The Cool New Tool
&
Why You Should Care

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Overview

- Why you should care?
- CDD EiffelStudio (the cool tool)
- Bits about testing
Usability Study

- Extremely cool new tool: CDD EiffelStudio

- You will test the tool!

Manually Written Test Cases
(boring & old)

Automatically Extracted Test Cases
(cool & new)
Boring & Old: Manual Test Case

<table>
<thead>
<tr>
<th>Code</th>
<th>Test Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>class BANK_ACCOUNT</td>
<td>class TEST_BANK_ACCOUNT</td>
</tr>
<tr>
<td>feature</td>
<td>inherit TEST_CASE</td>
</tr>
<tr>
<td>balance: INTEGER</td>
<td></td>
</tr>
<tr>
<td>deposit (v: INTEGER)</td>
<td>test_deposit</td>
</tr>
<tr>
<td>do</td>
<td>do</td>
</tr>
<tr>
<td>balance := balance + v</td>
<td>create ba</td>
</tr>
<tr>
<td>end</td>
<td>assert (ba.balance = 30)</td>
</tr>
</tbody>
</table>

```
**Cool & New:**

**Extracted Test Case**

<table>
<thead>
<tr>
<th>deposit (v: INTEGER)</th>
<th>do</th>
<th>ensure</th>
<th>invariant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>require</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>v &gt; 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>do</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ensure</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>balance &gt; old balance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>balance = old balance + v</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>end</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>invariant</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>balance &gt; 0</td>
<td></td>
<td></td>
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</table>

```plaintext
extracted_test_case
do
  ba := new_object ("BANK_ACCOUNT")
  set_field (ba, "balance", 300)
  check_invariant (ba)
  ba.deposit (30)
end
```

<table>
<thead>
<tr>
<th>v</th>
<th>balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>300</td>
</tr>
</tbody>
</table>
Control Groups

<table>
<thead>
<tr>
<th>Groups: Hermann, Wolfgang</th>
<th>Geneaology Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Only Manual Test Cases</td>
</tr>
<tr>
<td></td>
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<table>
<thead>
<tr>
<th>Groups: Arsenii, Joseph + Roman</th>
<th>V-Card Assignment</th>
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User Study

- CDD-Eiffelstudio produces testing logs
- Commit directory to svn (once a week)
  - cd cdd_tests
  - svn add 2008-03-12_13-55-36_cdd.log
  - svn commit *
- If logs (*.log) become too large, zip old ones
- Data stored in directory cdd_tests
Privacy

- We care about privacy
- Data treated anonymously
- Data gathered for experiment does not affect grade
- Questions? Talk to me or assistant right now
Content of Logs

- Test outcomes
- Whether they are manual or extracted
- Various timings
- ...

...
The cool tool:

- CDD EiffelStudio is modification of EiffelStudio
- CDD must be used for Project
- Available from [http://dev.eiffel.com/CddBranch](http://dev.eiffel.com/CddBranch)
- Check for updates
Installing

- Windows
  - Install Visual C++ or Platform SDK first
  - Then use installer

- Linux
  - Untar
  - Set/update environment variables PATH, ISE_EIFFEL, ISE_PLATFORM
Demo

EiffelStudio

CDD Enabled!
When to enable what?

Only Manual Test Cases

Manual + Extracted Test Cases

not pressed

pressed
Test First Development

1. Add tests
2. Run tests
3. Pass?
   - Yes: End
   - No: Add / Change Code
4. Pass?
   - Yes: End
   - No: Run tests
Tips'n'Tricks

- Use tags
- Use *Restrict & Cleanup*
- Unresolved test cases
- Duplicates
- Re-Extraction
Summary

- http://dev.eiffel.com/CddBranch
- Remember to switch on/off extraction
- Commit logs once a week
- Forum: http://eiffelstudio.origo.ethz.ch/forum/20