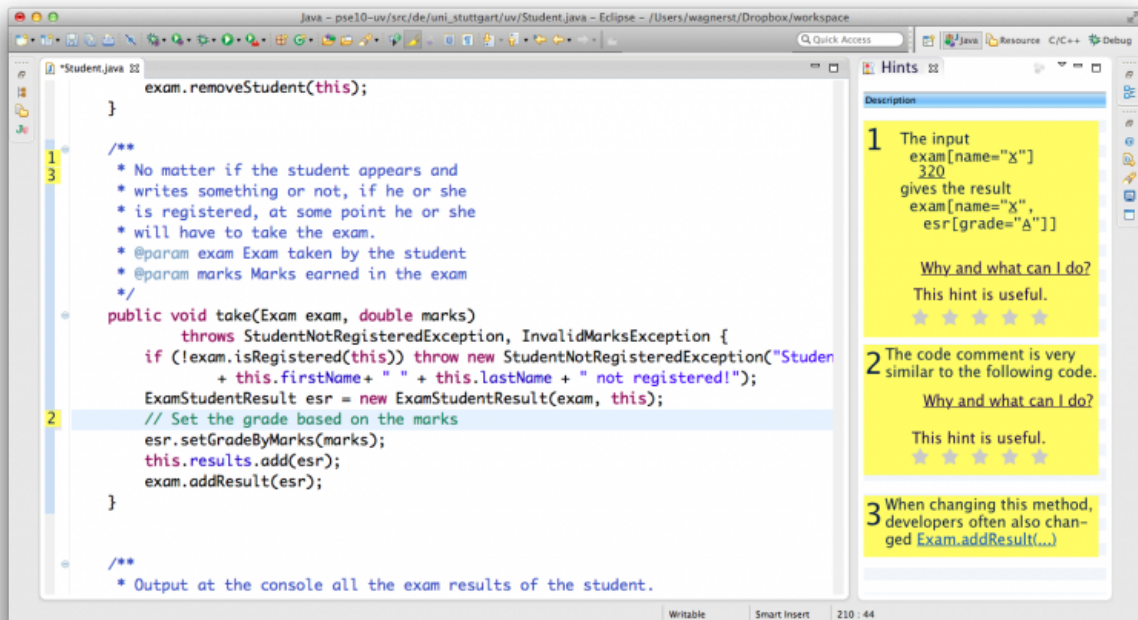


New DFG Grant proposal for a software quality control able to stand the test of time

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Mockup of continuous and focused feedback in an integrated development environment. Credit: Prof. Dr. Stefan Wagner

For a software to be maintained in an optimal condition, as well as in track of any necessary updates and innovations, it needs to be kept in check constantly. This appears to be the only way for any potential quality problems that may arise to be detected and handled momentarily

well before a user can encounter them.

A new grant proposal, addressed to the [German Research Foundation \(DFG\)](#), authored by Prof. Dr. Stefan Wagner, [University of Stuttgart](#), and published in the open-access journal [Research Ideas & Outcomes \(RIO\)](#), suggests a new persistent set of [quality](#) control approaches meant to start analysing a [software](#) both manually and automatically during its creation and well before it has even been introduced.

The proposed methods, which Prof. Dr. Stefan Wagner envisions as a solution to software quality decay, provide thorough, contextual and focused [feedback](#) to the developers, who in their turn need less time and efforts to make sense of the new information. To achieve this, novel tools are to initiate regular analyses even before the implementation of the software changes and go on during the changes.

Previous knowledge and experience from similar problem-detection tools and practices are to be utilised as well. "Contemporary quality models, dynamic slicing and online discussions could even provide rationales for the feedback to support its acceptance and understandability," explains the German researcher.

A particular issue addressed by the Professor of Software Engineering in his present publication are the so-called 'co-changes', which are changes to source code files that need to occur together. For example, if developers introduce a new feature it will cause changes in the functional part of the source code as well as the user interface. Such co-changes can lead to a defect when the change to the user interface is omitted. Giving such information on co-changes is especially useful to give the developers directly while they perform the change.

"Advances in static analysis, test generation and repository mining allow us to give further feedback to developers, potentially just-in-time while

performing changes," Prof. Dr. Stefan Wagner points out. "These analyses have not been incorporated into a joint feedback system that gives focused hints."

More information: Stefan Wagner. Continuous and Focused Developer Feedback on Software Quality (CoFoDeF) , *Research Ideas and Outcomes* (2015). [DOI: 10.3897/rio.1.e7576](https://doi.org/10.3897/rio.1.e7576)

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