Test Driven
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Chapter 3: Refactoring in Small Steps

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Overview

- Exploring a potential solution
- Changing design in a controlled manner
- Taking the new design further

Most powerful designs are always the result of a continuous process of simplification and refinement

What Is a Spike?

- A detour to learn something new
  - Package, details of an API, etc.
  - Whether a proposed design will work
- Spikes are experimental in nature
- Self education—increase knowledge, skills, or abilities

The Problem from Chapter 2

- Existing design replaced variables via simple matching
  - For all variables v, replace ${v} with its value:

    result = result.replaceAll (regex, entry.getValue())
- Failing test: Sets the value to "${one}, ${two}, ${three}"

```
@Test
public void variablesGetProcessedJustOnce() throws Exception {
   template.set ("one", "${one}");
   template.set ("two", "${three}");
   template.set ("three", "${two}");
   assertTemplateEvaluatesTo ("${one}, ${three}", ${two}
}
```

regexp blows up

Tweaking the current design won't make this test pass

Exploring A Potential Solution

- Break the templates into "segments"
- Prototyping with spikes
  - A spike is a detour to learn
  - In the template example, we learn more about using regex
- Learn by writing tests (*learning tests*)
  - Need to figure out an API?
    - Write some tests that use the API
    - RegexLearningTest on Ammann's website, from section 3.3
- Example spike for learning an API
  - Note that Koskela thought **find**() would count occurrences
  - He learned it breaks strings into pieces

Learn on a short detour, then apply

Core Idea

- Use regexp to break the following string :

“${greeting} ${fname},
Thank you for your interest in ${product}.”

- Into the following 5 pieces :

“${greeting}” “${fname}”

“,
Thank you for your interest in ” “${product}” “.”

- Now the variables can easily be identified and replaced
  - regexp will not explode if values have `$’, `{’, or `}’

Changing Design in a Controlled Way

Chapter 3 has a lot of details that you should study on your own

I suggest going through the exercise with his code and eclipse

No new functionality, but completely refactored

Template.java

Segment, PlainText, Variable