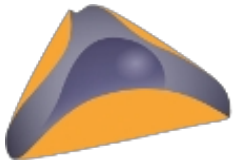


MASTER IN COMPUTER SCIENCE

UNIVERSITÄT BERN

Continuous Integration with Architectural Invariants

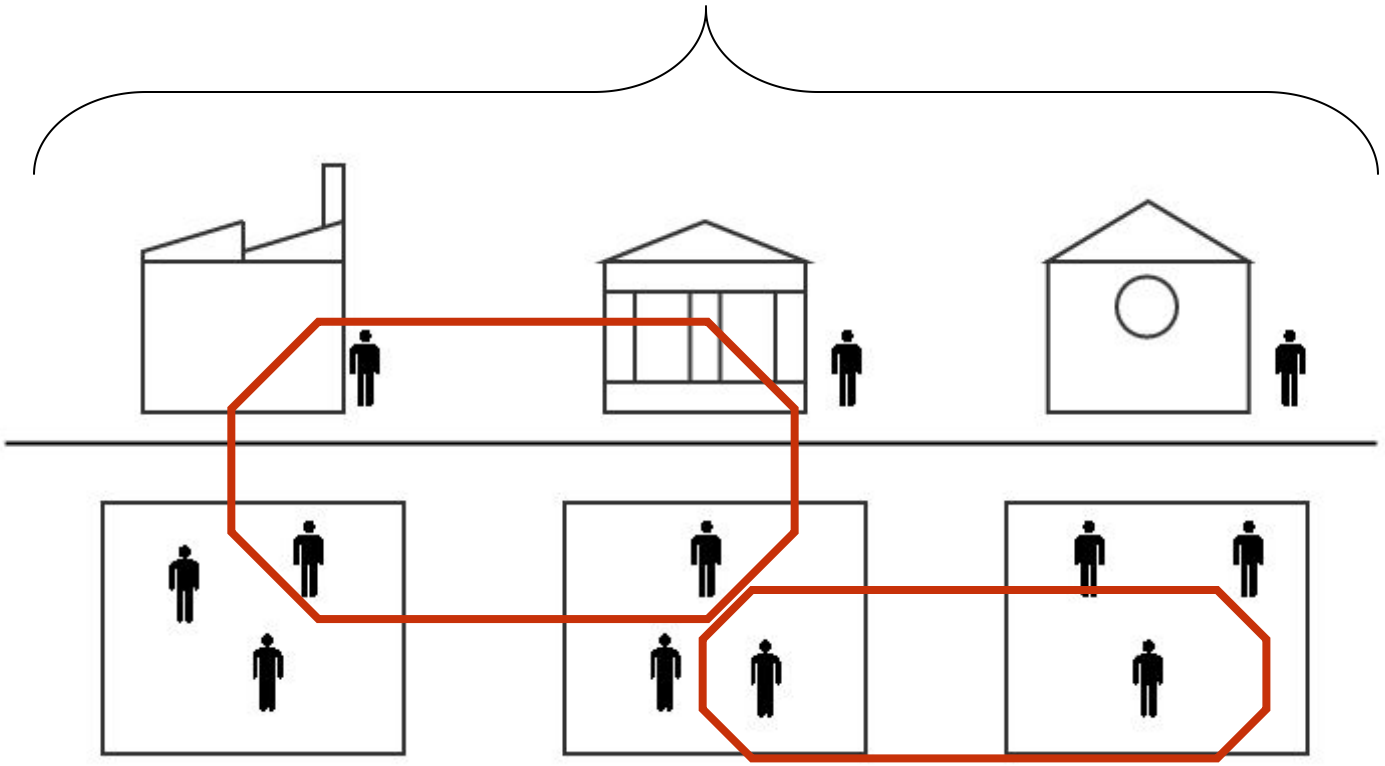
Oskar Truffer

ILIAS®

Jour Fixe

Clients

Service Providers



The Problem

REFACTORING
Analytics
Progress Monitoring
Encourage Participation

The Problem

ILIAS®

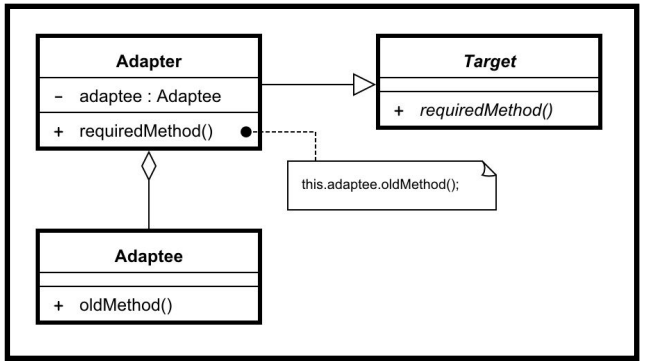
REFACTORING
Analytics
Progress Monitoring
Encourage Participation

