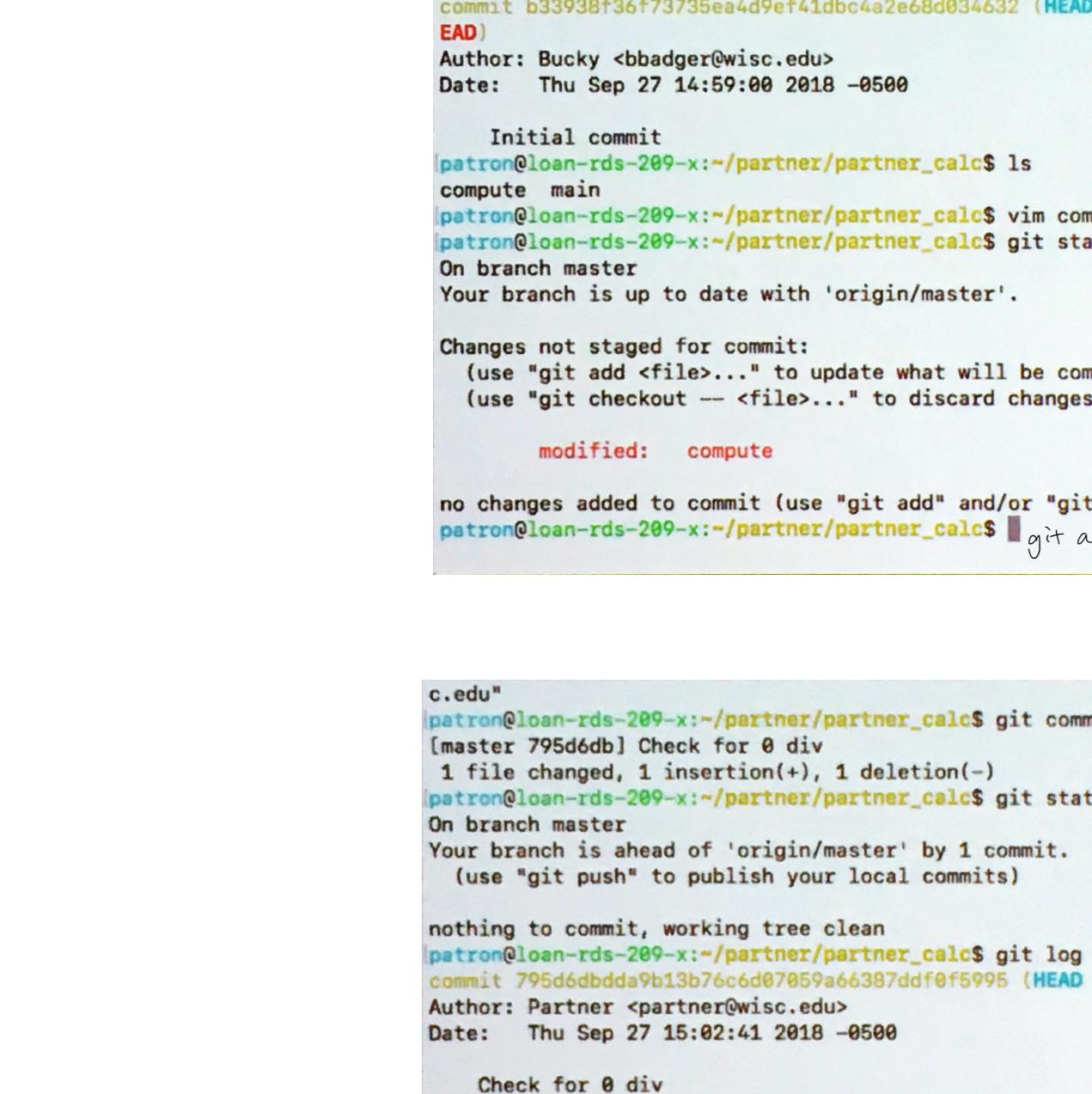
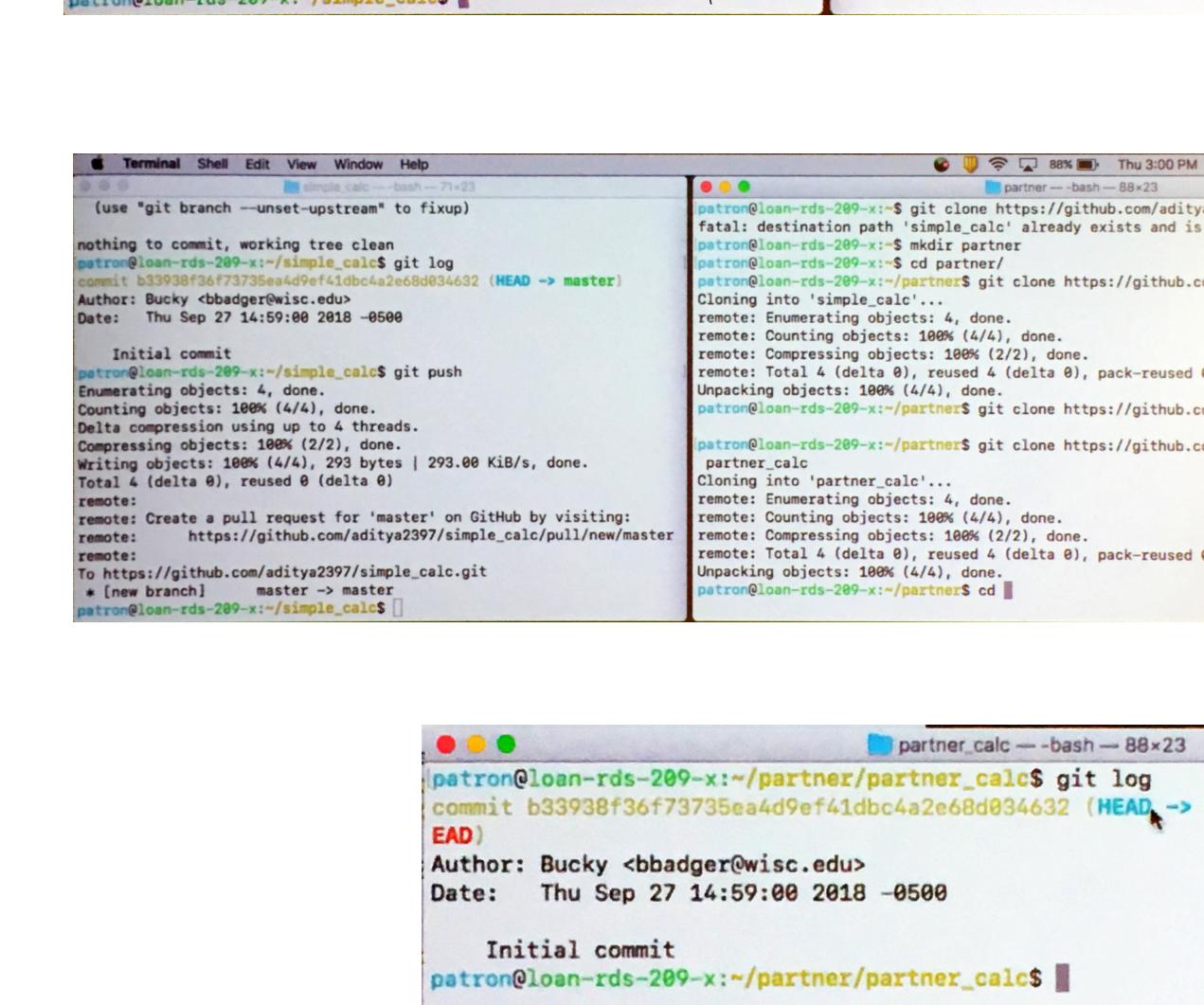
