

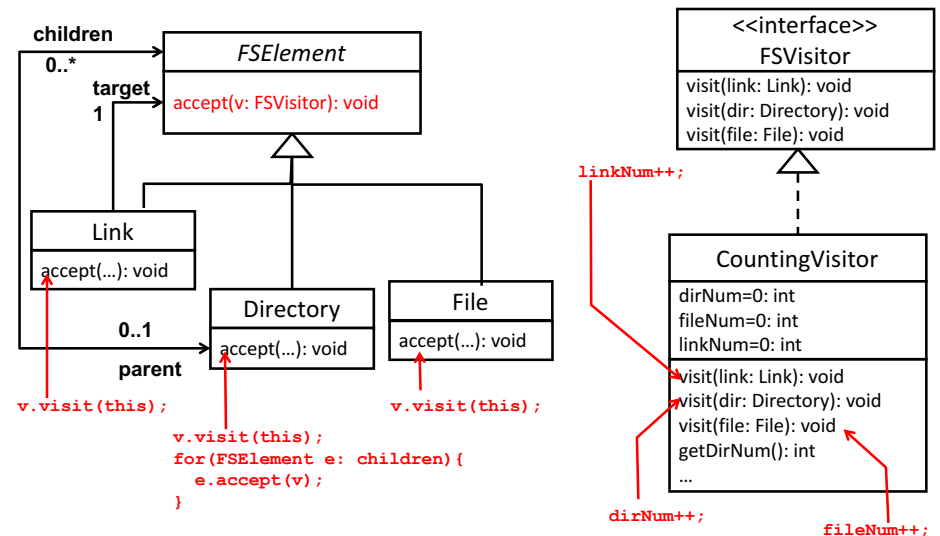
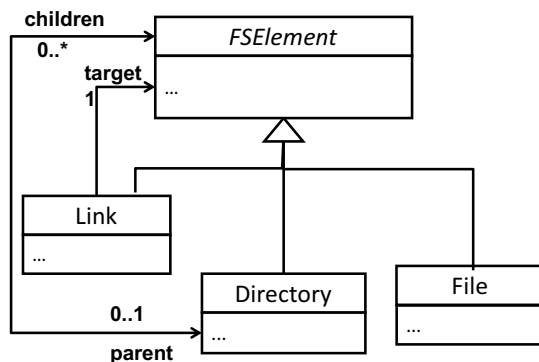
Visitor Design Pattern

- Intent
 - Decouple a set of objects and the operations to be performed on those objects.

Visitor Design Pattern

File System Examples (1/4)

- Counting the number of directories, the number of files and the number links in a file system

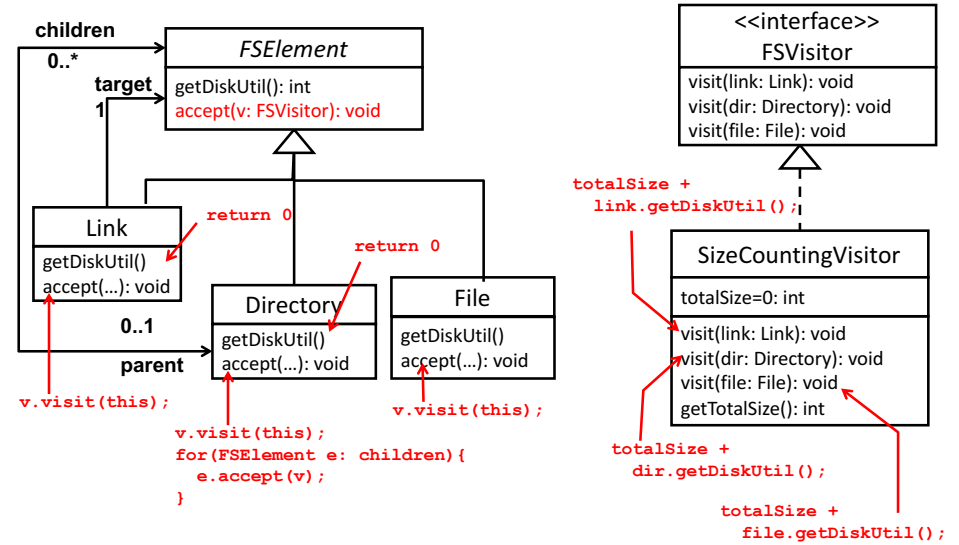
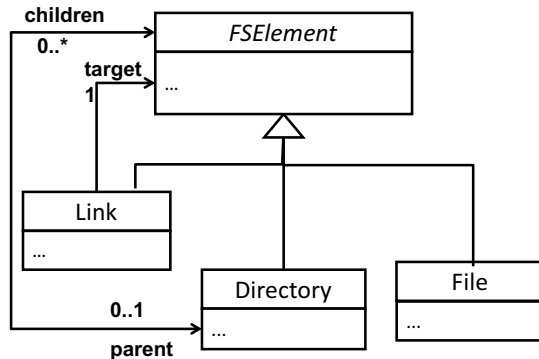


```

CountingVisitor visitor = new CountingVisitor();
rootDir.accept( visitor );
visitor.getDirNum(); visitor.getFileNum(); visitor.getLinkNum();
    
```

