



Ein kollaborativer \LaTeX -Editor in der Cloud

Kolloquium

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Überblick

Aufgabenstellung

- Application-as-a-Service
- nutzt bestehende ITM Cloud Computing Lab Infrastruktur
- gemeinsames und gleichzeitiges Editieren von Dokumenten
- Syntax-Highlighting
- PDF-Voransicht im Browser
- Versionierung der Dokumente in einem Git-Repository
- Benutzerzugriff über ITM-LDAP

Bestehende Lösungen

FlyL^aTeX

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Fly Latex

Viewing the document 'Thesis'

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Editing Thesis
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```

1 \documentclass{article}
2
3 \begin{document}
4
5
6
7 \centerline{\sc \large A Simple Sample \LaTeX\ File}
8 \vspace{.5pc}
9 \centerline{\sc Stupid Stuff I Wish Someone Had Told Me Four Years Ago}
10 \centerline{\it (Read the .tex file along with this or it won't
11     make much sense)}
12 \vspace{2pc}
13
14 The first thing to realize about \LaTeX is that it is not "WYSIWYG".
15 In other words, it isn't a word processor; what you type into your
16 .tex file is not what you'll see in your .dvi file.  For example,
17 \LaTeX will completely ignore extra spaces within
18 spaces within a line of your .tex file.
19 Pressing return
20 in
21 the
                
```

View Logs

e/texmf-dist/fonts/type1/public/amstfonts/cm/cmtt10.pfb>-dist/fonts/type1/public/amstfonts/cm/cmtt10.pfb>

Output written on 537b6d83adacdf93d000001.pdf (2 pages, 110715 bytes)

PDF statistics:

51 PDF objects out of 1000 (max. 8388607)

36 compressed objects within 1 object stream

0 named destinations out of 1000 (max. 500000)

1 words of extra memory for PDF output out of 10000 (max. 10000000)

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View Logs

A SIMPLE SAMPLE L^AT_EX FILE

STUPID STUFF I WISH SOMEONE HAD TOLD ME FOUR YEARS AGO
(Read the .tex file along with this or it won't make much sense)

The first thing to realize about L^AT_EX is that it is not "WY^SI^WY^G". In other words, it isn't a word processor; what you type into your .tex file is not what you'll see in your .dvi file. For example, L^AT_EX will completely ignore extra spaces within a line of your .tex file. Pressing return in the middle of a line will not register in your .dvi file. However, a double carriage-return is read as a paragraph break.

Like this. But any carriage-returns after the first two will be completely ignored; in other words, you

```

can't
add
more
space
between
lines, no matter how many times you press return in your .tex file.
In order to add vertical space you have to use "vspace"; for example, you could add an inch of space by typing: \vspace{1in}, like this:
                
```

Bestehende Lösungen

ShareLaTeX

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Projects
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LaTeX Templates
Info
Account

Test
+ New
main.tex
references.bib
subfile.tex
universe.jpg

```

1 \documentclass{article}
2 \usepackage{utf8}[inputenc]
3
4
5 \title{Test}
6 \author{test }
7 \date{May 2014}
8
9 \usepackage{natbib}
10 \usepackage{graphicx}
11
12 \begin{document}
13
14 \maketitle
15
16 \section{Introduction}
17 There is a theory which states that if ever anyone discovers
18 exactly what the Universe is for and why it is here, it will
19 instantly disappear and be replaced by something even more
20 bizarre and inexplicable.
21 There is another theory which states that this has already
22 happened.
23
24 \begin{figure}[h]
25 \centering
26 \includegraphics[scale=1.7]{universe.jpg}
27 \caption{The Universe}
28 \label{Fig:universe}
29 \end{figure}
30
31 \include{subfile}
32
33 \section{Conclusion}
34 I always thought something was fundamentally wrong with the
35 universe. \citet{adams1995hitchhiker}
36
37 \bibliographystyle{plain}
38 \bibliography{references}
39 \end{document}

```

Recompile
Logs
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May 2014

1 Introduction

There is a theory which states that if ever anyone discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable. There is another theory which states that this has already happened.




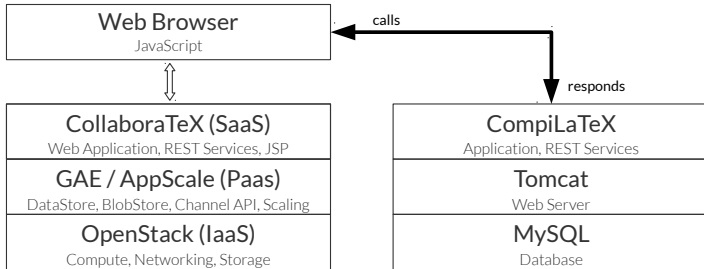
Figure 1: The Universe

2 Subfile knndknsndbn aksjflkjdlk bknsjdb

Weitere Anforderungen durch Nutzer-Umfrage

- Priorisierung durch Wichtigkeit
- fünf wichtige, sechs normale und elf niedrige Anforderungen
- ...

Architektur



Implementierung

CompiLaTeX

- einfache Java Application
- benötigt eine TexLive Installation
- Dateien werden via REST an den Server gepostet
- Kompilierung über Kommandozeile
- Log und PDF sind via REST abrufbar

Implementierung

CollaboraTeX

- einfache Website
- basiert auf der Google App Engine
- Frontend kommuniziert per REST mit dem Backend
- nutzt persistente Verbindungen zwischen Client und Server für die Synchronisierung von Dokumenten

Demo

Aufgetretene Probleme

- parallele Veröffentlichung eines ähnlichen Projektes
- Komplexität der Software-Architektur
- Schwierigkeiten mit der Testumgebung
- begrenzter zeitlicher Rahmen

Erkenntnisse

- Operational Transformation Bibliotheken fast ausschließlich für Node.js
- Google App Engine operiert ohne ein klassisches Filesystem
- Google App Engine ist recht performant und geeignet für solche Web-Applikationen

Ausblick

- Veröffentlichung auf GitHub - mit welcher Lizenz?
- Weiterentwicklung in anderen Arbeiten oder Projekten denkbar
- es gibt viele Verbesserungsmöglichkeiten