Automated Refactoring for Scala

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Scala Refactoring Project

Project Goal

Creating an IDE independent refactoring library that makes creating new refactorings as simple as possible.

1. Refactoring
   - A Refactoring Example
   - Refactorings for Scala
2. The Project
   - Architecture Overview
   - Implemented Refactorings
3. Demo
4. Outlook

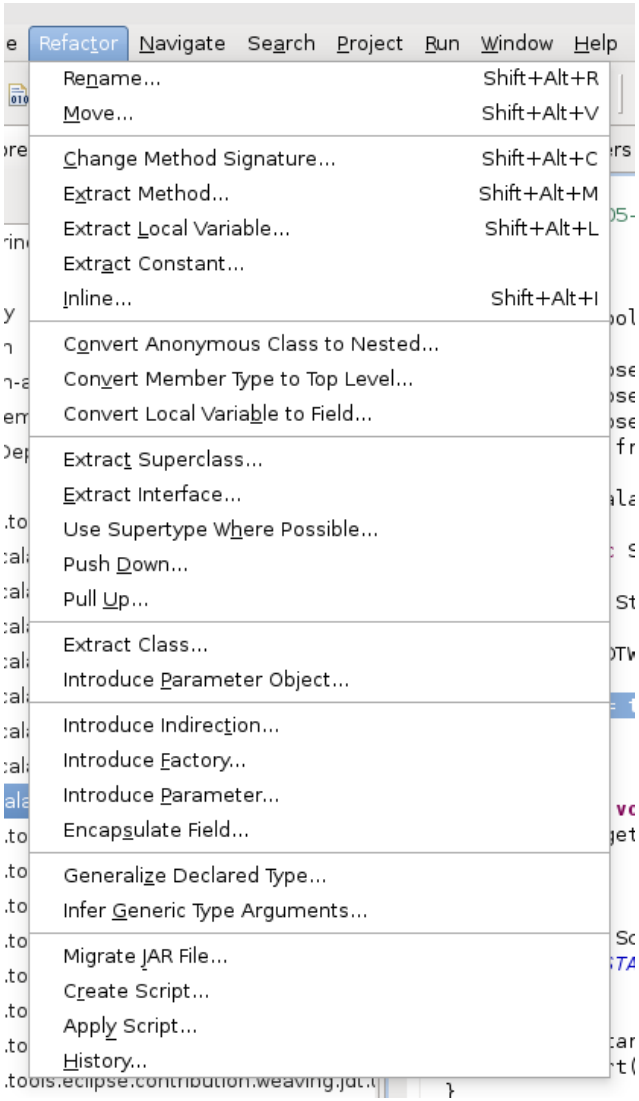
What is *Refactoring*?

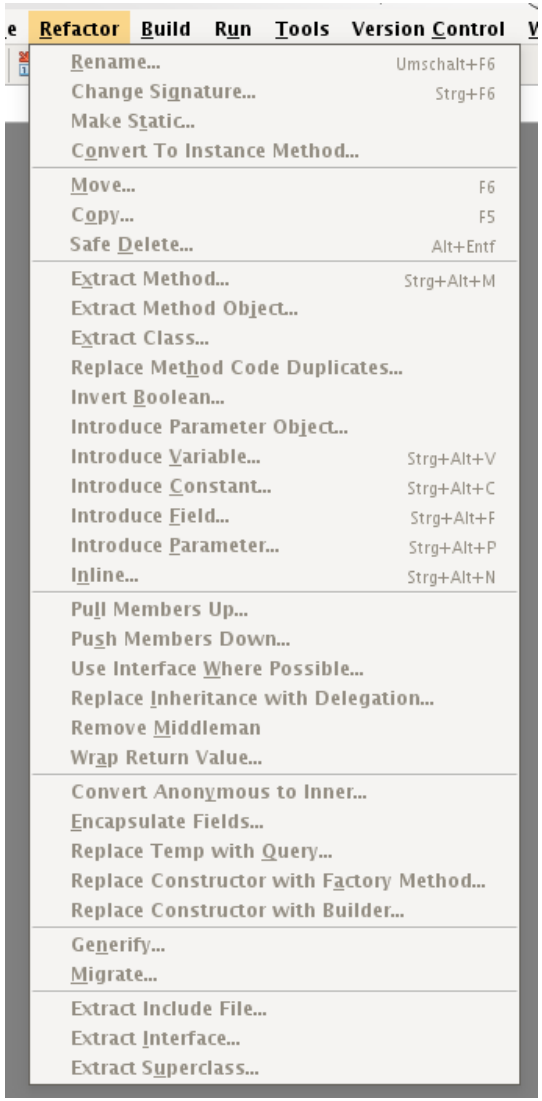
Refactorings are

> *program restructuring operations that support the design, evolution and reuse of object-oriented application frameworks.*

