```java
// ----------------------------------------------------

// ==================
// EverythingIsAFile
// ==================

interface  EverythingIsAFile{

    // returns the number of files it contains.
    public int countFiles();
}

// ----------------------------------------------------


// ==================
// DataFile
// ==================

class DataFile implements EverythingIsAFile {

    public int countFiles(){
        return 1;
    }
}


// ----------------------------------------------------

// ==================
// Directory
// ==================


import java.util.*;


class Directory implements EverythingIsAFile {

    // Les fils
    private List<DataFile>  lsf = new ArrayList<DataFile>();
    private List<Directory>  lsd = new ArrayList<Directory>();

    public int countFiles() {
        int count = 1 ; // Me the directory, I count for 1.
        for (DataFile f : lsf) {
            count += 1;
        }
        for (Directory d : lsd) {
            count += d.countFiles();
        }
        return count;
    }


    /* attempts to add the item to the directory
     * @parameter item to be added
     * @throws ClassCastException if the item is not a DataFile or a Directory
     */
    public void mv(EverythingIsAFile item) {
        if(item instanceof DataFile)
            {
                lsf.add((DataFile)item);
            }
        else if(item instanceof Directory)
            {
```

```
                lsd.add((Directory)item);
            }
        else throw new ClassCastException("The item should be a DataFile or a Directory");
    }

    /* attempts to remove the item from the directory
     * @parameter item to be removed
     * @returns true if first occurence of item succesfully removed (see
ArrayList.remove).
     * @throws ClassCastException if the item is not a DataFile or a Directory
     */
    public boolean rm(EverythingIsAFile item) {
        if(item instanceof DataFile)
            {
                return lsf.remove((DataFile)item);
            }
        else if(item instanceof Directory)
            {
                return lsd.remove((Directory)item);
            }
        else throw new ClassCastException("The item should be a DataFile or a Directory");
    }

}

// ----------------------------------------------------

// ==================
// Example
// ==================

public class Example {

    public static void main(String[] args) {
        //Initialize a bunch of files
        DataFile foo1 = new DataFile();
        DataFile foo2 = new DataFile();
        DataFile foo3 = new DataFile();

        //Initialize a bunch of Directory
        Directory bar1 = new Directory();
        Directory bar2 = new Directory();
        Directory bar3 = new Directory();

        bar1.mv(bar2);
        bar1.mv(bar3);
        bar1.mv(foo1);

        bar2.mv(foo2);

        // bar1
        //   bar2
        //     foo2
        //   bar3
        //   foo1

        //How many files in bar1?
        System.out.println(bar1.countFiles());
        // 5

        // hardlinks...
        bar3.mv(foo2);
        System.out.println(bar1.countFiles());
    }
}
```