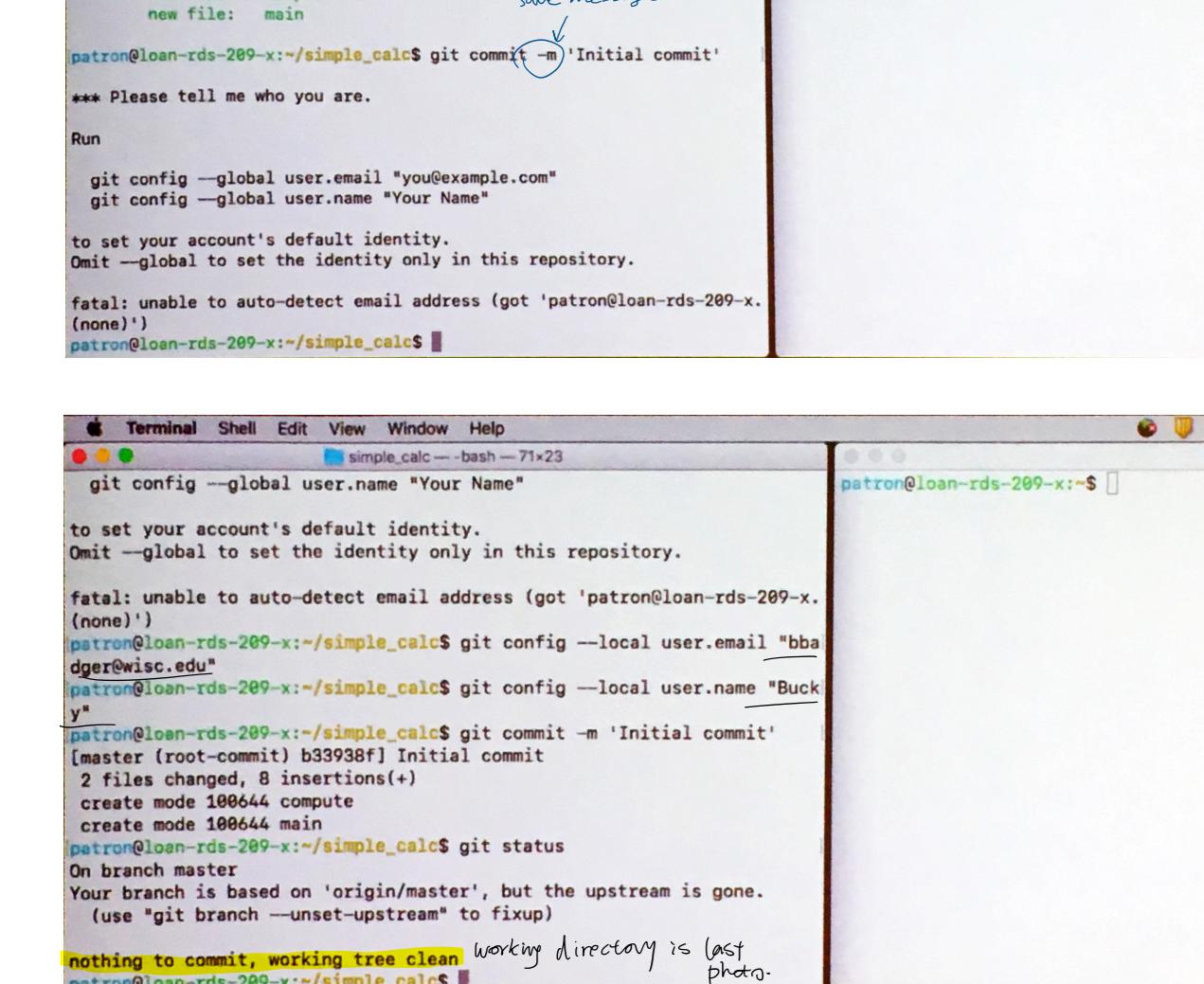
