Design Notebook

Wednesday, April 29, 2020 12:20 PM

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Problem

Create a binary search tree of parrot objects. Using the tree, perform a level order traversal to print out each bird's song. Then print each parrot's name from the tree using an inorder traversal.

Understandings

What I know

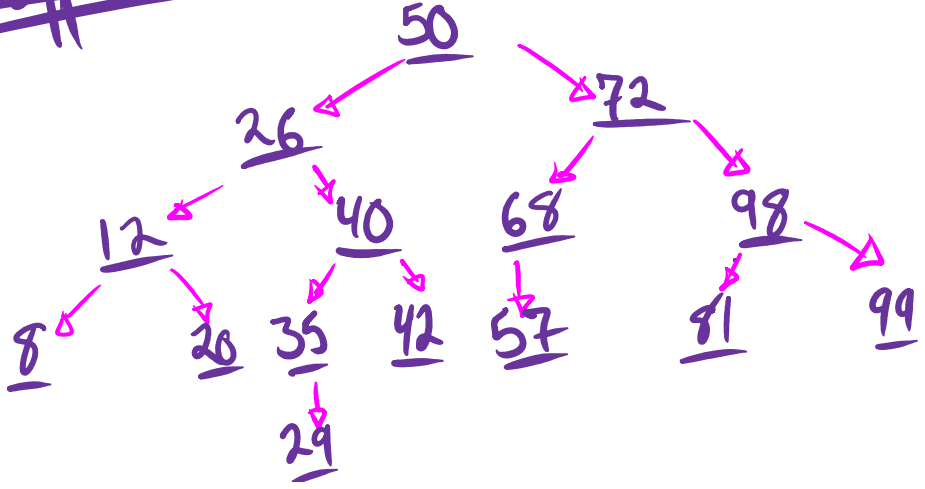
- Binary search trees are much like linked lists, but with one more node.
- understand recursion

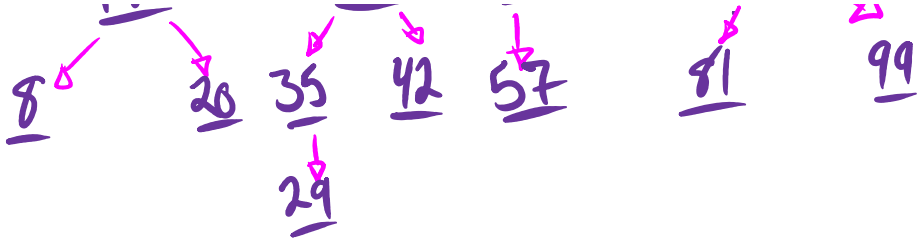
What I don't

- How to recursively call method
- level order + inorder traversal specifics

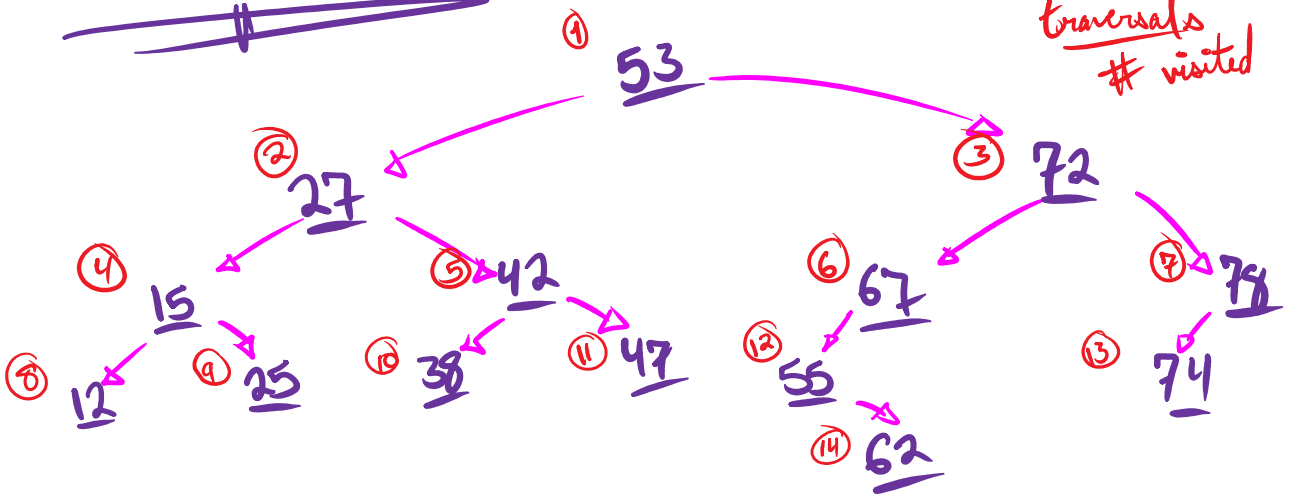
Sketch:

