1 TESTed deel 1, tijdelijke titel

1. Structuur van een test suite 2. Uitvoeren van de testen en plannen van de testen 3. Resultaten verwerken en interpreteren 4. Resultaat

This chapter describes how TESTed works internally. How a test suite is written is handled elsewhere. TODO: link once written.

This chapter handles how a test

1.1 Conceptual design

The main idea behind a programming-language-independent test framework is that an exercise designer can write a single test suite for a programming exercise, while the test framework is still able to evaluate submissions in multiple programming languages.

TESTed implements this concept using code generation. This means that TESTed converts the test suite on the fly suite into the programming language of the submission. It also takes care of the various aspects of the evaluation process: compiling the submitted code, executing the submission together with the test code, interpreting the results, and generating feedback.

While some parts of the evaluation process are obviously programming-language-specific, such as generating the test code, a lot of parts are not. For example, creating an execution plan or interpreting the test results and generating the feedback are not specific to any one programming language. Therefore, the language-specific aspects are isolated in language modules, as illustrated in fig. 1.1.

TESTed is written in Python and organized into a set of Python modules and packages.

Another module consists of the core, which is responsible for all language-independent tasks, such as scheduling tests. This is discussed in TODO. In

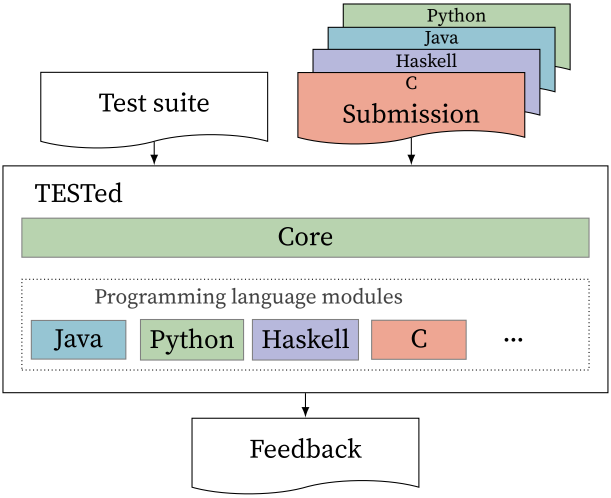

Figure 1.1: Conceptual design of TESTed, with colors indicating different programming languages. The framework is composed of programming-language-specific modules and a core library (written in Python). TESTed accepts the test suite for a programming exercise as input, together with a submitted solution in one of the supported languages, and generates a feedback report as output.

most cases, the core is also responsible for checking the collected test results and generating the feedback. This is discussed in TODO.

All aspects that are specific to one programming language are bundled in one Python module.

The language-specific modules take care of all language-specific tasks, such as compiling submissions, executing submissions, and handling language-specific data types, expressions and statements. These modules are discussed in Programming-language-specific modules.

The main idea behind TESTed is that the exercise designer writes a single, unified test suite for the programming exercise. This test suite is independent of the programming language of the submissions for this exercise. It is then the responsibility of the test framework, TESTed

1.2 Architectural overview

Hallo

A Python module is

simply a `.py` file, while a Python package is a folder containing one or more modules.