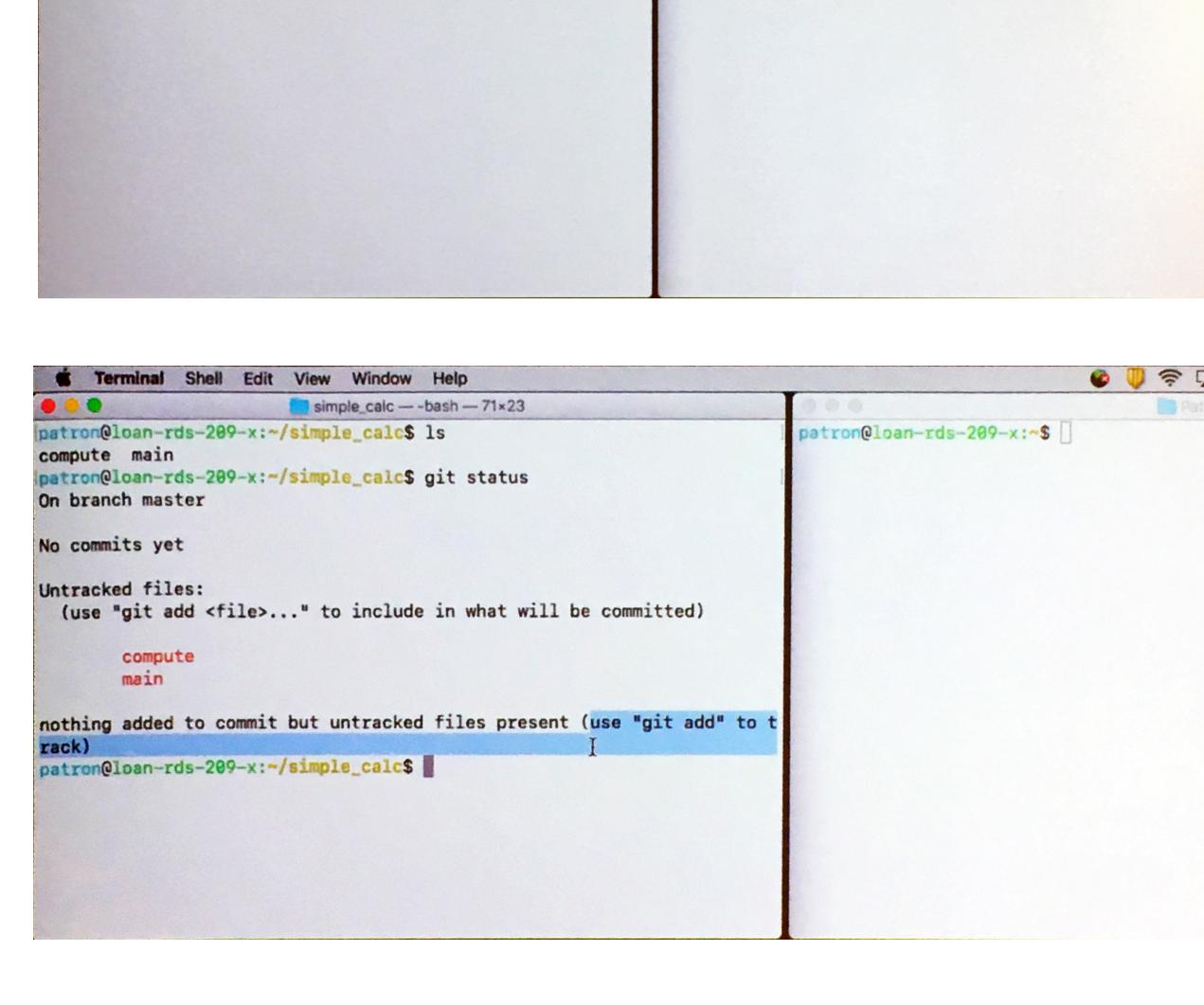
- MASTER: default downstream branch
- origin: default upstream branch
- HEAD: current node reference in history

