Reengineering Alitheia Core

Software Reengineering - IN4189

Anton Bouter - Martijn den Hoedt

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Outline

- Shortcomings
- Improvements
- Recommendations
- Conclusions

Scenario

SQO-OSS

Scenario

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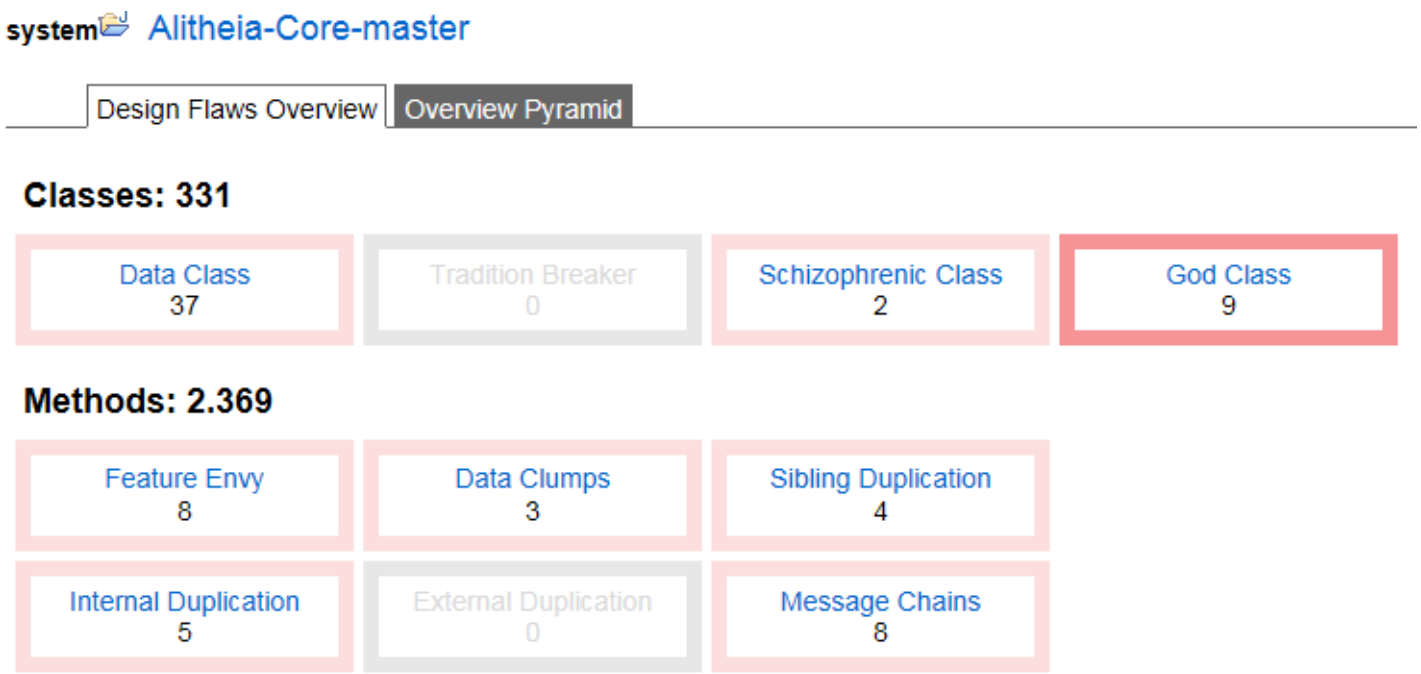
SQO-OSS

