HKUI - LaTeX

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Západočeská univerzita v Plzni

26. září 2023

Latex? Co je to?

Tohle je latex. [1]

[1] Zdroj: Smiffy's Men's Gimp Costume Bodysuit with Straps and Chainmail Pants @ Amazon (from $ 26.49)

LaTeX? Co je to?

- TeX: program pro sazbu textu.
- LaTeX: sada maker pro TeX, usnadňující práci (nejen) pro uživatele bez znalostí sazby.

Jak to vypadá?

word:

Lorem ipsum

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Jak to vypadá?

latex:

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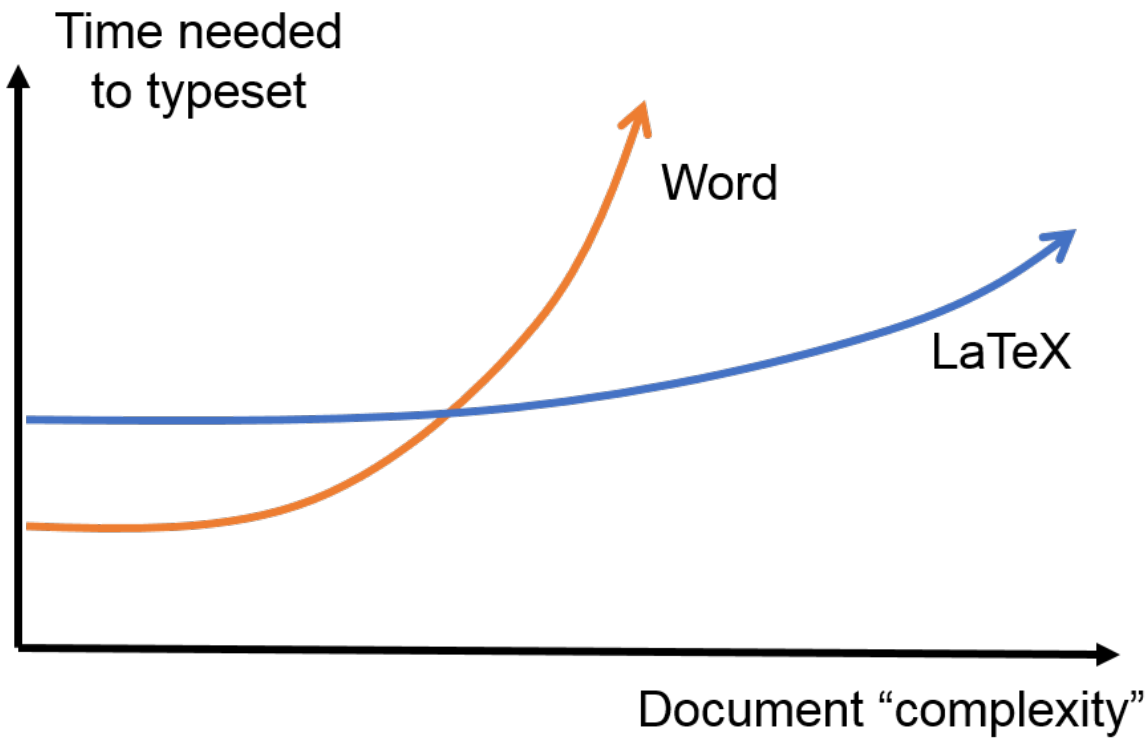
Proč používat LaTeX



Obrázek 1: LaTeXvs Word.[2]