Dicto

Controller = PhpClass with name: „*Controller“

Database = PhpClass with name: „Database“

Controller cannot depend on **Database**

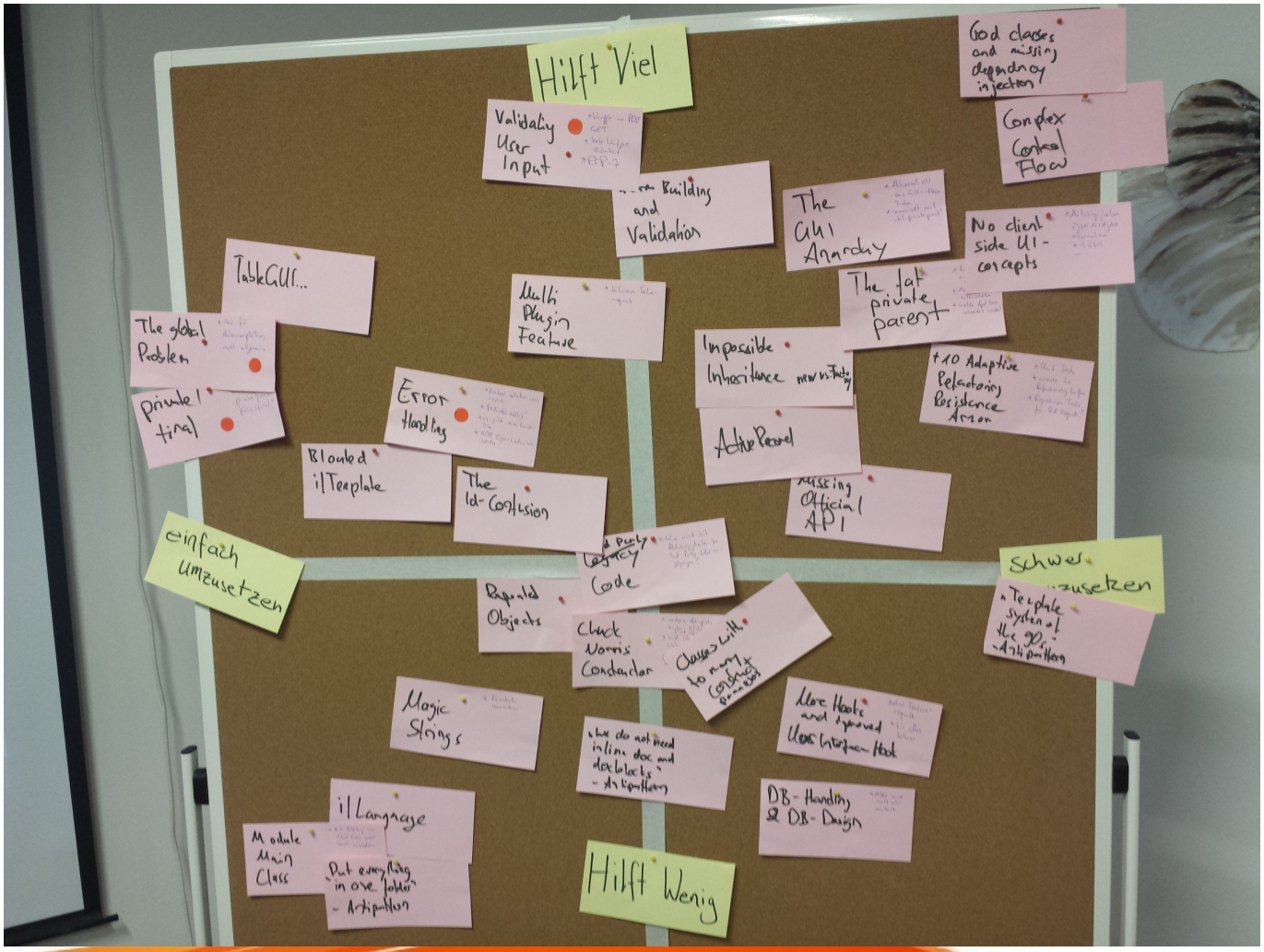


! You use the Database in BlogController

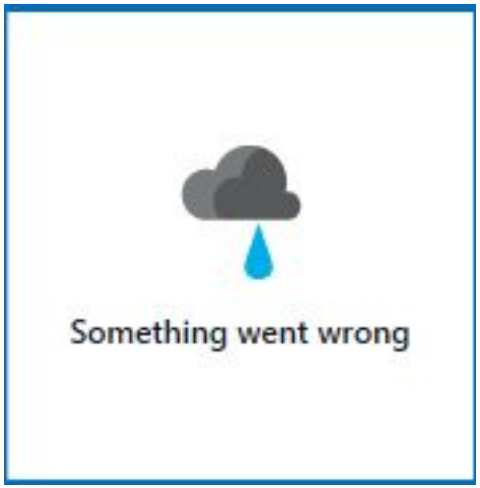
Roadmap

1. Find architectural pain points
2. Plan refactoring
