Test-Generator for RxRefactor

IMPL Project: Nikolas Hanstein, Maximilian Kirschner

TECHNISCHE
UNIVERSITÄT
DARMSTADT

1 Usage Hints

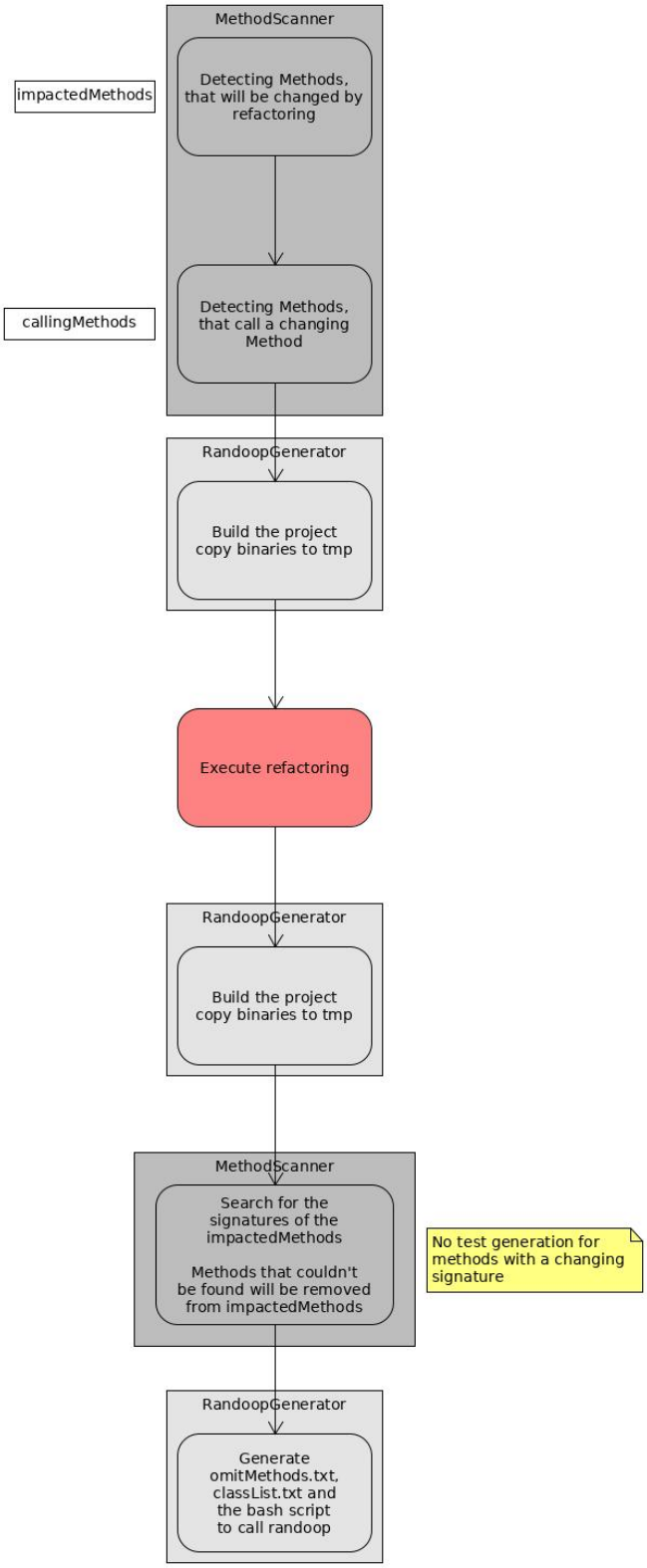
Important:

- Windows is not supported, due to some hard-coded file paths
- The tmp directory is used to save the project binaries, therefore a directory (/tmp/randoop-gen-<DATE>) is created
- Refactor and generate tests only for one project at a time, all other projects have to be closed
- Classes with global state (i.e. state that is preserved across methods) may cause problems with randoop's test generation.

Steps to perform manually:

1. Use the Refactoring Tool as usual
2. Copy all project libaries, JUnit, Hamcrest, ReactiveX, Reactive-Streams and Randoop as jar-files to the a libs directory inside the created "randoop-gen" directory
3. Execute the generated bash script in the "randoop-gen" directory

2 Flow Chart


MethodScanner
impactedMethods
Detecting Methods, that will be changed by refactoring
callingMethods
Detecting Methods, that call a changing Method
RandoopGenerator
Build the project copy binaries to tmp
Execute refactoring
RandoopGenerator
Build the project copy binaries to tmp
MethodScanner
Search for the signatures of the impactedMethods
Methods that couldn't be found will be removed from impactedMethods
No test generation for methods with a changing signature
RandoopGenerator
Generate omitMethods.txt, classList.txt and the bash script to call randoop

3 Code location

Our code is located in the following three packages:

- ***de.tudarmstadt.rxrefactoring.core.internal.execution.ipl***
  Main Part of our code: The JavaVisitor traverses Eclipse ASTs. The MethodScanner searches for impacted and calling methods. The Randoop Generator builds the project, copies the binaries and generates the bash script
- ***de.tudarmstadt.rxrefactoring.core.internal.execution.ipl.collect***
  Collections we needed, basically a Pair Class.
- ***de.tudarmstadt.rxrefactoring.core.internal.execution.ipl.filter***
  FilteredArrayList which is used in the JavaVisitor to collect the nodes, that match a given Filter.

Furthermore we added some code to *de.tudarmstadt.rxrefactoring.core.internal.execution.RefactorExecution*, to obtain the ASTs, before and after refactoring. Everything that has to be executed before refactoring is added to *doRefactorProject(...)*. Everything that has to be executed after the OK-Button has been clicked is added to *run()*.

All changes in *RefactorExecution* are marked with an inline comment beginning with "IPL".