File System Examples (2/4)

- Counting the total disk utilization in a file system



```

SizeCountingVisitor visitor = new SizeCountingVisitor();
rootDir.accept( visitor );
visitor.getTotalSize();

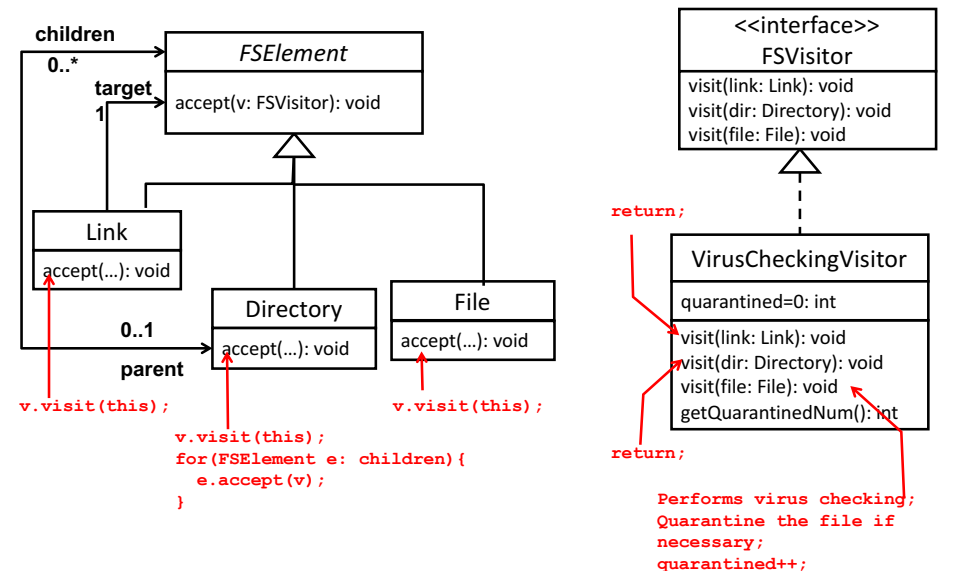
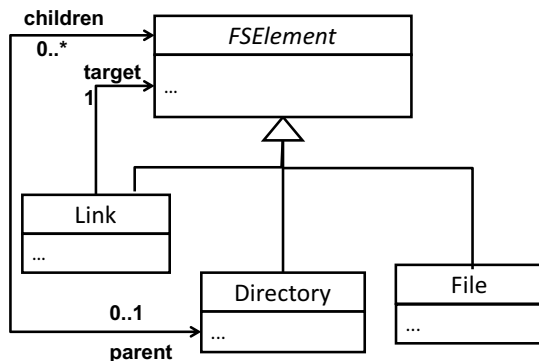
```

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File System Examples (3/4)