[Opd92]

What is *Automated* Refactoring?





An Example: Extract Method in Scala

```
def sendNotification() {
  val connection = openSmtpConnection()
  val emailMessage = createMessage()
  val status = connection send emailMessage
}
```

An Example: Extract Method in Scala

```
def sendAnEmail(connection: Connection) = {
  val emailMessage = createMessage()
  connection send emailMessage
}
def sendNotification() {
  val connection = openConnection()
  val status = sendAnEmail(connection)
}
```

An Example: Extract Method in Scala

```
def sendAnEmail(send: Message => Status) = {
  val emailMessage = createMessage()
  send(emailMessage)
}
def sendNotification() {
  val connection = openConnection()
  val status = sendAnEmail(connection.send)
}
```

Refactorings from Java

Most used refactorings in Eclipse JDT are:

- Rename
- Extract Local Variable
- Move
- Extract Method

Scala Specific

Traits

- Split
- Rename
- Extract

Scala Specific

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Pattern Matching

- Convert Conditionals
- Convert Instance Checks
- Introduce Extractor

Scala Specific

Traits

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and many more . . .

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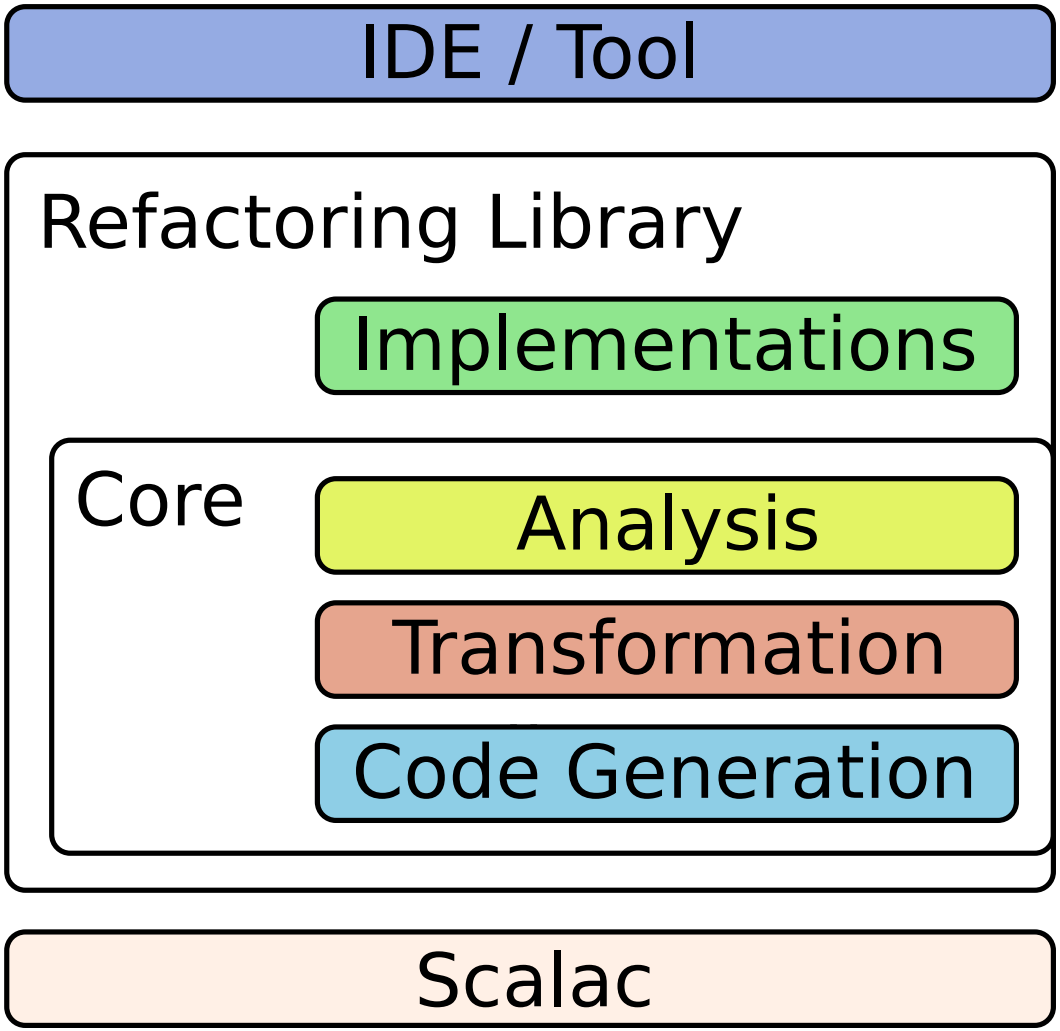
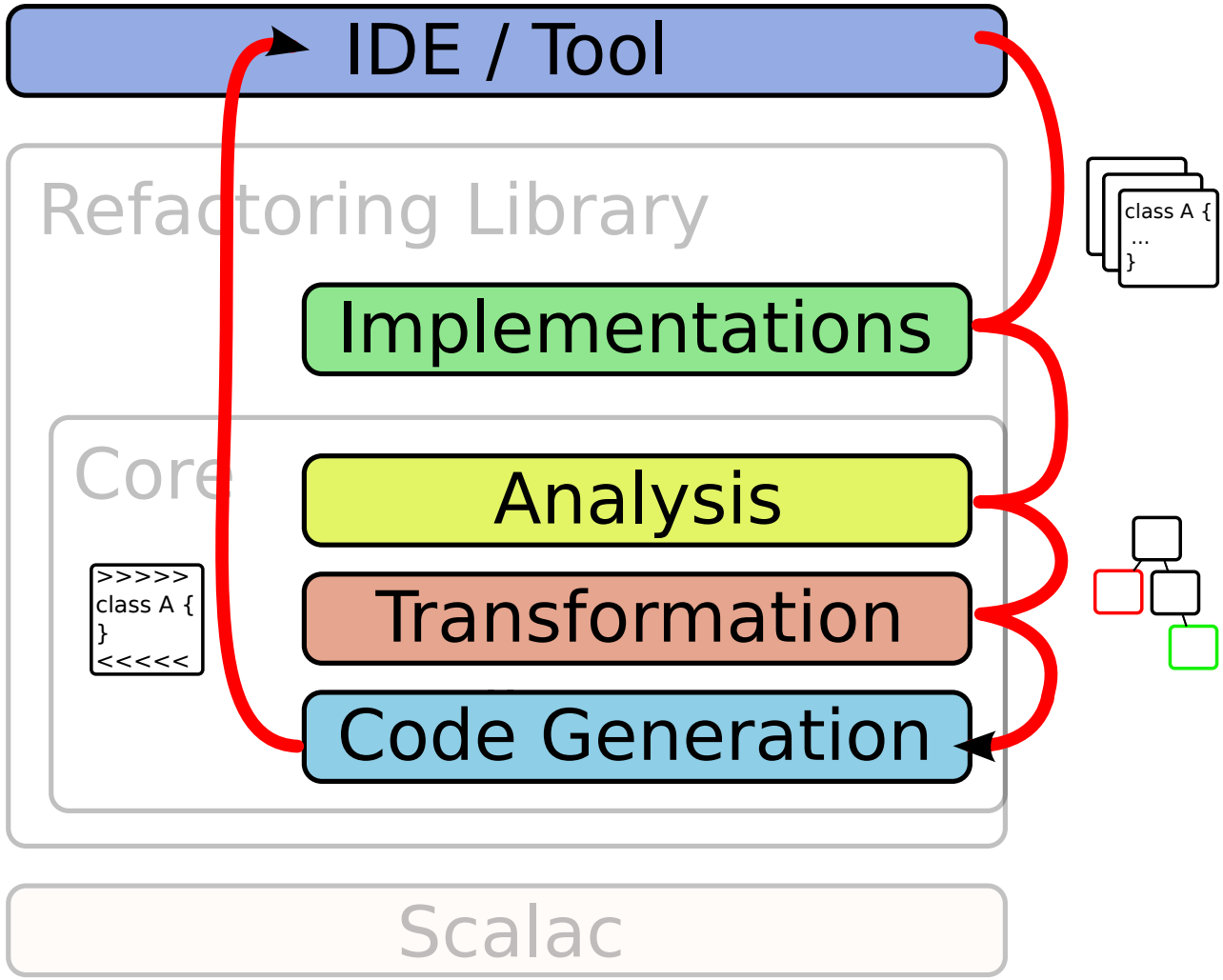
Scala Refactoring Project

