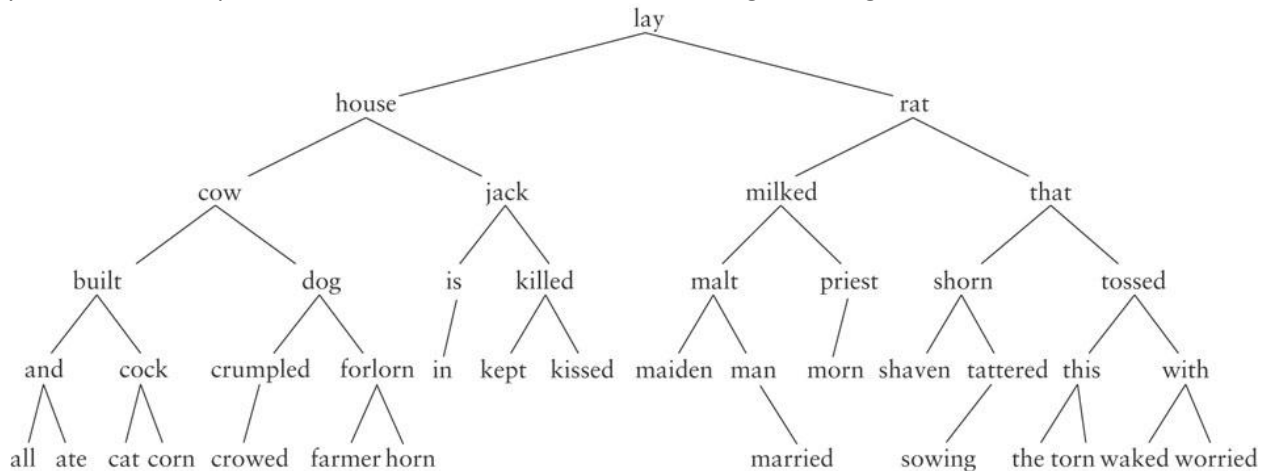


Tutorial 3 Binary search Trees

1. Show the **binary search tree** that would be formed by inserting "Show the **binary search tree** that would be formed by inserting in that order" in that order.

2. Explain how the binary search tree shown below would be changed if you inserted "father". What if you inserted "knapsack"? Does either of these insertions change the height of the tree?



3. Show or explain the effect of removing the nodes **dog**, **and**, and **rat** from the tree above using inorder predecessors as replacements when needed.

4. In Exercise 3, a replacement value must be chosen for the node that has two children. Show the result if alternate replacement is used when the 3 words are removed.

5. The algorithm for deleting a node does not explicitly test for the situation where the node being deleted has no children. Explain why this is not necessary.

```

// item is at local root.
deleteReturn = localRoot.data;
if (localRoot.left == null) {
    // If there is no left child, return right child
    return localRoot.right;
} else if (localRoot.right == null) {
    // If there is no right child, return left child.
    return localRoot.left;
} else {

```