Binary Search Tree

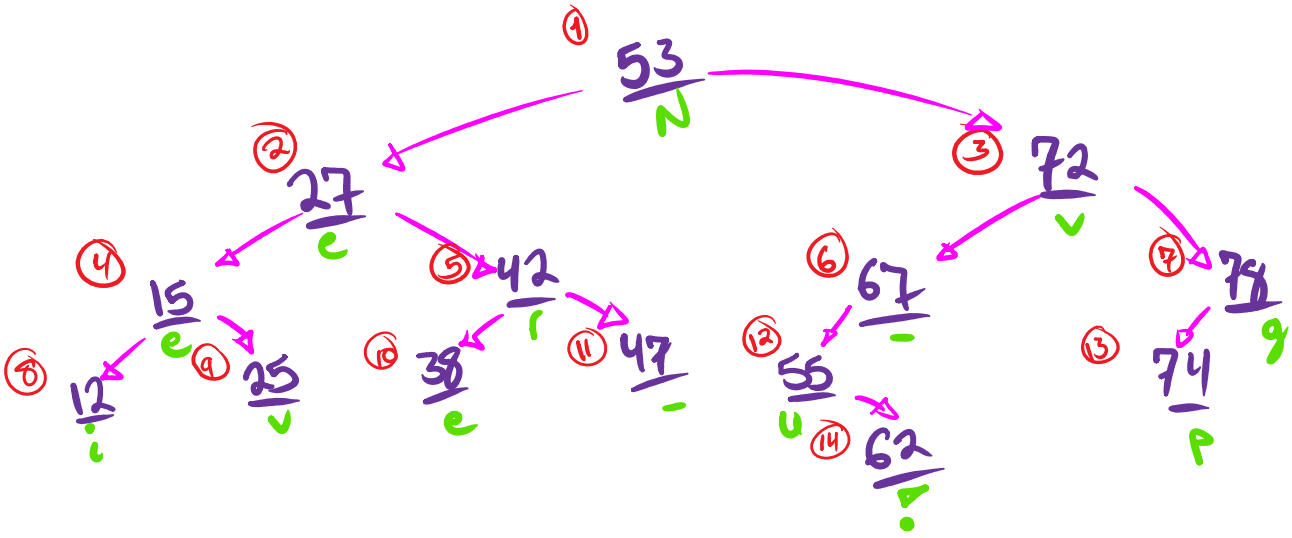




Level order Traversal



Translate Level Order Traversal



Never give up!

Pseudocode

```
main () throws FileNotFoundException {
  create file scanner for parrots text file

  Instantiate BinaryTree object "oak"

  while (scanner.hasNext()) {
     scan file lines for id, name, + songWord

     Parrot parrot = new Parrot(id, name, songWord);

     oak.insert(parrot); //put parrot into the tree
  }
  close scanner;
  //print header for Parrot song
  print BinaryTree in level-order to reveal "parrots song"
  //print header for Leaf Node parrots
   print BinaryTree inorder with each parrot's name
     displayed
}
```

What I learned

- Use of queues to do level order traversals
- Recursion to visit nodes inorder
- Idea of "inner private classes made more concrete