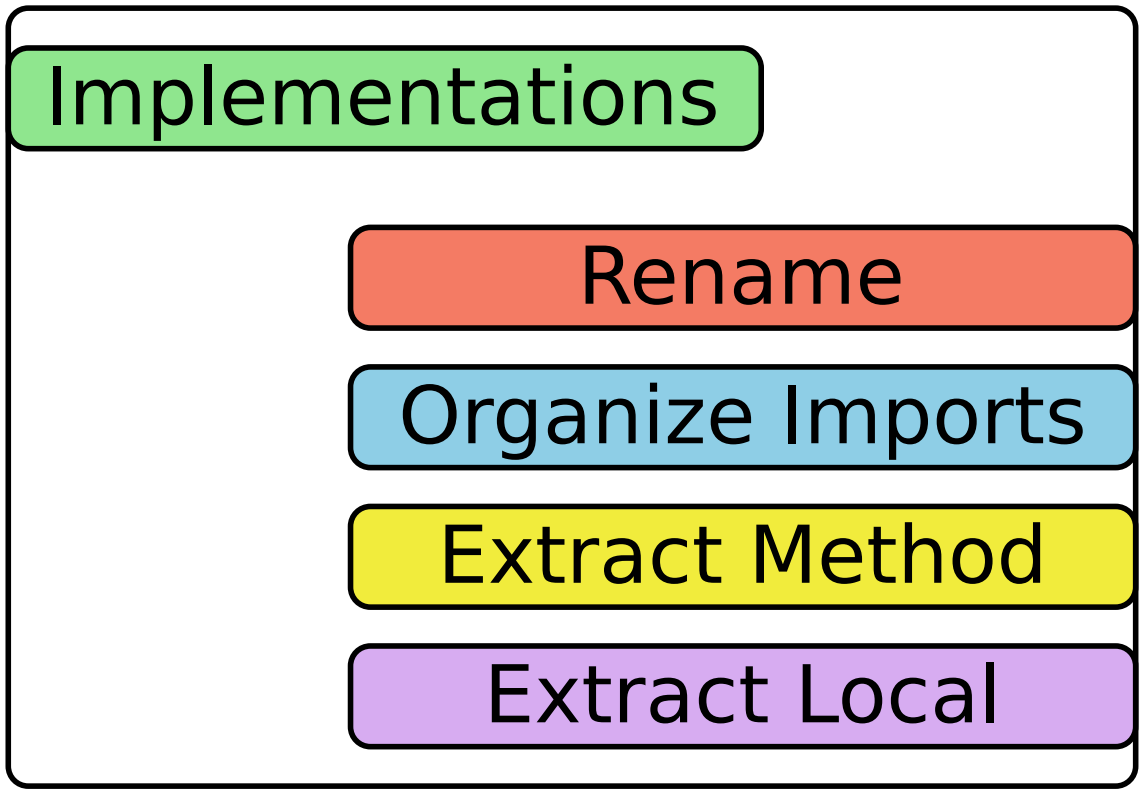
Architecture Overview



Architecture Overview



Implemented Refactorings



Demo

Outlook

Next Steps

- Scala IDE Integration
- Stabilizing the Library
- More Refactorings

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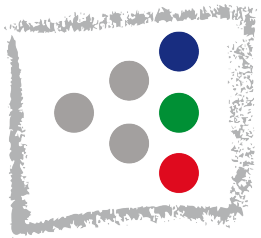

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