CUTE Extension for VS Code

Diplomanden

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Ausgangslage: CUTE is a lightweight testing framework that offers the possibility to write automated C++ tests. To offer the best possible user experience, a plug-in for the Cevelop IDE exists. This plug-in provides functionality such as a test navigation, green/red bar test outcome visualizations, and difference viewers for assertion failures. Furthermore, it offers convenience features that make C++ testing easily accessible. The CUTE framework is used in the C++ modules offered at OST Eastern Switzerland University of Applied Sciences.

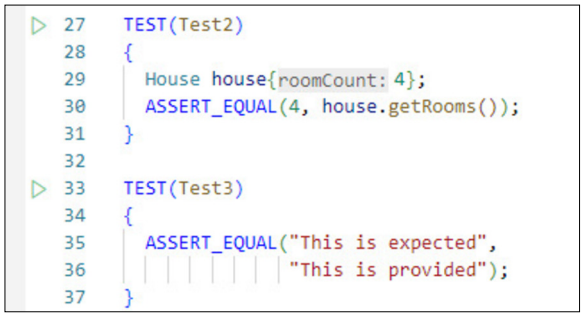
To offer a wider range of tooling choices in the C++ modules, it would be desirable to have the CUTE testing framework integrated into Visual Studio Code. This integration should be implemented in the form of a testing extension, which offers similar functionality as the Cevelop plug-in and makes sure that C++ testing can be done as easy as possible. Through the integration into a widely known development environment such as Visual Studio Code, CUTE also becomes accessible by a larger group of C++ developers.

Vorgehen / Technologien: In a first step the possibilities to integrate CUTE into Visual Studio Code had to be evaluated.
This evaluation primarily focused on the different approaches to create a testing extension for VS Code. In a second step the evaluation focused on the possibilities to elaborate the required information from the test executables and from the test code itself. During this elaboration, prototypes were created for each key functionality. In a second phase of the project, the functionality was implemented based on the findings from this analysis. To make sure that the required functionality is working and can be used during the C++ modules, the newly created extension had to be tested on multiple different levels.

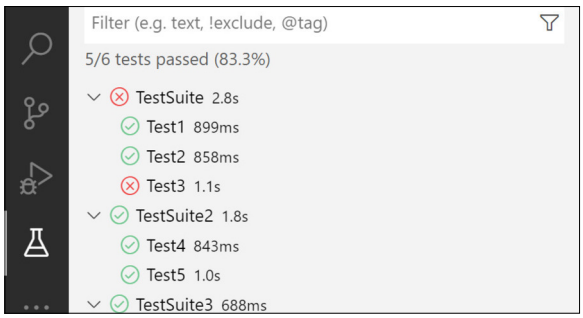
Ergebnis: The Visual Studio Code extension created in the scope of this thesis provides all mandatory functionalities to make the CUTE framework usable in VS Code. These functionalities include test discovery, navigation within the test code, creation of test runs that include a single or multiple test cases, and debugging of such test runs. In addition to these minimal required functionalities, convenience features were implemented with the aim to make the usage of the CUTE testing framework for C++ testing as easy as possible. These convenience tools simplify the creation of new test projects, new test suites and new test cases. The extension analyzes the test code and warns the users about potential problems such as unregistered tests.

The Visual Studio Code extension created in the scope of this thesis provides an additional choice of IDE for C++ students or generally while using the CUTE framework. The user interface is familiar to many developers that have worked with VS Code before. This makes using the extension easy right from the beginning and the powerful convenience tools further simplify C++ testing using the CUTE framework.

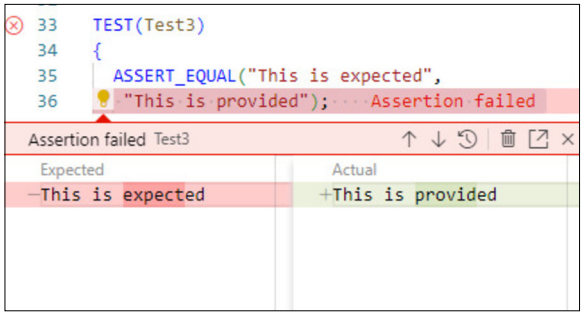
Editor Integration
Eigene Darstellung



Test Explorer
Eigene Darstellung



Assertion Failure Visualization
Eigene Darstellung



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Themengebiet
Software