[2] Zdroj: J. L. Blanco, mappingignorance.org

Jak se v tom píše?

```
\section{History}
The first work recognized as Motion Capture analysis was made by Eadweard Muybridge in 1872 with his series
of photographs consisting of galloping horse known as "Sallie Gardener at a Gallop" or "The Horse in
Motion". The aim of his work was to find out and obtain evidence whether all four feet of a horse were off
the ground at the same time while trotting \cite{Muybridge1979}. He used a set of 24 cameras which were
positioned about 69 cm apart alongside the track. Cameras were triggered by trip wires by horse's legs. The
technique using multiple cameras to obtain record of motion is called chronophotography and is also
considered as precursor to cinematography and moving film \cite{modern_art_history, braun2012eadweard}.

\begin{figure}[htbp!]
\centering
\includegraphics[width=0.9\textwidth]{img/The_Horse_in_Motion_high_res.jpg}
\caption{E. Muybridge's Sallie Gardener at a Gallop.}
\label{pic:gallop}
\end{figure}

E. Muybridge also conceived zoopraxiscope \cite{braun2012eadweard}. It's considered as the first or at
least one of the earliest devices for displaying moving images and a predecessor to movie projector. Images
were manually drawn on a glass disk and projected through lenses while the disk was rotated manually.

In 1915 rotoscopy was invented by Max Fleischer \cite{rotoscopy_hist}. This technology is inspired in
Muybridges's zoopraxiscope. It's an animation technique using frame-by-frame drawings or redrawn
photography of an action or performance. The principle of this technique is still used, except manual work
was eased by computers. MoCap developed simultaneously with the development of photography and
chronophotography and later it follows development of film technologies. Techniques now called MoCap was
still manual analysis of pictures or movie in that time period. \cite{Baumann1974}.

Motion capture technology in form of a dedicated device for direct 3D recording has experienced rapid
development in the last decades thanks to the movie industry. Attention has been gained primarily by Andy
Serkis playing Gollum (see Figure~\ref{pic:gollum}) in Peter Jackson's The Lord of The Rings trilogy in
2001 although he had not been the first. \cite{movie_lotr} The first artificial character made using MoCap
techniques in a world-known movie was Jar Jar Binks played by Ahmed Best in George Lucas' Star Wars saga in
1999. \cite{JarJar}

\begin{figure}[htbp!]
\centering
\includegraphics[width=0.9\textwidth]{img/gollum-serkis.jpg}
\caption{Motion capture: actor Andy Serkis in MoCap suit during recording and animated character of Gollum
during filming "The Lord of the Rings".}
\label{pic:gollum}
\end{figure}

Usage of MoCap expanded rapidly after the success of the above mentioned movies. It led to development of
different dedicated devices and it also became more affordable for wider public, which led in further
development as well.

\section{Definition}
As mentioned above, there is no rigorous definition of term motion capture. For purposes of this text, the
process of motion capture is understood as using special device to obtain and process information about
particular movement. An output of this device should be positions of selected parts of a subject in space
during desired time period.
```

3.1 History

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15

CHAPTER 3. MOTION CAPTURE

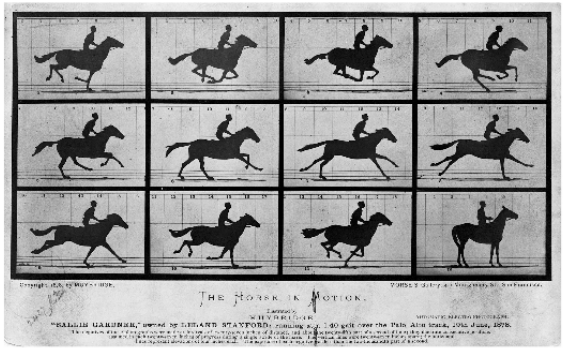

Figure 3.1: E. Muybridge's Sallie Gardener at a Gallop.