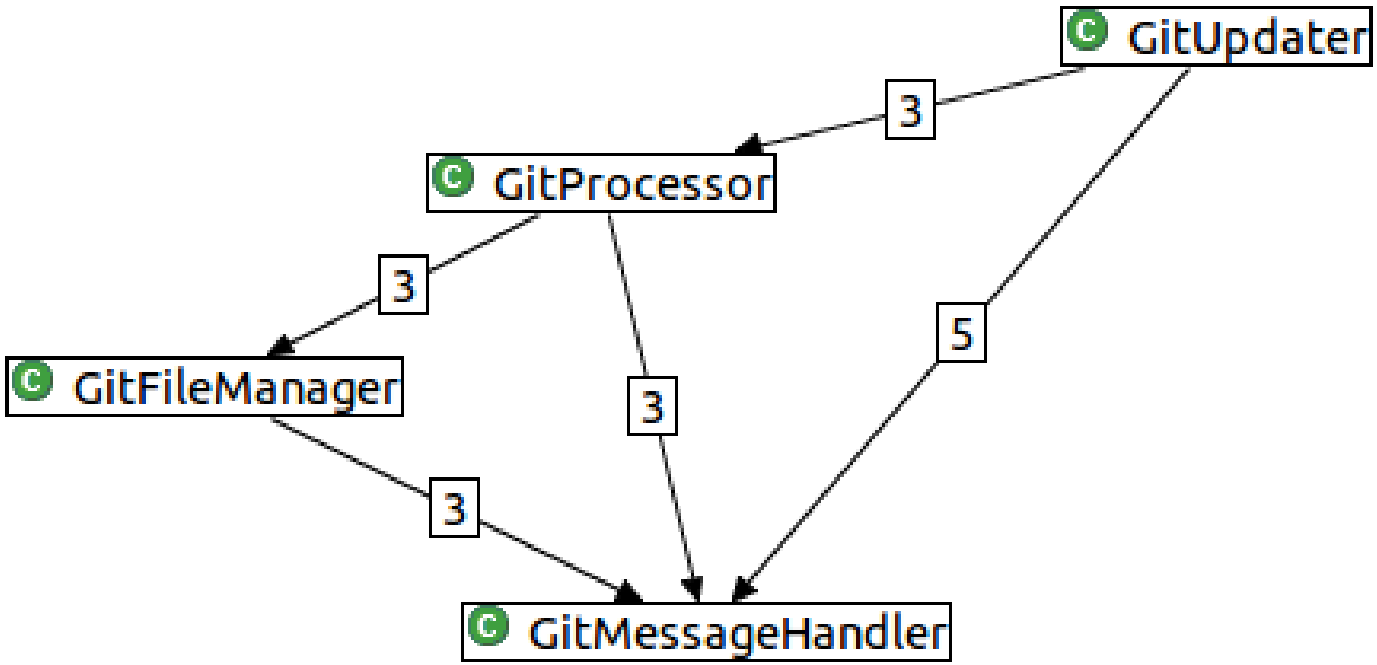
Shortcomings - Single Responsibility Principle

- Every software entity should have a single purpose.
- inCode tool



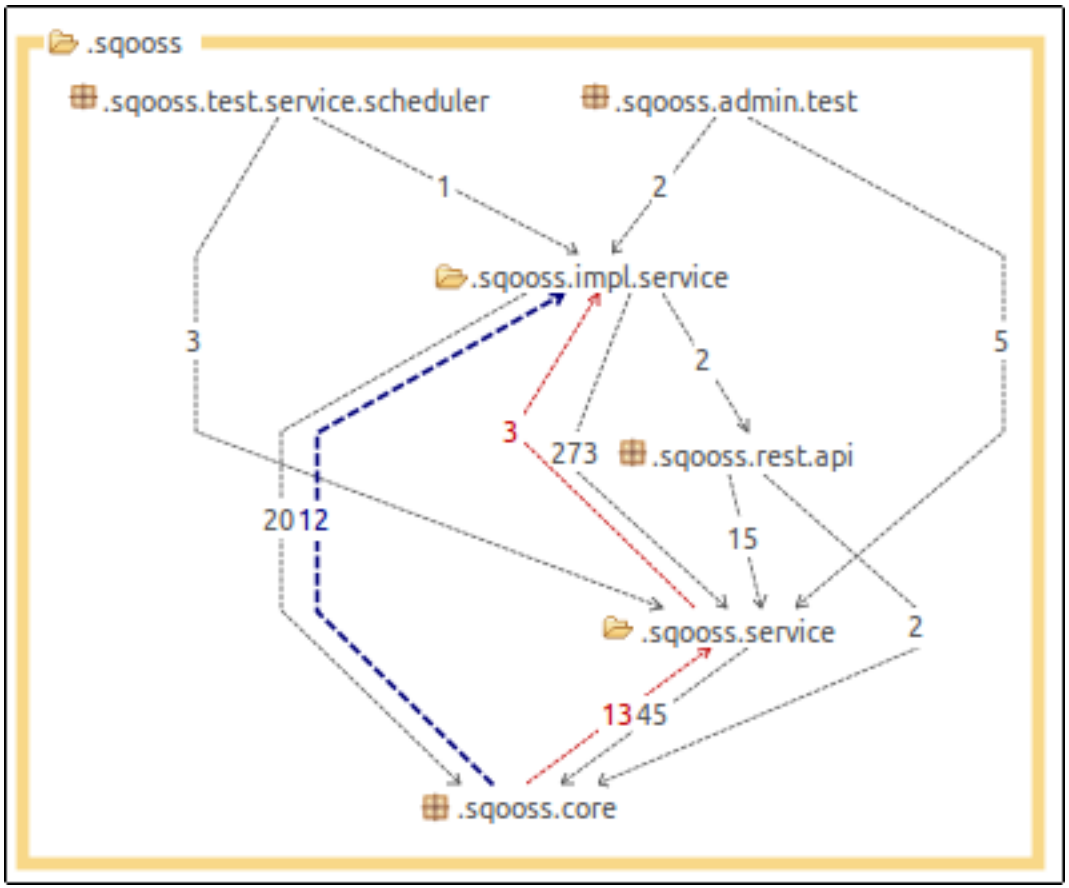
Improvements - Single Responsibility Principle