3. Formulate rules
4. Implement/Extend Adapters
5. Feedback to Developers
6. Evaluate Results

Pain Point Survey



Error/Exception Handling



- Keep Context Information
- Handle all Exceptions Equally

Dicto Rules

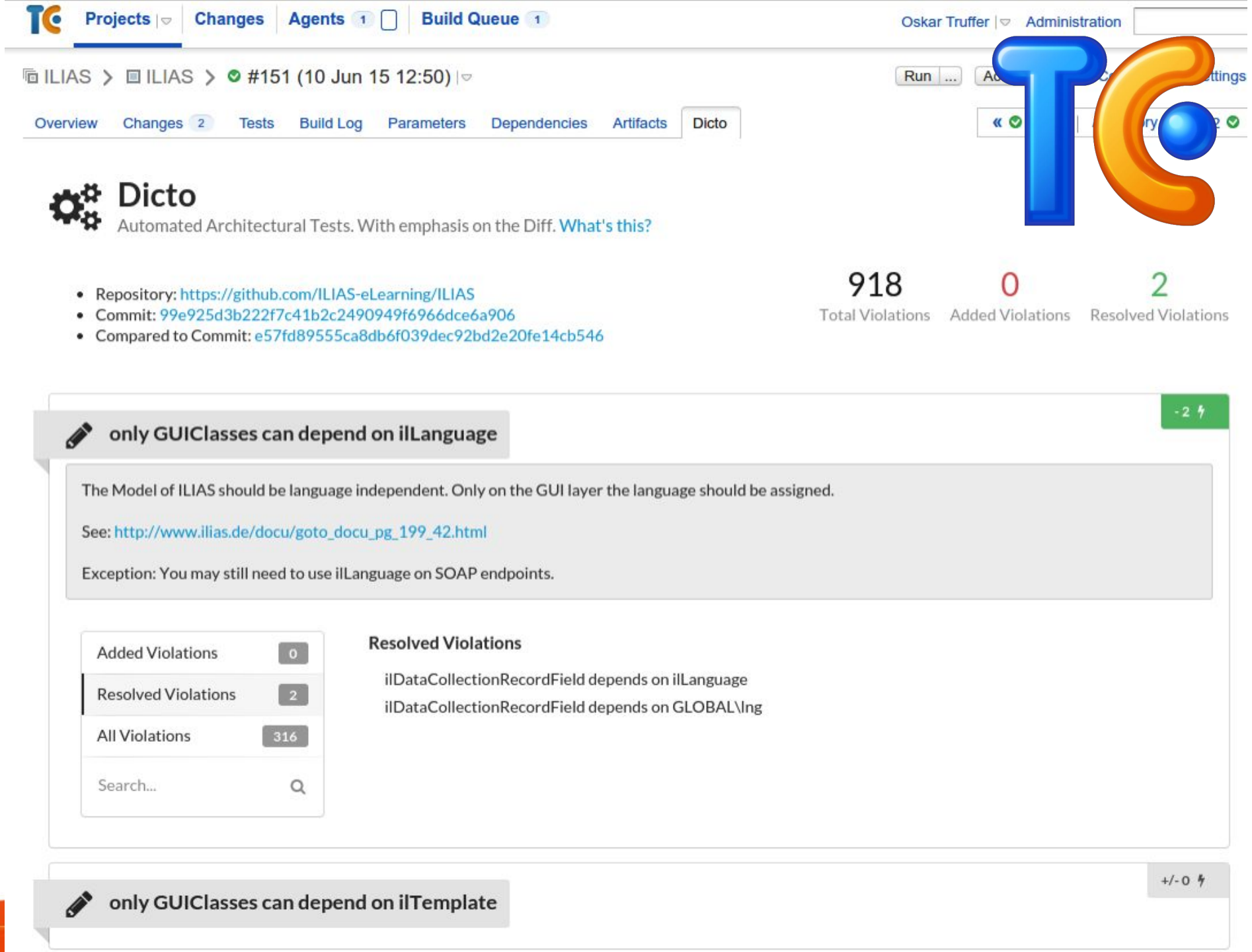
only **GUIClasses** can depend on **ilTemplateClass**