Jak se v tom píše?

```
\section{History}
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```

Jak se v tom píše?

- používání formátovacích příkazů (high descriptive markup)
- vzhled sazby se mění definicí stylu dokumentu
- systém balíků pro doplňky

A jak se v tom tedy píše?

Několik ~~základních~~ příkazů na ukázku:

- `\documentclass{}`
- `\usepackage{}`
- `\chapter{}`
- `\section{}`
- `\textbf{}`
- `\includegraphics[]{}`
- `\begin{_} ... \end{_}`
  - document
  - figure

Co to umí?

rovnice:

$$E = mc^2 \tag{1}$$

$$\forall \varepsilon > 0 : \exists n \in \mathbb{N} : \forall k \geq n : |a_k - A| < \varepsilon \tag{2}$$

$$f(x_1, x_2, ..., x_s) = \frac{1}{\sqrt{(2\pi)^s |\mathbf{C}|}} \mathrm{e}^{-\frac{1}{2}(\mathbf{x}-\mu)^T \mathbf{C}^{-1}(\mathbf{x}-\mu)} \tag{3}$$

$$F(x) = \int_{-\infty}^{x} \frac{1}{\sigma\sqrt{2\pi}} \mathrm{e}^{-\frac{(t-\mu)^2}{2\sigma^2}} \,\mathrm{d}t \tag{4}$$

jiné písmo:

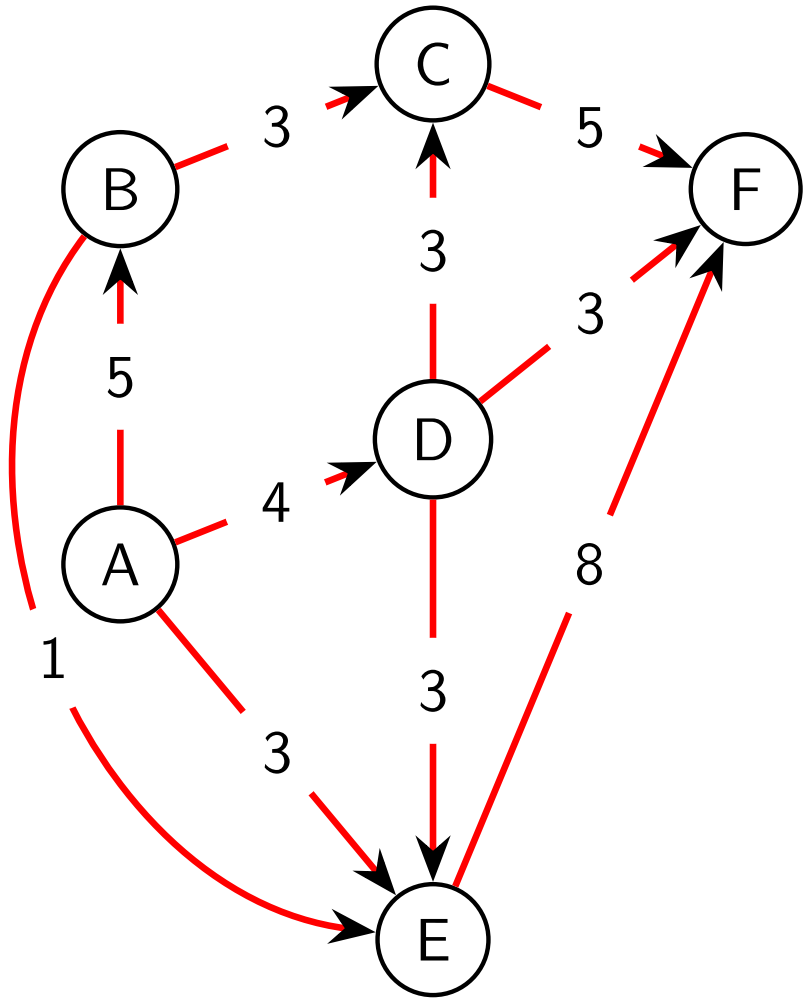
Союз нерушимый республик свободных
Сплотила навеки Великая Русь.
Да здравствует созданный волей народов
Единый, могучий Советский Союз!

Co to umí?

Col1	Col2	Col2	Col3
1	6	87837	787
2	7	78	5415
3	545	778	7507
4	545	18744	7560
5	88	788	6344

Tabulka 1: Table to test captions and labels

Co ještě to umí?

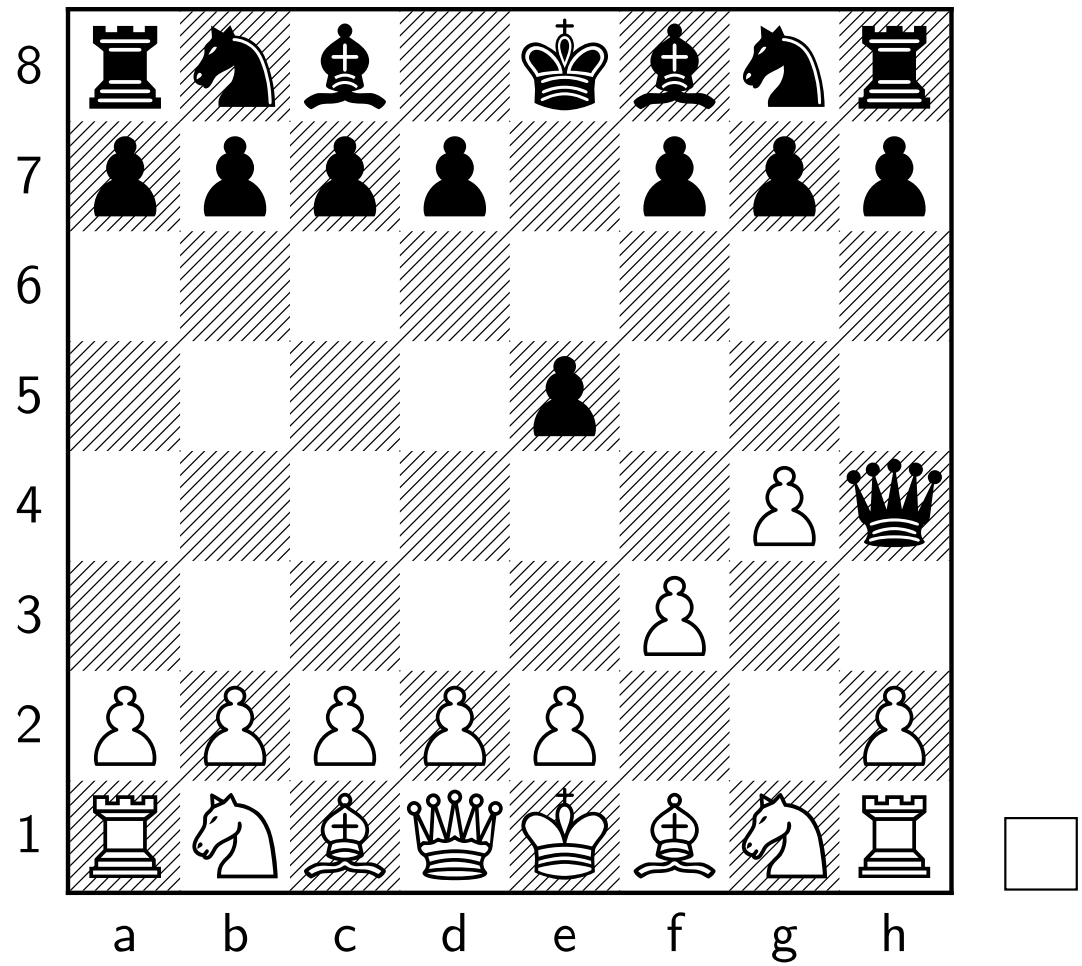


Obrázek 2: Orientovaný graf.[3]

[3] Zdroj: TeX exchange, author: Torbjørn T.

Co ještě to umí?

1. g4, e5; 2. f3, ♕h4[4]



[4] Grob's attack f-pawn defence fail.

Už jste zahlceni informacemi?

5

[5] Zdroj: Peter Jackson's The Lord of The Rings - Gollum

Zkusme udělat nějaký 'Hello world' dokument...

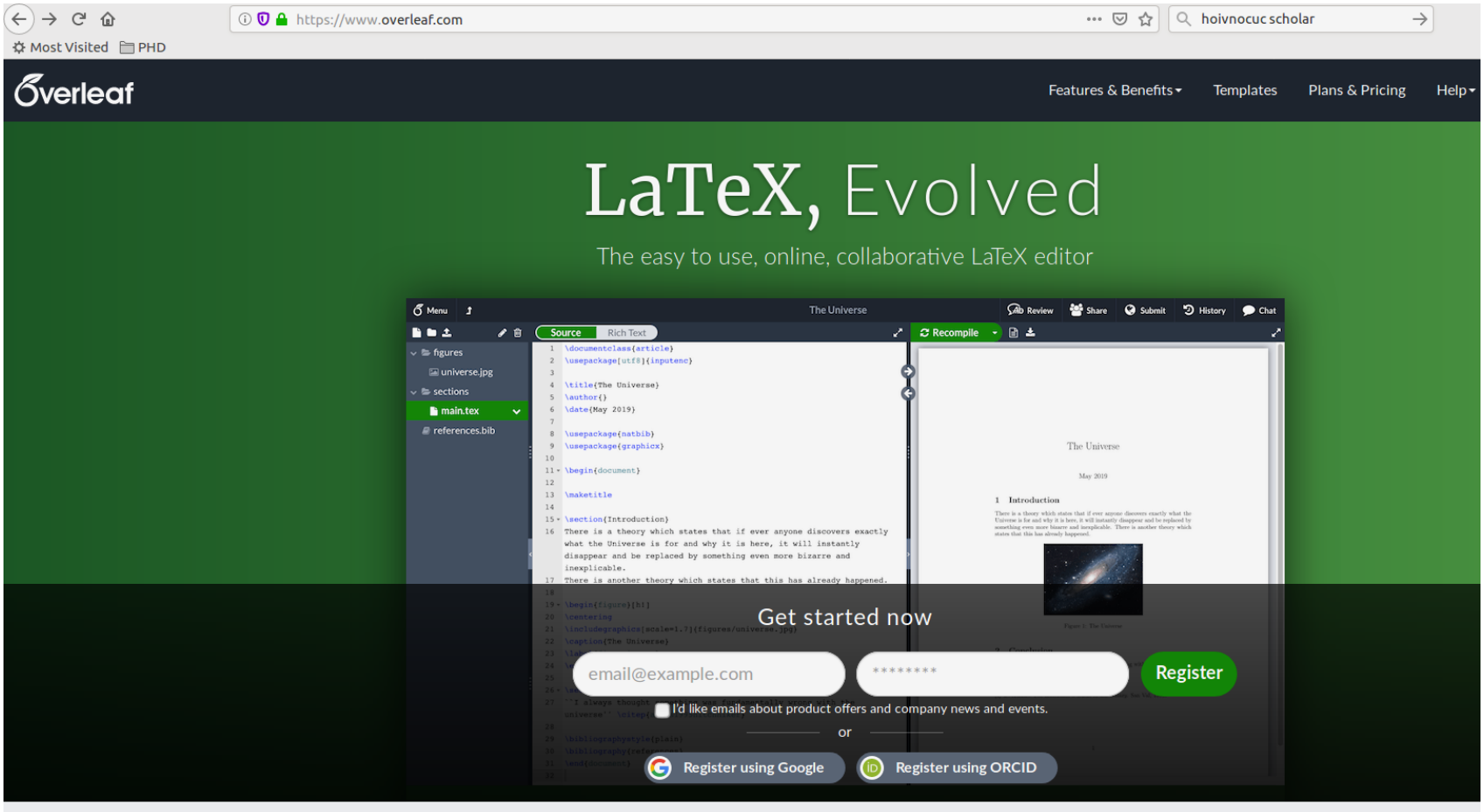
6

