Collaborative editing in *emacs*

December 2014

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group	PMA
type	60 ECTS
recommended background	program development, concurrency, editor functionality, client-server programming
study program	computer science

Short description

The task is to design, implement, and validate a collaborative editing facilities in *emacs*.

Background and motivation

A collaborative editor is an editing application which allows multiple users to jointly work on common texts or documents. Being distributed, a collaborative editor poses challenges wrt. maintaining an appropriate form consistency of shared documents, resp. offering graceful behavior and support in case of conflicting edits. In this work, collaborative editing facilities will be incoporated into *emacs*, a widely used, powerful and extensible general-purpose text-editor [1].

Problem setting

The work includes conceptual and implementation work. On the conceptual side, an appropriate "memory consistency model" will be chosen. The corresponding distributed algorithm, maintaining the corresponding document consistency, will be abstractly described and modelled, and ideally validated by means of model checking.

The implementation will offer the mentioned collaborative editing feature inside *emacs*. The tool will be designed as a *client/server* architecture (as opposed to a fully symmetric peer-to-peer solitution). As language for the server-code and the core functionality, Clojure [2] is planned, a modern Lisp dialect, offering modern concurrency abstractions, including transactions. support for

Keywords: collaborative editor, concurrent and distributed programming

References

[1] D. Cameron, J. Elliott, M. Loy, E. S. Raymond, and B. Rosenblatt. *Learning GNU Emacs*. O'Reilly, 3rd edition, 2004.

[2] C. Emerick, B. Carper, and C. Grand. *Clojure Programming*. O'Reilly, Apr. 2012.