- Split GitUpdater into 4 classes.



Shortcomings - Dependency Inversion Principle

- High-level modules should not depend on low-level modules.
- STAN Eclipse plugin



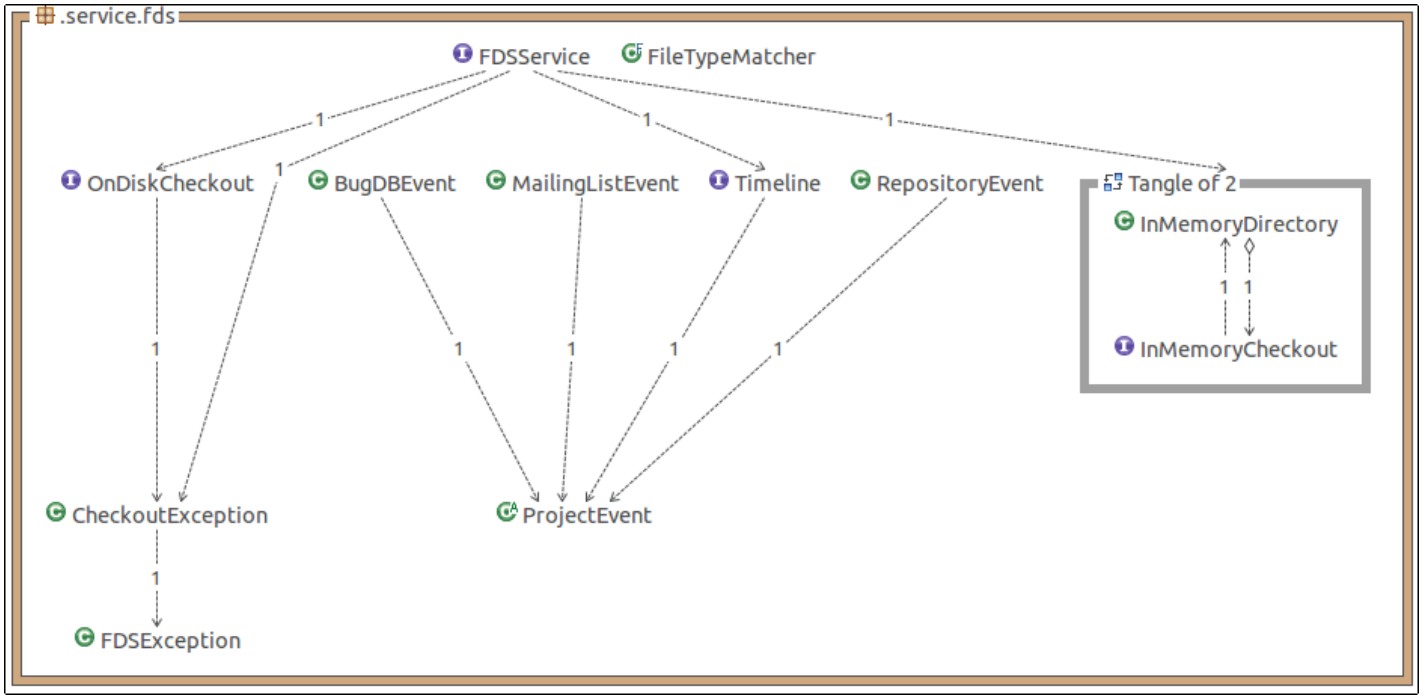
Shortcomings - Acyclic Dependency Principle

- If A depends on B, B should not depend on A.
- STAN Eclipse plugin

Improvements - Acyclic Dependency Principle

Solved cyclic dependencies:

