Transformation de code source Java avec Spoon

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But de la séance:
- comprendre la philosophie et l'architecture de transformation de Spoon
- pratiquer la transformation de code source Java avec la librairie Spoon

Context:
Source code transformation is a program transformation at the source code level, as opposed to program transformation done on binary code. There are many usages of program transformation: profiling, security, optimization, refactoring, etc.

Spoon is an open-source library for analyzing and transforming Java source code. The paper presenting Spoon is available on the Internet[1]

Getting Started:
- Read section 3 of the paper
- Understand, compile and run NotNullCheckAdderProcessor[2].

Tasks:
- Prepare a presentation on one facet of source code transformation with Spoon (see topics below, they correspond to the paper). You can use the Javadoc API as well for preparing the presentation.
- Write a Spoon transformation to collect traces and compute two coverage measures:
  - one in { block coverage / method coverage / catch coverage }
  - one in { statement coverage / condition coverage / throw coverage }
- Write a Spoon transformation to send all thrown and caught exceptions to a Sentry/Squash server[3]
- Write a Spoon transformation to collect the number of actual assertion checks and the distribution of assertion types.

For all transformations, apply your transformation to the code and test suite of Apache Commons Collection.

Report:
A 2-4 pages PDF report and the code.

Appendix:
Download info: http://spoon.gforge.inria.fr/Spoon/HomePage
Presentation topics:
- Intercession API
- Use of Generic Typing for Static Checking of Transformations
- Statically Type-Checked Code Templating for Java (presentation)
- Statically Type-Checked Code Templating for Java (demo)
- Annotation-Driven Program Processors

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1 http://www.monperrus.net/martin/source-code-analysis-transformation-spoon.pdf
2 https://gforge.inria.fr/scm/viewvc.php/trunk/spoon-examples/src/main/java/spoon/examples/notnull/NotNullCheckAdderProcessor.java?root=spoon&view=log
3 Pour créer une base MySQL, il faut aller dans l'intranet du M5 (http://intra.fil.univ-lille1.fr), mon compte, serveur webtp