example: We fix cool feature X with commit, push, checkout

origin (keep track) HEAD (HEAD)

local repo. Initial commit Add cool feature X Fix cool feature X

remote repo. master Master



B - Trees

properties: search tree (inorder traversal is sorted)

n-ary (one can split into n nodes)

all leaves are at the same level

grow upwards (when group grows too big, trade off between nodes and time on each node.)

Analogy: human teams

Use case: databases

Operations:

* Insert

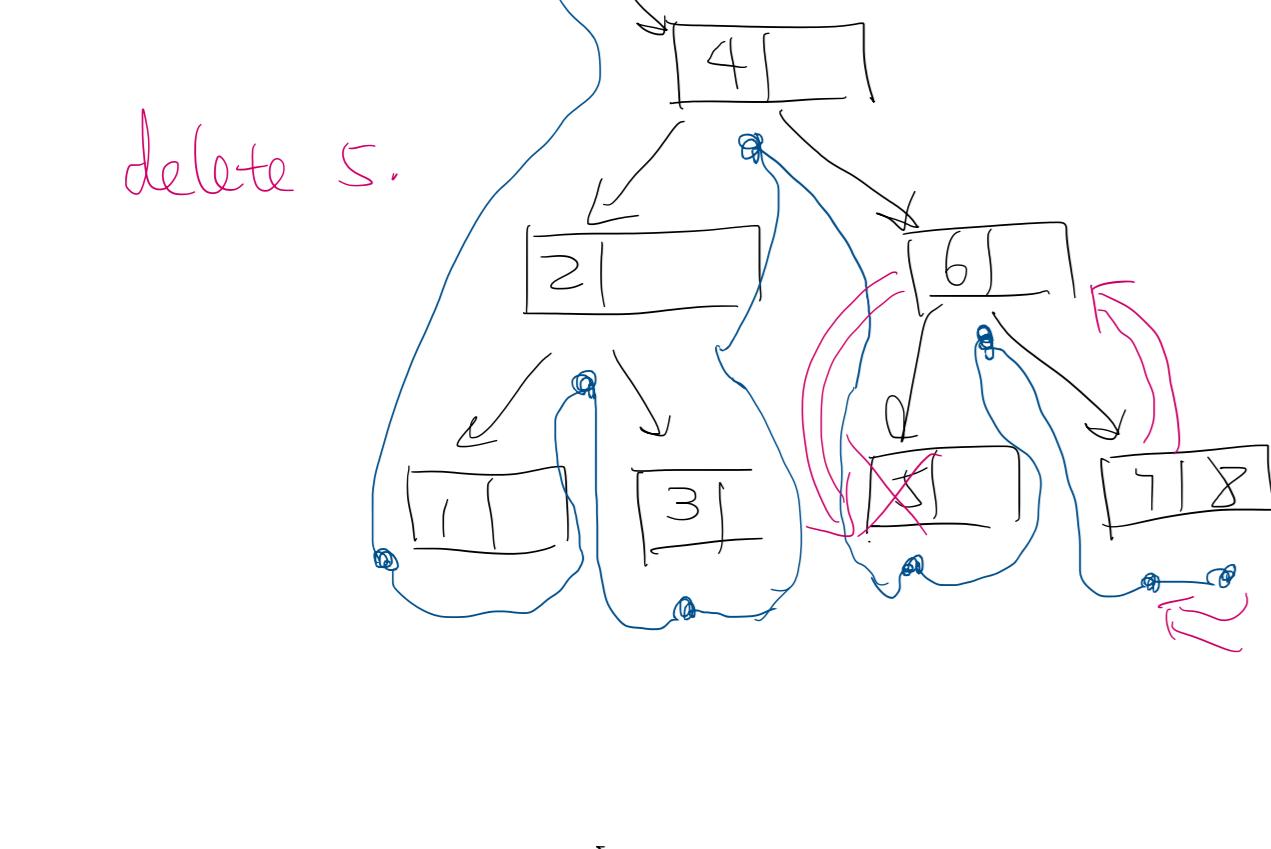
look up correct leaf based on value

insert value while maintaining order.