[6] Zdroj: Peter Jackson's The Lord of The Rings - Gollum

Kde si to můžu vyzkoušet?

- nainstalovat program (TexMaker, TeX studio, Lyx, TeXpen, Gummi, ..)
- online služba (Overleaf, Latexbase, ...)

Overleaf


https://www.overleaf.com
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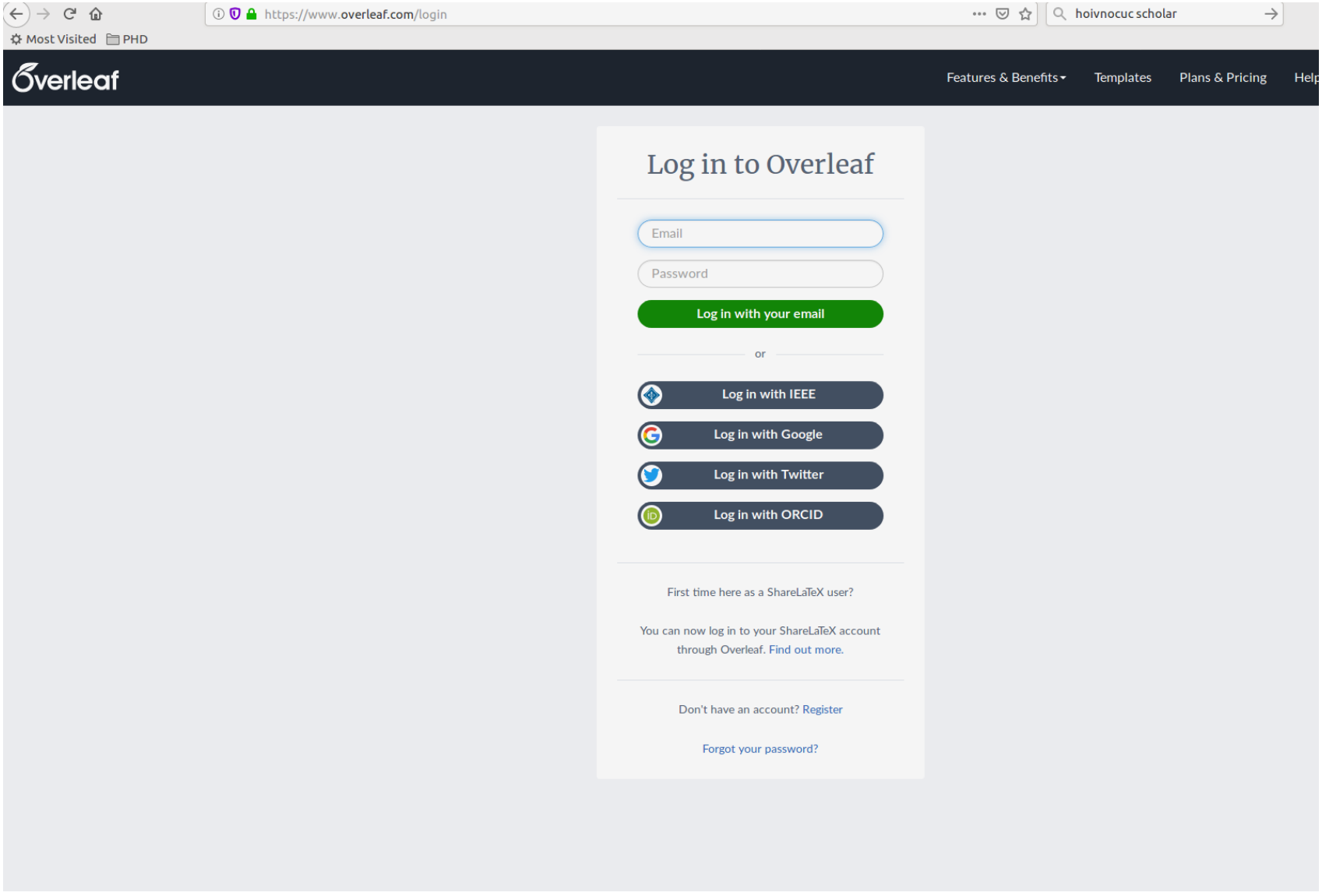
Most Visited
PHD
Overleaf
Features & Benefits
Templates
Plans & Pricing
Help
LaTeX, Evolved
The easy to use, online, collaborative LaTeX editor
Menu
The Universe
Review
Share
Submit
History
Chat
Source
Rich Text
Recompile
figures
universe.jpg
sections
main.tex
references.bib
\documentclass{article}
\usepackage[utf8]{inputenc}
\title{The Universe}
\author{}
\date{May 2019}
\usepackage{natbib}
\usepackage{graphicx}
\begin{document}
\maketitle
\section{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.
The Universe