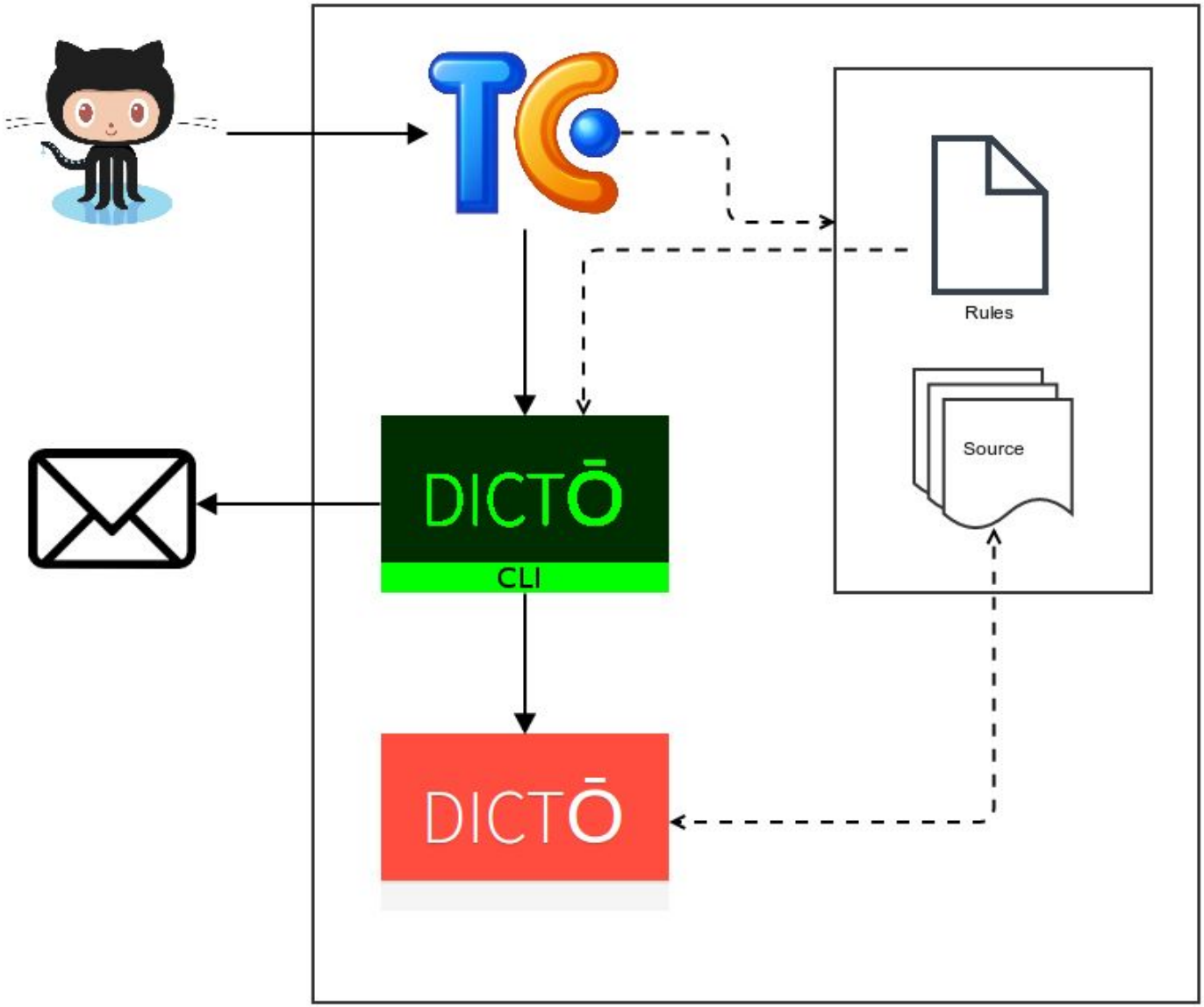
IlExceptionsWithoutTopLevelException must depend on any **ilExceptions**