- Virus checking for each file
- File indexing



```

VirusCheckingVisitor visitor = new VirusCheckingVisitor();
rootDir.accept( visitor );
visitor.getQuarantinedNum();

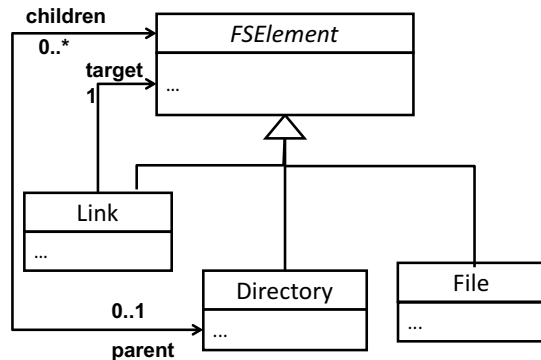
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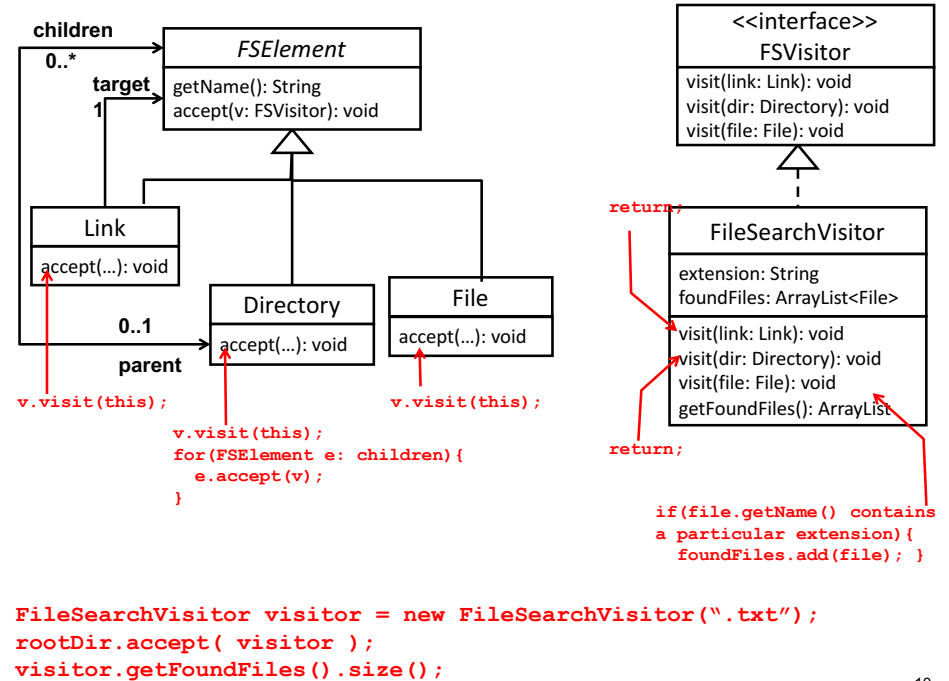
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File System Examples (4/4)

- File search
 - Searching/identifying files that have a particular extension
 - e.g., *.txt, *.jpg



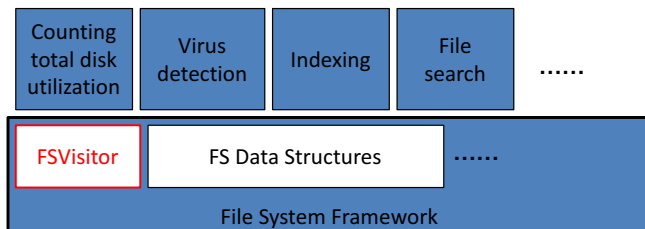
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What's the Point?

- Separating foundation data structures and the operations performed on those data structures.
 - It is easy to add, modify and remove operations.
 - Data structures can keep intact.



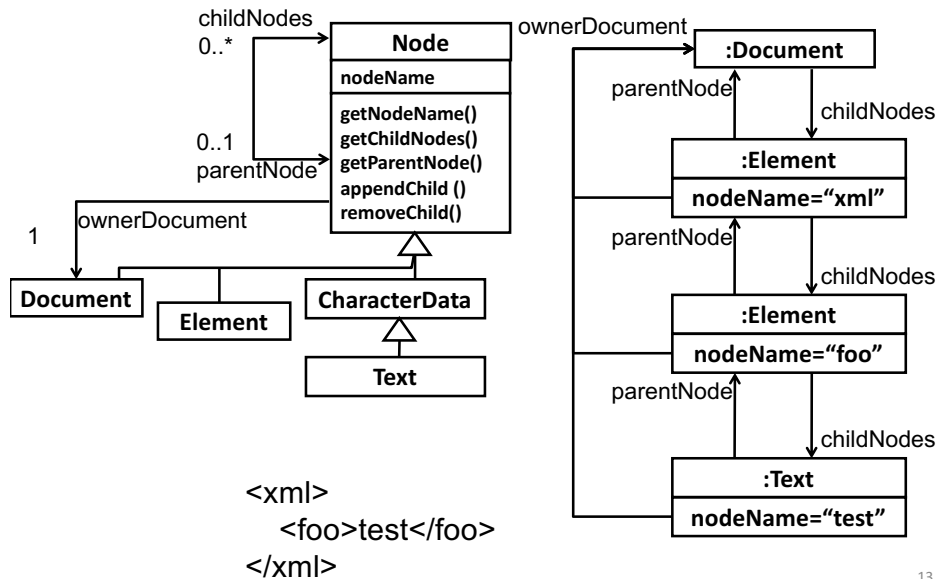
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HW15

- Implement FSVisitor and three visitor classes.
 - You can choose which visitor classes to implement.

