

COSMIC Functional Size Measurement Zitat-Service

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Introduction

This report measures the functional size of the web application <http://www.zitat-service.de> which is mainly implemented with the framework Ruby on Rails (RoR) and contains also a Perl-script to deliver the quotations and modules for the content management system Joomla, implemented in PHP.

The functional size measurement is based on the Common Software Measurement International Consortium method COSMIC, version v3.0¹ which is recognized as ISO/IEC 19761.

Phase 1 Measurement Strategy

Applicable Domain: Given as web and data rich application.

Measurement Sponsor: Systemberatung Heiko Lübke

Purpose of the Measurement: Learning functional point analysis with COSMIC v3.0 and have a numeric base value to compare with.

Scope of the Measurement: The existing and productive software serving the website <http://www.zitat-service.de>. The Functional User Requirements (FUR) include the RoR application to maintain the quotations, the Perl script which provides the service to retrieve the quotations and the supporting Joomla modules.

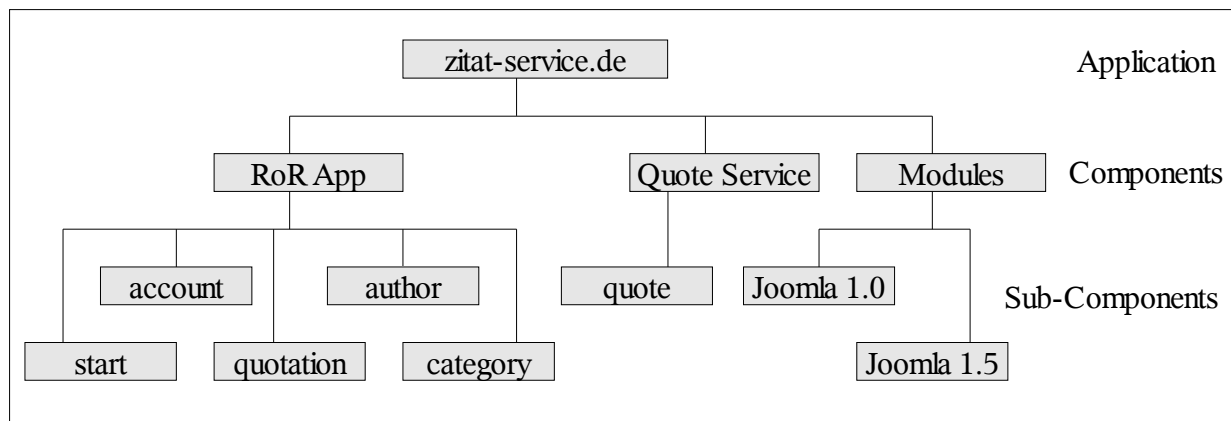
The scope doesn't include the trac software to maintain the bugs and feature requests. It also not include the Ruby on Rails framework itself and the deeper software layers of the Ruby programming language, the MySQL database system and the Linux operating system.

Logging entries (Apache server access log, RoR access and RoR error log) are ignored.

Analyzed software version is Subversion Revision 78, see APPENDIX A on the last page how to access the source code.

¹ Method documentation is free available from <http://www.cosmicon.com>.

Level of Decomposition: There is only one application layer analyzed.² The component RoR application is further decomposed in the peer sub-components relating to the RoR views account, author, category, quotation and start. Two more components are the quote Perl script serving the quote requests and the supporting Joomla modules.



Functional Users:

1. People reading, inserting and maintaining quotations with the RoR application.
2. Web pages requesting quotations from the quote service
3. Joomla CMS calling a Joomla module to display a quotation³

Phase 2 Mapping

Identifying functional processes are easily in the Ruby on Rails application as they are mostly the RoR controller actions.

Objects of interest based on persistent storage of the tables in the MySQL database are:

- User of the web application
- Author of the quotation
- Category of the quotation
- Quotation itself

Data attributes stored in the persistent storage are shown on Entity-Relationship Model (ERM) on appendix A. The table categories_quotations which stores the categories for the quotations are counted to the quotation data.

One more object of interest is the login session which is held on users web browsers cookies with cookie _quote_session_id (user session) and auth_token (remember me).

The remaining object of interest is application, which gives e.g. information to the users. Here are also assigned some more data groups like size24x7 reports or Joomla modules as software download as creating more object of interest would not change the measurement.

² The Joomla modules could be seen as higher layer as they are using the quote service. But as this isn't important for the measurement it is ignored here to simplify.

³ The Joomla modules are calling also the quote Perl-script to get the quotations.

Confirmation or error messages are only counted for write operations new, update and delete.

Not counted are:

- Notify messages (e.g. Note about the sort order),
- Error messages from RoR controller actions start/not_found and start/error_found (e.g. quotations for unknown user name doesn't exist),
- Navigation menu, which is presented on every page,
- Individual SEO optimized page title generation for every page,
- Access rights, which gives edit buttons only on own categories, authors and quotes,
- Remove button for categories and authors, which exist only for unused entries and
- Administrator rights which gives edit and remove buttons on all users entries and gives also the 'make public' buttons.

More hints in detail are given in the data groups table which you can see if you open the original table.

Phase 3 Measurement

The web application <http://www.zitat-service.de> is measured with **217 CFP (v3.0.1)**.

The measurement report table is attached in the end and also available for download.