→ If leaf too big: $(2n+1)$

split n teams of n & promote the middle 1 to parent

repeat for parent



no duplicate.

* Delete

Find element to delete

if element in internal node: move inorder predecessor or successor to over write deleted element

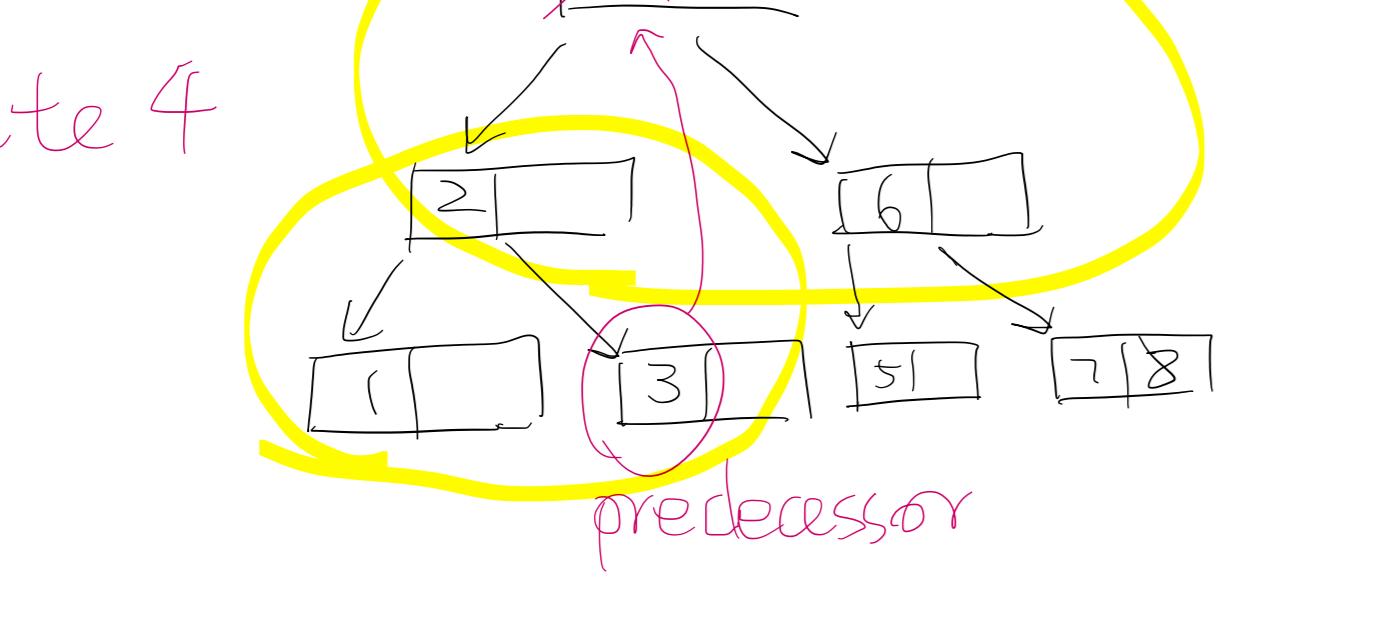
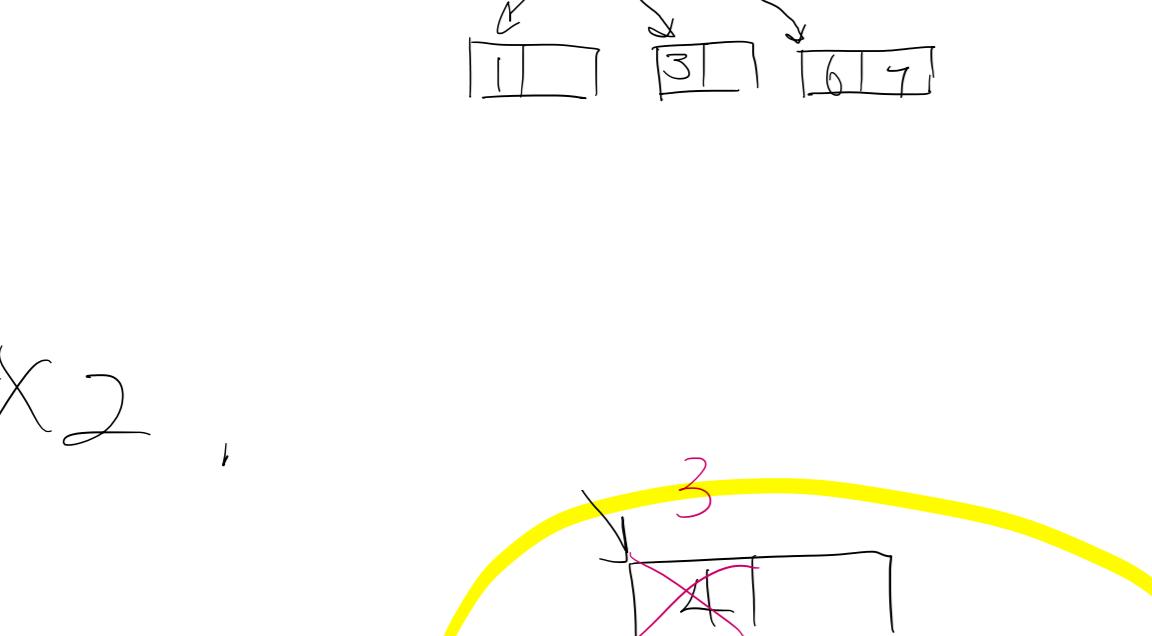
→ if leaf is too small:

