Visitor design pattern

1. Add an `accept(Visitor)` method to the "element" hierarchy
2. Create a "visitor" base class w/ a `visit()` method for every "element" type
3. Create a "visitor" derived class for each "operation" to do on "elements"
4. Client creates "visitor" objects and passes each to `accept()` calls
interface Element {
    // 1. accept(Visitor) interface
    public void accept(Visitor v); // first dispatch
}

class This implements Element {
    // 1. accept(Visitor) implementation
    public void accept(Visitor v) {
        v.visit(this);
    }
    public String thiss() {
        return "This";
    }
}

class That implements Element {
    public void accept(Visitor v) {
        v.visit(this);
    }
    public String that() {
        return "That";
    }
}

class TheOther implements Element {
    public void accept(Visitor v) {
        v.visit(this);
    }
    public String theOther() {
        return "TheOther";
    }
}

// 2. Create a "visitor" base class with a visit() method
interface Visitor {
    public void visit(This e); // second dispatch
    public void visit(That e);
    public void visit(TheOther e);
}

// 3. Create a "visitor" derived class for each "operation"
class UpVisitor implements Visitor {
    public void visit(This e) {
        System.out.println("do Up on " + e.thiss());
    }
    public void visit(That e) {
        System.out.println("do Up on " + e.that());
    }
    public void visit(TheOther e) {
        System.out.println("do Up on " + e.theOther());
    }
}

class DownVisitor implements Visitor {
    public void visit(This e) {
        System.out.println("do Down on " + e.thiss());
    }
    public void visit(That e) {
        System.out.println("do Down on " + e.that());
    }
}
```java
public void visit(TheOther e) {
    System.out.println("do Down on " + e.theOther());
}

class VisitorDemo {
    public static Element[] list = { new This(), new That() };

    // 4. Client creates "visitor" objects and passes each
    public static void main(String[] args) {
        UpVisitor up = new UpVisitor();
        DownVisitor down = new DownVisitor();
        for (int i=0; i < list.length; i++) {
            list[i].accept(up);
        }
        for (int i=0; i < list.length; i++) {
            list[i].accept(down);
        }
    }
}
```

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<tr>
<th>do Up on This</th>
<th>do Down on This</th>
</tr>
</thead>
<tbody>
<tr>
<td>do Up on That</td>
<td>do Down on That</td>
</tr>
<tr>
<td>do Up on TheOther</td>
<td>do Down on TheOther</td>
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</tbody>
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**Output**

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All of the design patterns are compiled there. The book is written in clear, simple language that makes it easy to read and understand (just like this article).

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