WholelliasCodebase cannot invoke **SetErrorOrExceptionHandler**

Implement/Extend Adapters

CHALLENGES
PHP Dependencies
Performance
CI Integration
User Interface


Projects
Changes
Agents 1
Build Queue 1
Oskar Truffer
Administration
ILIAS > ILIAS > #151 (10 Jun 15 12:50)
Run ...
Overview
Changes 2
Tests
Build Log
Parameters
Dependencies
Artifacts
Dicto
Dicto
Automated Architectural Tests. With emphasis on the Diff. What's this?
Repository: https://github.com/ILIAS-eLearning/ILIAS
Commit: 99e925d3b222f7c41b2c2490949f6966dce6a906
Compared to Commit: e57fd89555ca8db6f039dec92bd2e20fe14cb546
918
Total Violations
0
Added Violations
2
Resolved Violations
-2
only GUIClasses can depend on ilLanguage
The Model of ILIAS should be language independent. Only on the GUI layer the language should be assigned.
See: http://www.ilias.de/docu/goto_docu_pg_199_42.html
Exception: You may still need to use ilLanguage on SOAP endpoints.
Added Violations 0
Resolved Violations 2
All Violations 316
Search...
Resolved Violations
ilDataCollectionRecordField depends on ilLanguage
ilDataCollectionRecordField depends on GLOBAL\lng
+/-0
only GUIClasses can depend on ilTemplate


Rules
Source
DICTŌ
CLI
DICTŌ

+3 -1

GUIClasses cannot depend on ilDBClass

The GUI-Layer should not itself interact with the database. Try to build reusable Model classes, adding a layer of abstraction instead of accessing the database.

- Added Violations 3
- Resolved Violations 1
- All Violations 13
- Search...

Newly Introduced Violations

ilQuestionPoolSkillAdministrationGUI depends on ilDB
Resolve dependency in /Modules/TestQuestionPool/classes/class.ilQuestionPoolSkillAdministrationGUI.php:64

ilAssQuestionSkillAssignmentsGUI depends on ilDB

ilAssQuestionSkillUsagesTableGUI depends on ilDB

Dicto <3 ILIAS - Leaderboard

EMail	Points
mjansen@databay.de	12
fs@studer-raimann.ch	4
bheyser@databay.de	2

„I searched very deliberately for violations within our modules and fixed them. “

