Line-Based Source Code Analysis in the Course of Time

Motivation

The Code-Evolution Framework tool developed at our chair serves for assessing and evaluating source code within a project. The tool runs in the background and stores currently compiled source code in a repository.

Additionally, it provides the possibility of analyzing the respective repository with different metrics / analytic approaches. These analysis possibilities are supposed to be enhanced via single modules.

Goal

The goal of this thesis is providing an exact evaluation possibility of software project development. Single source code lines (semi and fully automatic) shall be analyzed considering their devolution: how often did a change take place, does the respective line exist in the final version, what other lines have been affected by the respective lines?

Your task is to enhance the analysis possibilities in detail in addition to the implementation. The superior goal is to enable the use of basic variables that allow the evaluation of the project.

In the scope of this thesis you must create a tool in the C#/ .Net Framwork. The result must be stored for the purpose of further analysis as a comma-separated text file. You will have access to 1,7 Gigabyte data sources from 6 experiments. The evaluation of the approximately 60 participants represents a relevant aspect of the tool's evaluation. This requires precise assessment of changed data.

Literature

- Kontrollierte Experimente in der Softwaretechnik [Pre03]
- Experimentation in Software Engineering [Woh02]

Tutor

- Dr.rer.nat. Dirk Wilking

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