

Creating a Software Architecture Documentation for MediaWiki Software

Master's Thesis Kick-Off Presentation

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Motivation

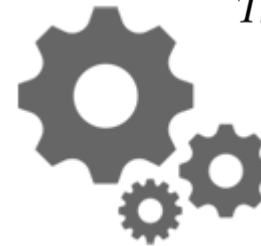
- MediaWiki is a software that powers Wikipedia
- MediaWiki was introduced in 2002 and has been constantly developed further by an active volunteer community
- The architecture of MediaWiki has been often determined by initiatives and requests from the community and evolved significantly over time
- The documentation of this architecture was however performed very scarcely



Closing this gap would provide the community with a resource to educate its new members and foster the further contribution from volunteer developers



WIKIPEDIA
The Free Encyclopedia



MEDIAWIKI

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WikiPage : MediaWiki Architecture
very high level description of the system



Manually written documentation

Problems:

- Documentation is mostly tutorials&manuals based, no detailed description of SA components and their interactions
- Documentation is unstructured and difficult to navigate
- Almost no visualization is used
- Some documentation is outdated
- Rudimentary versioning

WikiPage

Manual

Help
Page

Tutorial

...



Automatically generated documentation
low level description: classes and functions



Source code in git repository



Research Questions

- Who are the **stakeholders** for software architecture documentation of MediaWiki? What are their **needs**?
- What are the **problems/deficiencies** in available documentation?
- What are the **steps** to be taken to **understand** the existing software? What is the **methodology**? Are there established **industry practices**?
- What are the **steps** to be taken to **produce the documentation**? What kind of **models** to use? What kind of **tools**?
- After the documentation is performed: What is the resulted **structure** of the documentation and what is the **reason** and **motivation** for it?

Methodology

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Requirements' analysis

- Identify the stakeholders
- Interview the stakeholders
- Assess the quality of current documentation and identify problems
- Derive goals and requirements for the new documentation

Literature research

- Literature research on software analysis, architecture recovery and reverse engineering
- Literature research on software architecture documentation

Understanding of MediaWiki software

- Study development documentation
- Analyze code
- Interview and Q&A session with developers in Berlin

Documentation

- Perform documentation process

Evaluation

- Evaluate the results of the documentation based on the achievement of initial requirements
- Interview the stakeholders regarding the added value of produced documentation
- Review the documentation process

- **Requirements' analysis:**

Surveys and interviews with MediaWiki developers and members of Architecture committee

Literature research

Study of current documentation

Analysis of tasks on MediaWiki's issues tracking tool – Phabricator

Extension development

- **Code analysis:**

Extension development

Profiling and logs

- **Documentation:**

Literature research

Visualization (UML, BPMN, ADL, Templates)

- **Evaluation:**

Surveys and interviews with MediaWiki developers and members of Architecture committee

Evaluation

- **Have the initial requirements been achieved?**

Requirements	Achieved
Documentation is in wiki format	✓
Documentation is uploaded to mediawiki.org	✓
Documentation is localizable	✗
A manual for updating visualizations in .png is provided	✓
...	

- **Has the produced documentation met the needs of stakeholders?**

Interviews/surveys with stakeholders regarding the added value of the produced documentation:

Were the identified problems solved?

Are the selected tools and models easy to understand and use?

Does the provided structure lead to a better navigation through documentation?

- **Does the new documentation help unexperienced developers to perform tasks in a more efficient way?**

20 people, 3 tasks

10 people perform tasks with old documentation/ 10 people with new

Time comparison, interviews with participants



Timeline



Work plan

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Timeline

February	March	April	May	June	July
Requirements' analysis					
	Understanding of MediaWiki software				
Literature research					
			Documentation		
				Evaluation	
				Thesis Writing	



Thank you for your attention. Questions?



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