Roadmap Review

1. Find architectural pain points ✓
2. Plan refactoring ✓
3. Formulate rules ✓
4. Implement/Extend Adapters ✓
5. Feedback to Developers ✓
6. Evaluate Results

Language Expressivity

- Rules can be discussed without any training

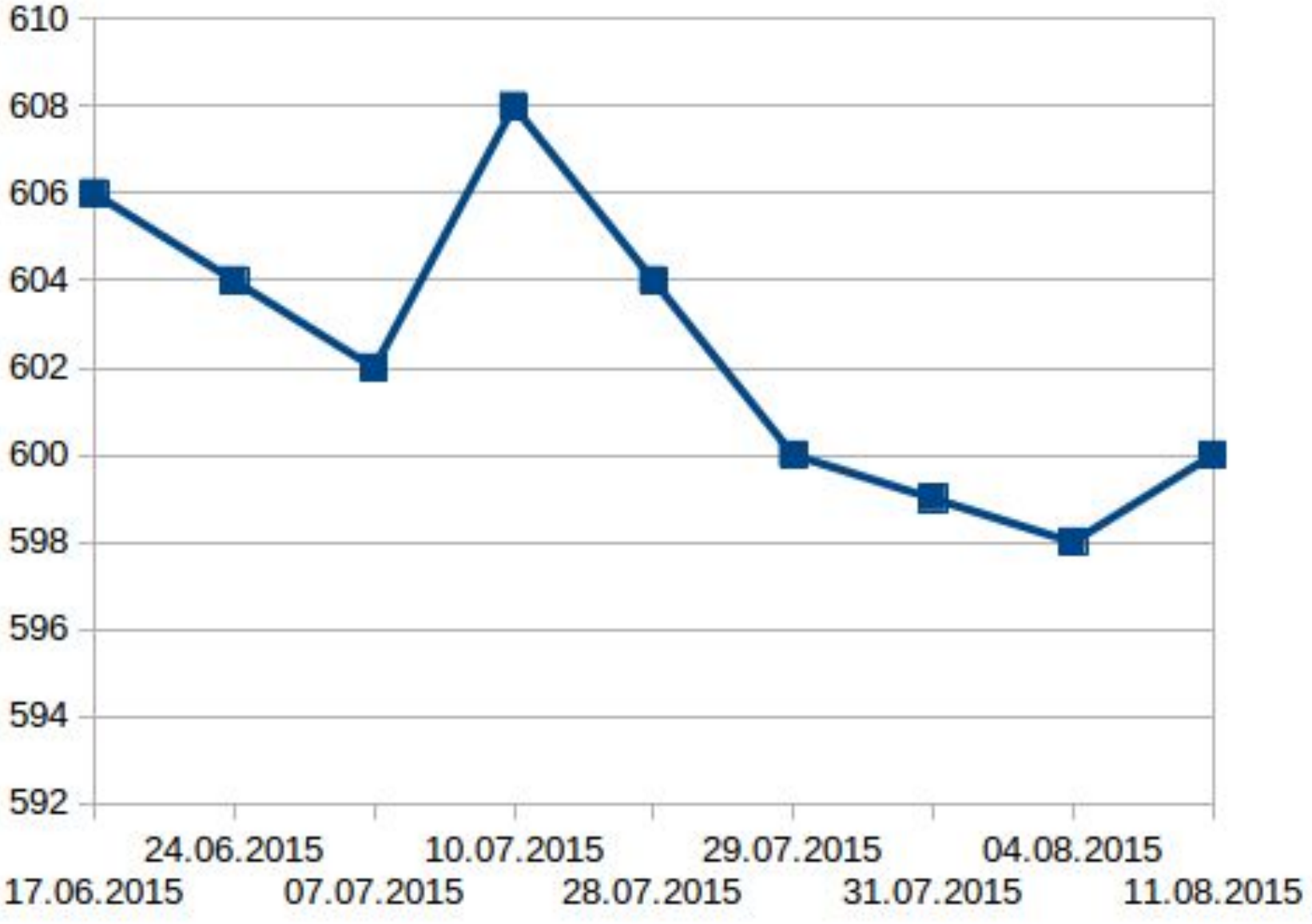
„It definitely leverages the discussion about architecture and separation of concerns.“

