Our Solution(s) | Workspace Layout | Run Code

Solution 1

```java
// Copyright © 2020 AlgoExpert, LLC. All rights reserved.

import java.util.*;

class Program {
  static class Node {
    String name;
    List<Node> children = new ArrayList<Node>();

    public Node(String name) {
      this.name = name;
    }

    // O(v + e) time | O(v) space
    public List<String> depthFirstSearch(List<String> array) {
      array.add(this.name);
      for (int i = 0; i < children.size(); i++) {
        children.get(i).depthFirstSearch(array);
      }
      return array;
    }

    public Node addChild(String name) {
      Node child = new Node(name);
      children.add(child);
      return this;
    }
  }
}

```

Your Solutions | Run Code

Solution 1 | Solution 2 | Solution 3

```java
import java.util.*;

class Program {
  // Do not edit the class below except
  // for the depthFirstSearch method.
  // Feel free to add new properties
  // and methods to the class.
  static class Node {
    String name;
    List<Node> children = new ArrayList<Node>();

    public Node(String name) {
      this.name = name;
    }

    public List<String> depthFirstSearch(List<String> array) {
      // Write your code here.
      return null;
    }

    public Node addChild(String name) {
      Node child = new Node(name);
      children.add(child);
      return this;
    }
  }
}

```

Our Tests

```java
import java.util.*;

class ProgramTest {
  Program.Node test1;
  Program.Node test2;
  Program.Node test3;
  Program.Node test4;
```

Custom Output | Submit Code

```
8   Program.Node test5;
9
10  public ProgramTest() {
11    test1 = new Program.Node("A");
12    test1.addChild("B").addChild("C");
13    test1.children.get(0).addChild("D");
14
15    test2 = new Program.Node("A");
16    test2.addChild("B").addChild("C").addChild("D").addChild("E");
17    test2.children.get(1).addChild("F");
18
19    test3 = new Program.Node("A");
20    test3.addChild("B");
21    test3.children.get(0).addChild("C");
22    test3.children.get(0).children.get(0).addChild("D").addChild("E");
```

Workspace Layout

Run or submit code when you're ready.