BinarySearchTree.java **BinarySearchTreeDriver.java** **BinaryNode.java**

Create a BinaryNode class. Then create a BinarySearchTree class which has the following functionality: add a BinaryNode, an in order traversal, a pre order traversal, a post order traversal, a reverse order traversal, a level order traversal, the number of leaves in the tree, the number of levels in the tree, the width of the tree, the height of the tree, the diameter of the tree, the total number of nodes in the tree, the width of each level of the tree, a boolean method that indicates if the tree is full, a boolean method that returns whether a Comparable is contained in the tree, a getLargestMethod that returns the largest Comparable, a getSmallest method that returns the smallest Comparable, a method that prints the tree as a tree--but you need only print the first 6 levels of the tree, and a method that will remove a Comparable from the tree and return the Node that is removed.

Sample Input

```
4
us and them
after all we're only ordinary men
me you
god knows it's not what
2
them
every
4
us
them
yesterday
only
```

The value to read is the number of lines of Strings that will be inserted into the binary search tree. It will be followed by N lines of words that should be inserted into the binary search tree.

The second number is the number of words to be checked to see if they are contained in the tree. Each of those lines will contain exactly one word and that word should be checked to see if it exists in the tree.

The third number is the number of words to remove from the tree followed by a word on each line. These words may or may not be in the tree, if they are in the tree, remove them from the tree.

Sample Output :

```
Proper Tree Display
us
and|we're
after|them|--|you
--|all|only|--|--|--|what|--
--|--|--|--|men|ordinary|--|--|--|--|--|--|--|--|--|--
```

```
--|--|--|--|--|--|--|--|me|not|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--
Tree-->after all and god it's knows me men not only ordinary them us we're what you
PRE ORDER
us and after all them only men me god knows it's not ordinary we're you what
POST ORDER
all after it's knows god me not men ordinary only them and what you we're us
IN ORDER
after all and god it's knows me men not only ordinary them us we're what you
REVERSE ORDER
you what we're us them ordinary only not men me knows it's god and all after
LEVEL ORDER
[us, and, we're, after, them, you, all, only, what, men, ordinary, me, not, god, knows, it's]
Number of leaves: 5
Number of levels: 9
The Tree width: 3
The Tree height: 8
The Tree diameter: 12
Number of nodes: 16
width at level 0 1
width at level 1 2
width at level 2 3
width at level 3 3
width at level 4 2
width at level 5 2
width at level 6 1
width at level 7 1
width at level 8 1
Tree is not full.
Tree contains them
Tree does not contain every
Largest value: you
Smallest value: after
Proper Tree Display
we're
and|you
after|ordinary|what|--
--|all|men|--|--|--|--|--
--|--|--|--|me|not|--|--|--|--|--|--|--|--|--|--
--|--|--|--|--|--|--|--|god|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--
```

Please not that when printing the Proper Tree Display, that if the node does not exist at that point, it prints 2 dashes: --