May 2019
1 Introduction
Get started now
email@example.com
****
Register
I'd like emails about product offers and company news and events.
or
Register using Google
Register using ORCID

Overleaf


https://www.overleaf.com/login
hoivnocuc scholar
Most Visited
PHD
Overleaf
Features & Benefits
Templates
Plans & Pricing
Help
Log in to Overleaf
Email
Password
Log in with your email
or
Log in with IEEE
Log in with Google
Log in with Twitter
Log in with ORCID
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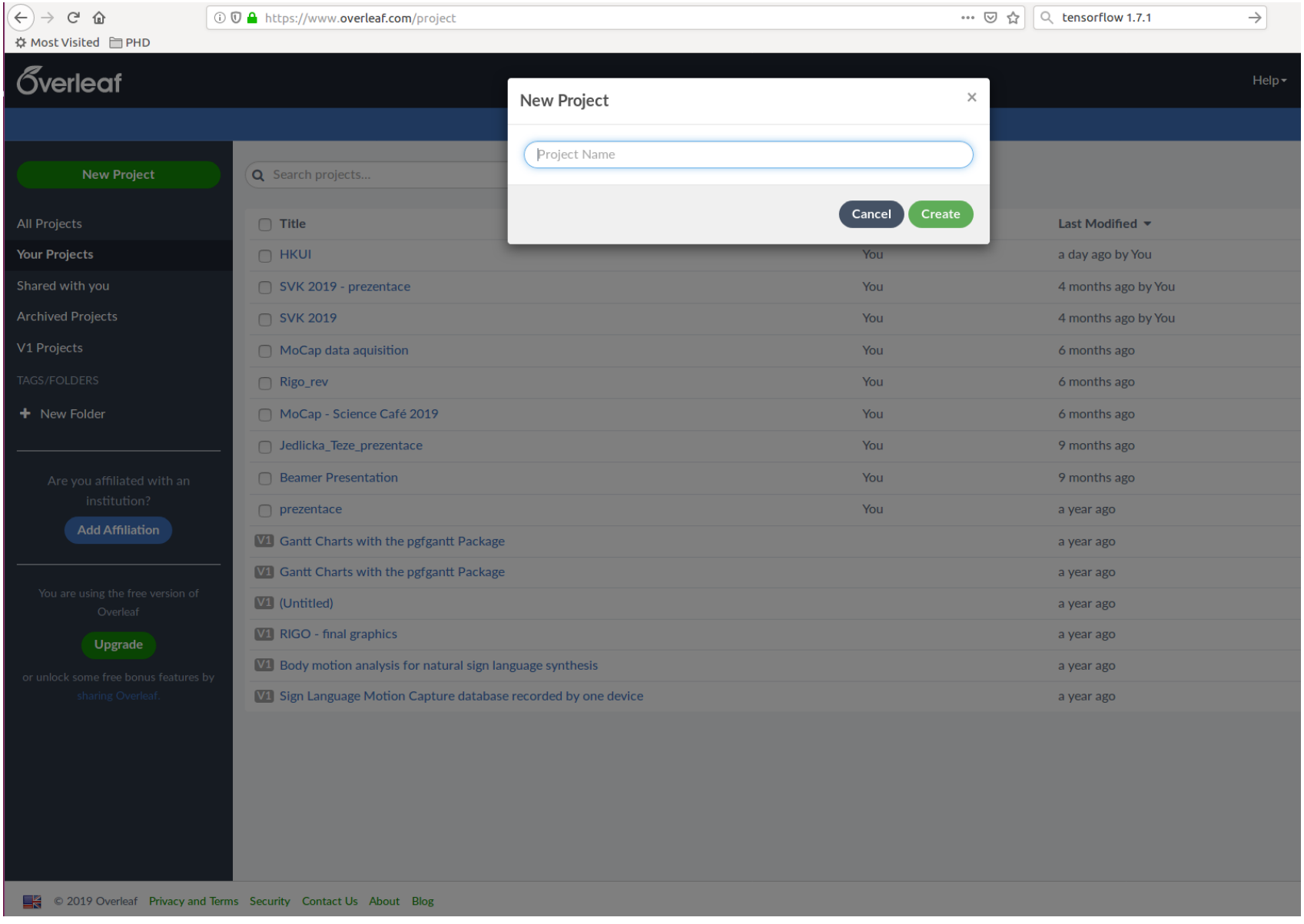
You can now log in to your ShareLaTeX account through Overleaf. Find out more.
Don't have an account? Register
Forgot your password?

Overleaf


https://www.overleaf.com/project
tensorflow 1.7.1
Most Visited
PHD
Overleaf
Help
New Project
Search projects...
All Projects
Your Projects
Shared with you
