Making Refactoring Safer Through Impact Analysis

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It’s difficult to implement refactorings!

\[
\begin{align*}
(\rightarrow) \text{cond}_1 \text{ and } \text{cond}_2 \text{ and } \ldots
\end{align*}
\]

How to improve confidence in refactoring transformations?

Test Suite

\[
\begin{align*}
\text{assertTrue}(\text{new A().m()}, 1) \quad \text{assertTrue}(\text{new A().m()}, 1) \\
\text{assertTrue}(\text{new B().bar()}, 0) \quad \text{assertTrue}(\text{new B().bar()}, 0)
\end{align*}
\]

[Rachatasumrit, e, Kim, ICSM 2012]

JMeter
XMLSecurity
ANT
SafeRefactorImpact

Safira

Change Impact Analysis

Transformation <Add Field>

cds
class C extends D {
  
  ads
  mds
}

cds'
class C extends D {
  
  ads'
  mds'
}

All methods that use C.f or any f inherited from C
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