Background
The high level of complexity in today's mobile networks translates into a large codebase for the software running on the interconnected devices (base stations, routers, etc.). The size of the codebase creates challenges for software maintainability since manual code refactoring becomes very labor intensive.

Thesis Description
The goal of this thesis is to study and implement a code-to-code transformation tool that transforms Java code to become adaptable to new patterns and to eliminate old patterns.

As an example, we have two equivalent libraries (an old and a new one) currently used side by side in our project. We would like to automatically replace the old library with the new one. This change would allow us to decrease our codebase by 5%.

The code-to-code transformer will use one of the many available free compiler libraries for Java to:

- Compile the source code into ASTs (abstract syntax trees)
- Modify the ASTs according to some transformation rules
- Decompile ASTs back into Java source code.

The thesis will be concluded with a result presentation for the Ericsson RCI TN (Transport Network) R&D team.

Qualifications
This project aims at students in electrical engineering, computer science, computer engineering or similar. Background in wireless communication is preferred.

Extent
1-2 students, 30hp each

Location
Linköping, Östergötland, SE

Preferred Starting Date
Spring 2016

Keywords
Java, Mobile Telecommunication, Optimization, Coding Schemes

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