

Augmenting a Source Code Editor with Method Nullability Data

Seminar Software Composition, S2017

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Intro

method nullability

#null-checks / #invocations

E.g. `CloseableHttpClient.execute(uriRequest)`:

#null-checks: 85

#invocations: 294

nullability: 0.29

method nullability plugin

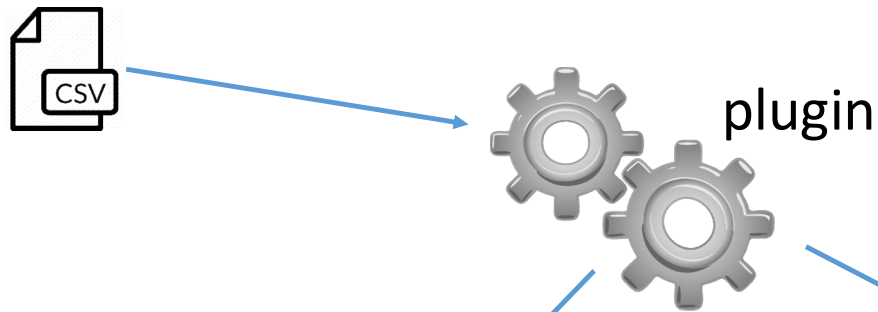
Null checks: Eclipse null analysis + external annotations (EEA)

Documentation: Javadoc Hover

DEMO

Solution

Ex. CloseableHttpClient.execute(..)



```
*CloseableHttpClient.eea x
```

```
1 class CloseableHttpClient  
2 execute  
3 (LHttpRequest;)L...CloseableHttpResponse;  
4 (LHttpRequest;)L0...CloseableHttpResponse;  
_
```

- @Nullable CloseableHttpResponse org.apache.http.impl... (HttpRequest request) throws IOException, ClientPr

Executes HTTP request using the default context.

Specified by: [execute\(...\)](#) in [HttpClient](#)

Parameters:
request the request to execute

Returns:
the response to the request. This is always a final response code. Whether redirects or authentication challenges will be implemented depends on the implementation and configuration of this client.

29% check the returned value (85 out of 294 invocations)

+ Eclipse null analysis

DEMO

Initial attempt

rewriting of AST

use of markers

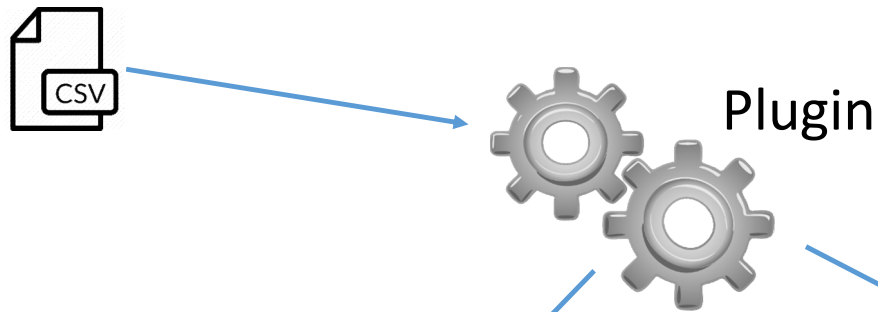
problems: invasive, source changes, limited access to compiler bindings

vs. solution:

non-invasive, no source changes, compiler integrated

Recap

CloseableHttpClient.execute(..)



```
*CloseableHttpClient.eea x
```

```
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<https://github.com/maenu/method-nullability-plugin>