- service.abstractmetric
- service.fds



Improvements - Acyclic Dependency Principle

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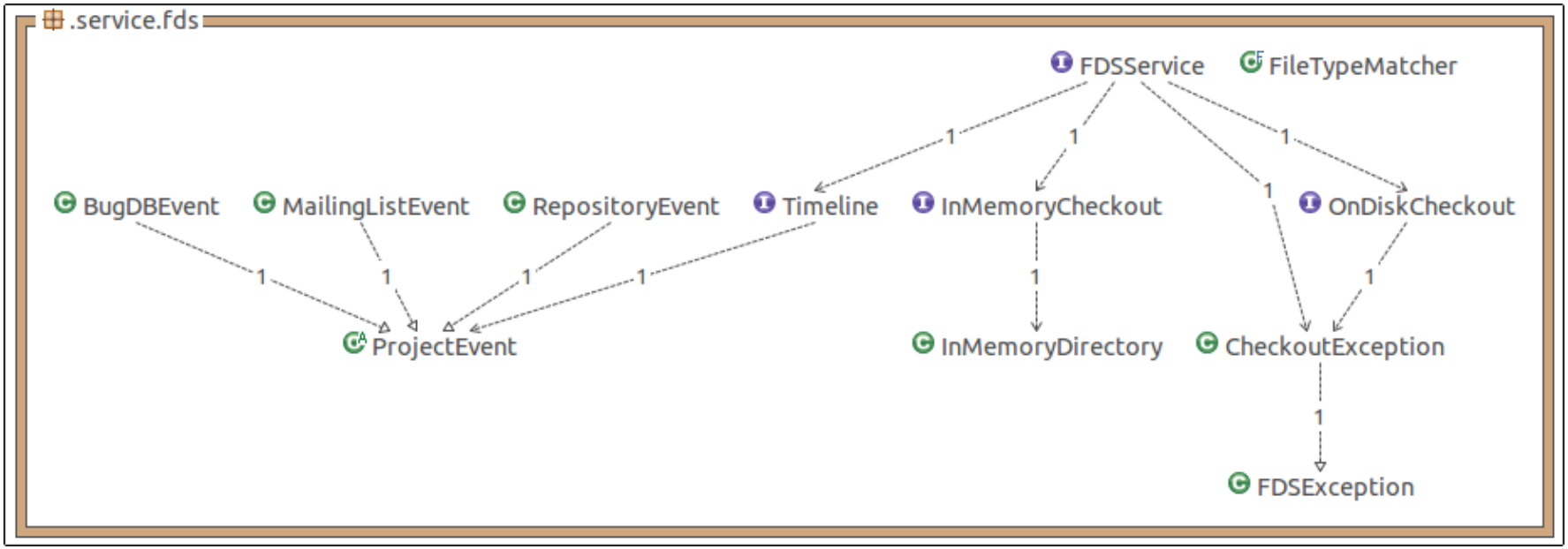

Shortcomings - Lack of tests

- EclEmma tool
- **Terrible coverage of 1.7%!**

Element	Coverage	Covered Lines	Missed Lines	Total Lines
core	1.9 %	166	8,594	8,760
src/main/java	1.7 %	145	8,515	8,660
eu.sqooss.service.scheduler	22.5 %	61	210	271
eu.sqooss.impl.service.scheduler	28.1 %	57	146	203
eu.sqooss.core	23.9 %	27	86	113
src/test/java	21.0 %	21	79	100

Improvements - Tests

- Core coverage of 11.0%.

Element	Coverage	Covered Lines	Total Lines
core	14.2 %	1,278	9,031
src/test/java	79.3 %	329	415
src/main/java	11.0 %	949	8,616
eu.sqooss.core	66.4 %	75	113
eu.sqooss.impl.service.logging	51.3 %	60	117
eu.sqooss.impl.service.scheduler	43.3 %	88	203
eu.sqooss.service.scheduler	33.0 %	90	273
eu.sqooss.impl.service.admin	32.1 %	35	109
eu.sqooss.service.fds	26.8 %	66	246
eu.sqooss.impl.service.cluster	19.5 %	40	205
eu.sqooss.impl.service.rest	17.9 %	10	56
eu.sqooss.impl.service.db	17.2 %	68	396
eu.sqooss.impl.service.webadmin	16.7 %	256	1,534
eu.sqooss.impl.service.tds	13.2 %	22	167
eu.sqooss.service.admin	13.0 %	10	77
eu.sqooss.impl.service.metricactivat	11.2 %	25	223

Recommendations

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- Perform more refactorings to fix e.g. SRP and DIP problems.
- € 15.000 to hire additional developers.

Conclusion

- Many problems that affect maintainability.
- Some improvements have been made.
- € 15.000 required to keep the system maintainable.

Questions

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