Language Expressivity

- Exceptions to rules -> No syntax needed
- What we modified:
  - Added comments to rules
  - Added a modifier: must ... Any

- Dicto is as strong as it‘s tools

Violations


610
608
606
604
602
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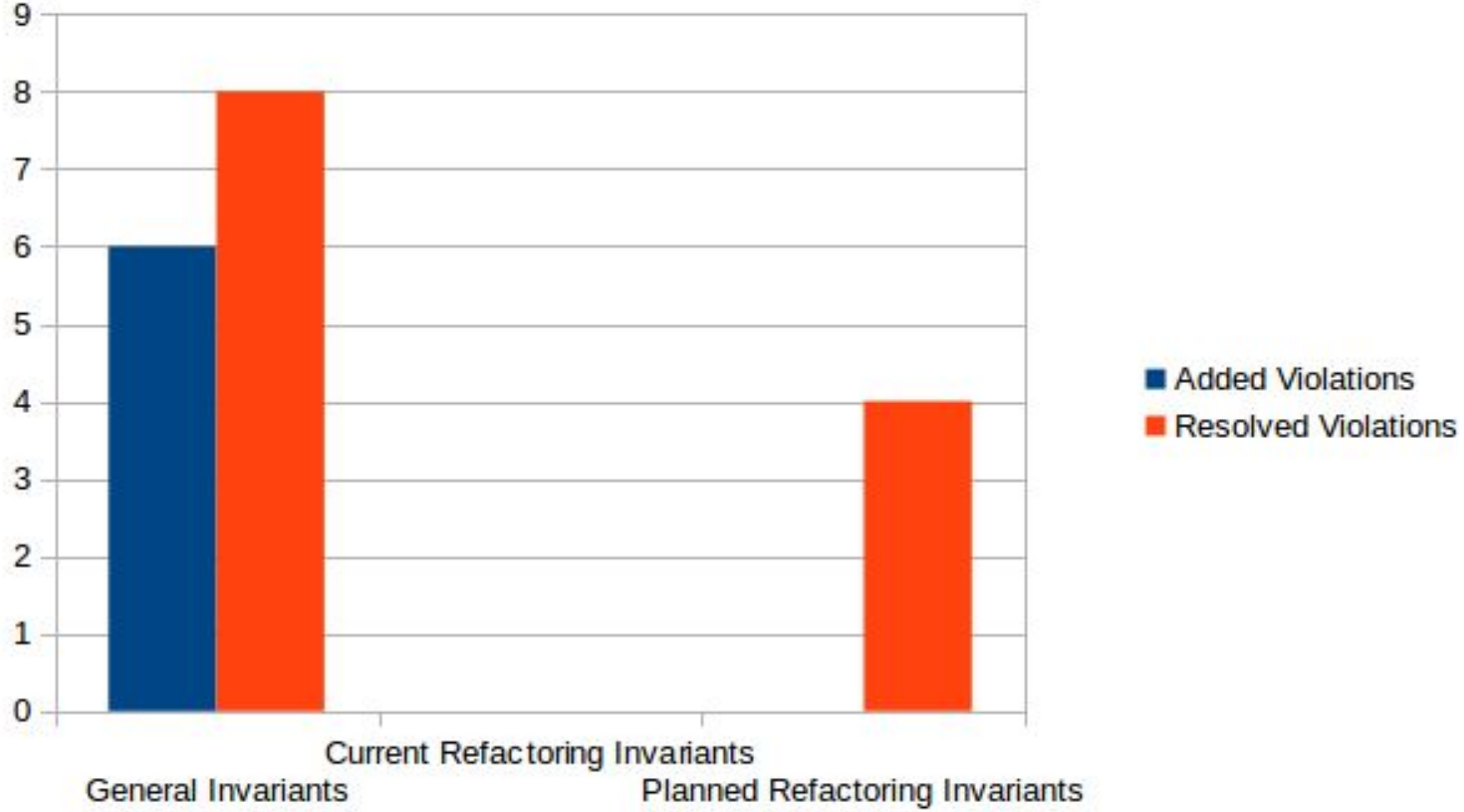
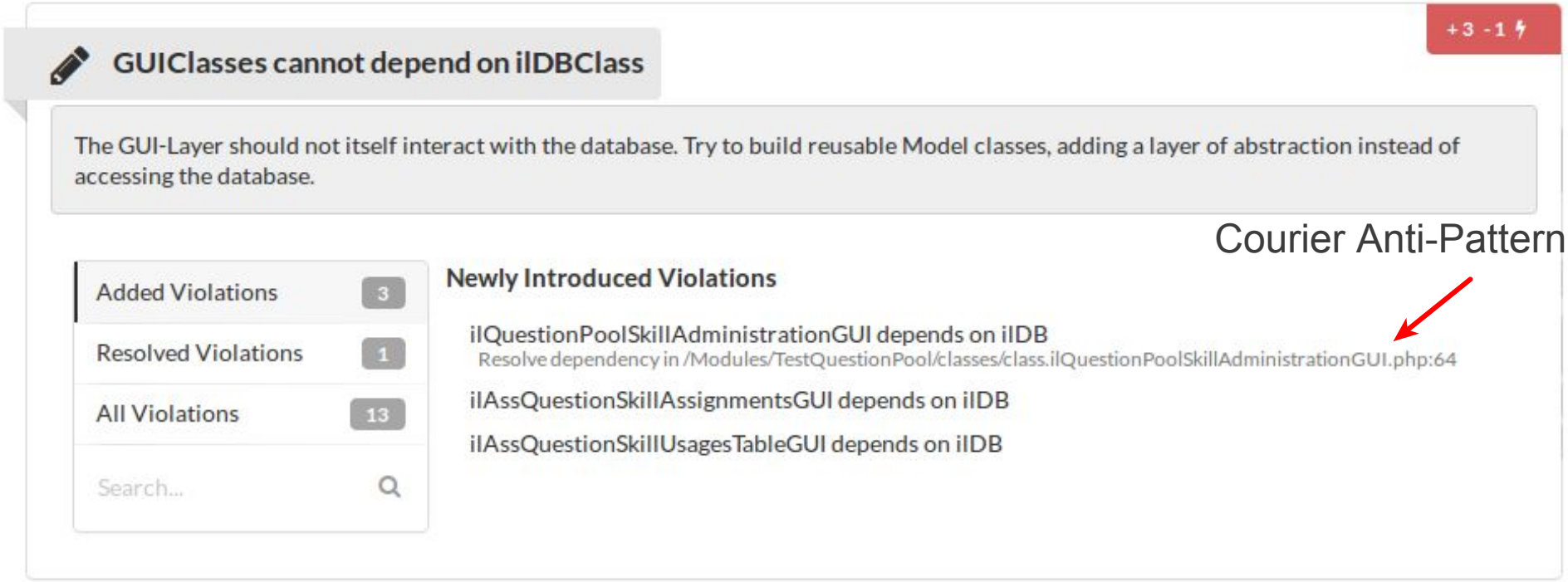
598
596
594
592
17.06.2015
24.06.2015
07.07.2015
10.07.2015
28.07.2015
29.07.2015
31.07.2015
04.08.2015
11.08.2015

Violations of different Groups



Inspection


+3 -1
GUIClasses cannot depend on ilDBClass
The GUI-Layer should not itself interact with the database. Try to build reusable Model classes, adding a layer of abstraction instead of accessing the database.
Courier Anti-Pattern
Added Violations 3
Resolved Violations 1
All Violations 13
Search...
Newly Introduced Violations
ilQuestionPoolSkillAdministrationGUI depends on ilDB
Resolve dependency in /Modules/TestQuestionPool/classes/class.ilQuestionPoolSkillAdministrationGUI.php:64
ilAssQuestionSkillAssignmentsGUI depends on ilDB
ilAssQuestionSkillUsagesTableGUI depends on ilDB

Conclusion

- Dicto encourages collaboration
- You gain insights in architectural problems
- Overall violations decrease