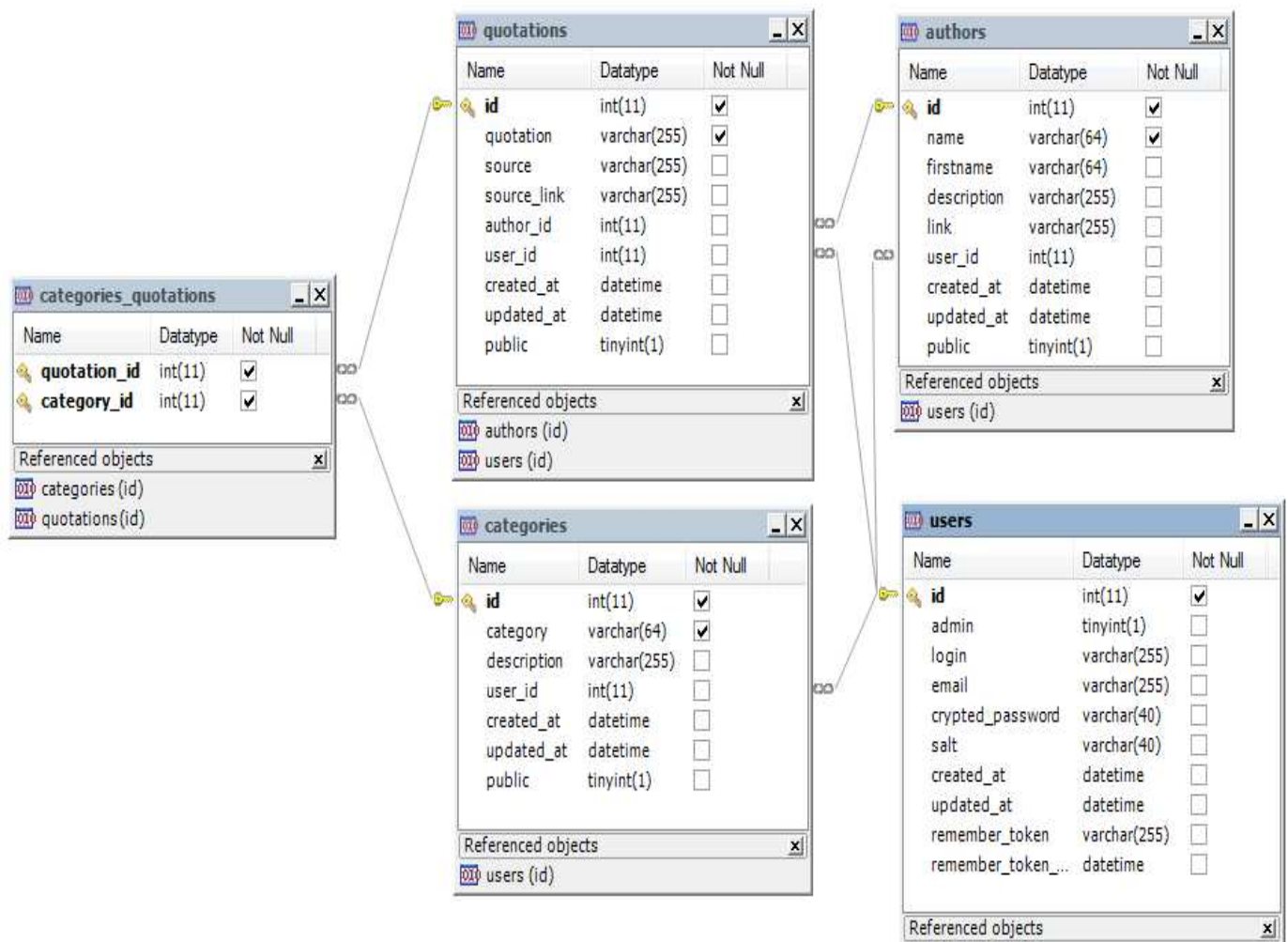
As the Joomla components are using also the quote-Perl script they are counted analogous to simplify.

Lesson learned is that the sub-components categories and authors are very similar and it is precise enough to count one of them and use this count for all of them.

Appendix A - References

ERM

The database Entity-Relationship Model as shown below can be found in original on http://www.zitat-service.de/ER_diagram.png



Software Sources

The software sources are free accessible. They are browseable with user anonymous and password anonymous from <http://svn.zitat-service.de/svn/quote> or could be checkout with Subversion, e.g. from the command line with:

```
$ svn co http://svn.zitat-service.de/svn/quote
```

Generic Software Model – Data Groups

Object of Interest	Data Group
User	User Database Data
Application	Click
Application	Help information (Hilfe)
Application	Usage information (Einbinden)
Application	Joomla usage information (joomla)
Application	Startpage Information
Application	Contact information (Impressum)
Application	Project information (Projekt)
Application	Report from site24x7
Application	Search term
Application	Error/Confirmation Messages
Application	Downloads quote.css
Application	Downloads Joomla modules
Author	Author Database Data
Author	Author Name, Description and Actions
Author	Number of authors
Author	Non-Public Authors available
Category	Category Database Data
Category	Category, Descriptions, Quotes and Actions
Category	Number of categories
Category	Non-Public Categories available
Quotation	Quotation Database Data
Quotation	Quotation, Author, Source and Actions
Quotation	Number of quotations
Quotation	Non-Public Quotations available
Login Session	login data from cookie auth_token
Login Session	username
Login Session	Session Data (cookie _quote_session_id)

This table and the following table are available as OpenOffice Calc document:
http://www.consulting.heikol.de/hlu/files/zitat-service_CFP.ods

Component	Sub-Component	Functional Process	Σ	E	X	R	W	User	Application										Author				Category				Quotation				Session																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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