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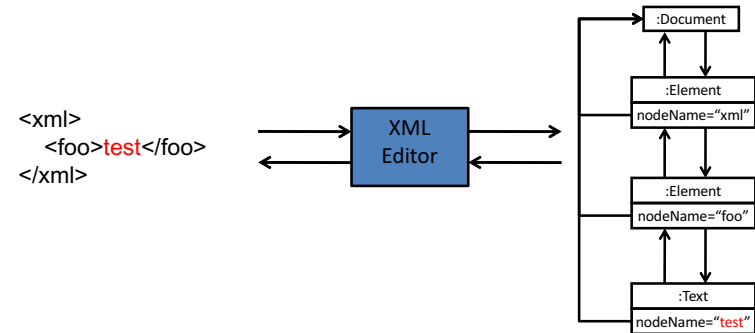
Another Example with DOM



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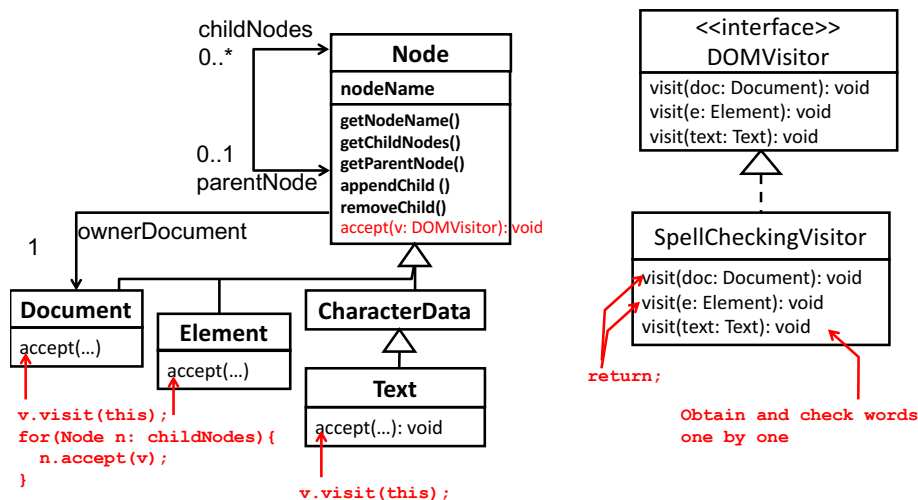
Spelling Checker in an XML Editor

- Imagine an XML editor that
 - Reads/imports an XML file, parses it and build its in-memory representation in DOM
 - Allows the user to check the spelling of each word in "Text" elements.



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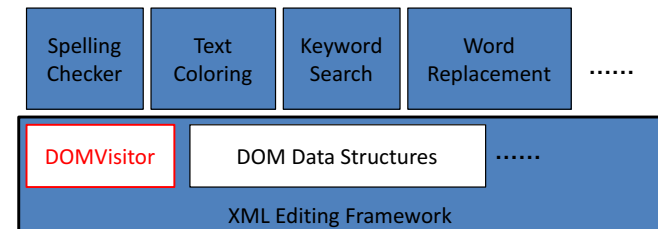
Spelling Checker as a Visitor



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Other Potential Visitors

- Many other visitors can be defined.
 - Any features/operations that are applied to a set of objects.



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Applicability of *Visitor*

- *Visitor* can be applied to any collection of objects, not limited to *Composite*-based tree structures.
 - List, graph, etc. etc.