try to borrow from sibling

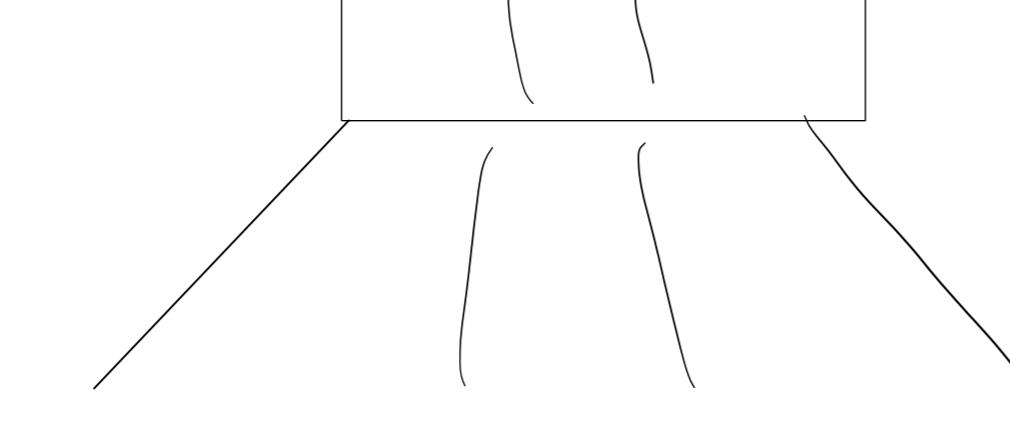
else merge with sibling parent element

repeat this for parent

Ex1,



merging
as the last step



Ex2,



merging
as the last step