Archived Projects
V1 Projects
TAGS/FOLDERS
New Folder
Are you affiliated with an institution?
Add Affiliation
You are using the free version of Overleaf
Upgrade
or unlock some free bonus features by sharing Overleaf.
Title
Last Modified
HKUI
You
a day ago by You
SVK 2019 - prezentace
You
4 months ago by You
SVK 2019
You
4 months ago by You
MoCap data aquisition
You
6 months ago
Rigo_rev
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MoCap - Science Café 2019
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Jedlicka_Teze_prezentace
You
9 months ago
Beamer Presentation
You
9 months ago
prezentace
You
a year ago
Gantt Charts with the pgfgantt Package
a year ago
Gantt Charts with the pgfgantt Package
a year ago
(Untitled)
a year ago
RIGO - final graphics
a year ago
Body motion analysis for natural sign language synthesis
a year ago
Sign Language Motion Capture database recorded by one device
a year ago
New Project
Project Name
Cancel
Create
© 2019 Overleaf
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Security
Contact Us
About
Blog

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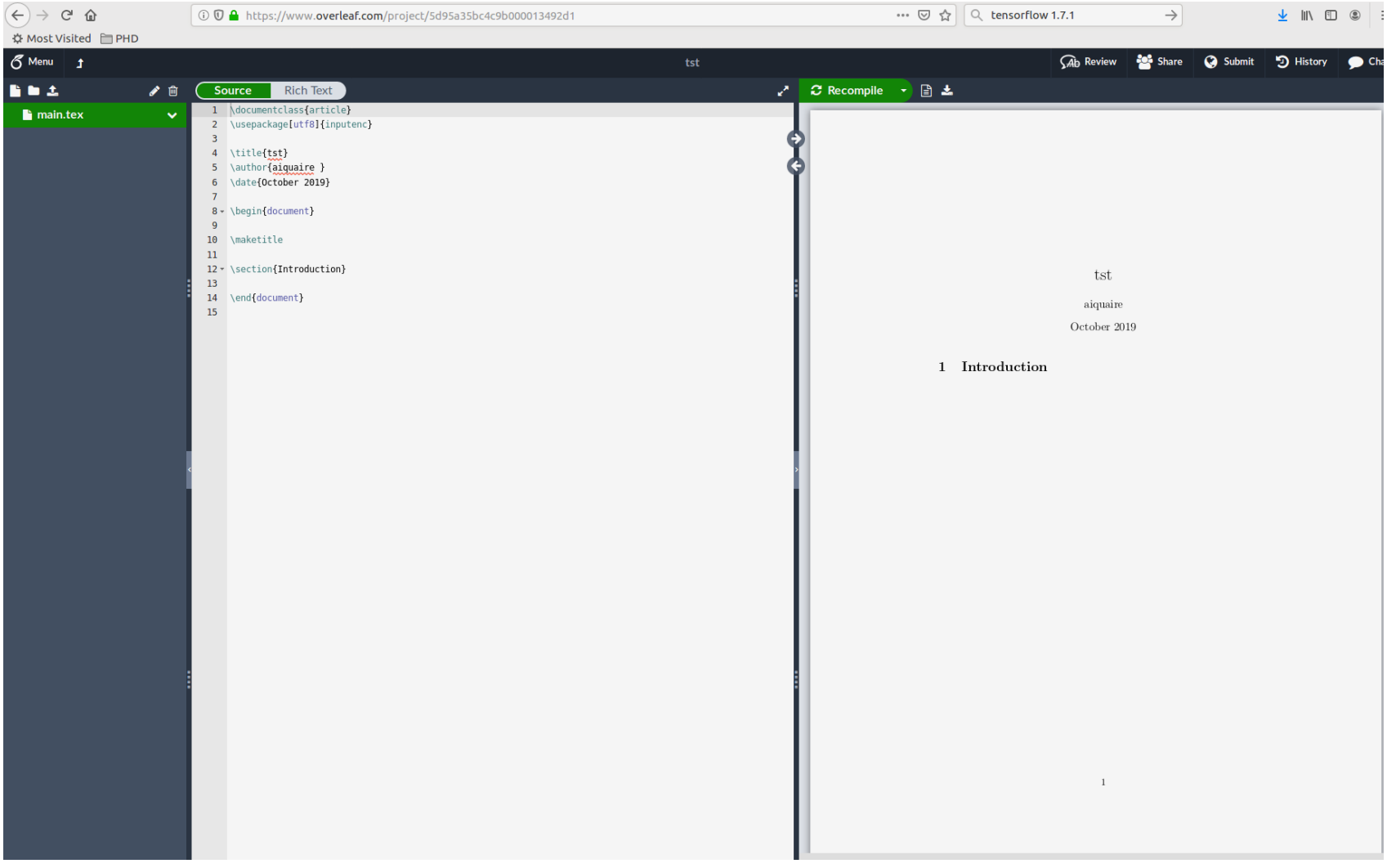
https://www.overleaf.com/project/5d95a35bc4c9b000013492d1
tensorflow 1.7.1
Most Visited
PHD
Menu
tst
Review
Share
Submit
History
Source
Rich Text
Recompile
main.tex
\documentclass{article}
\usepackage[utf8]{inputenc}
\title{tst}
\author{aiquaire }
\date{October 2019}
\begin{document}
\maketitle
\section{Introduction}
\end{document}
tst
aiquaire
October 2019
1 Introduction
1

Overleaf

```
\documentclass{article}
\usepackage[utf8]{inputenc}

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\end{document}
```
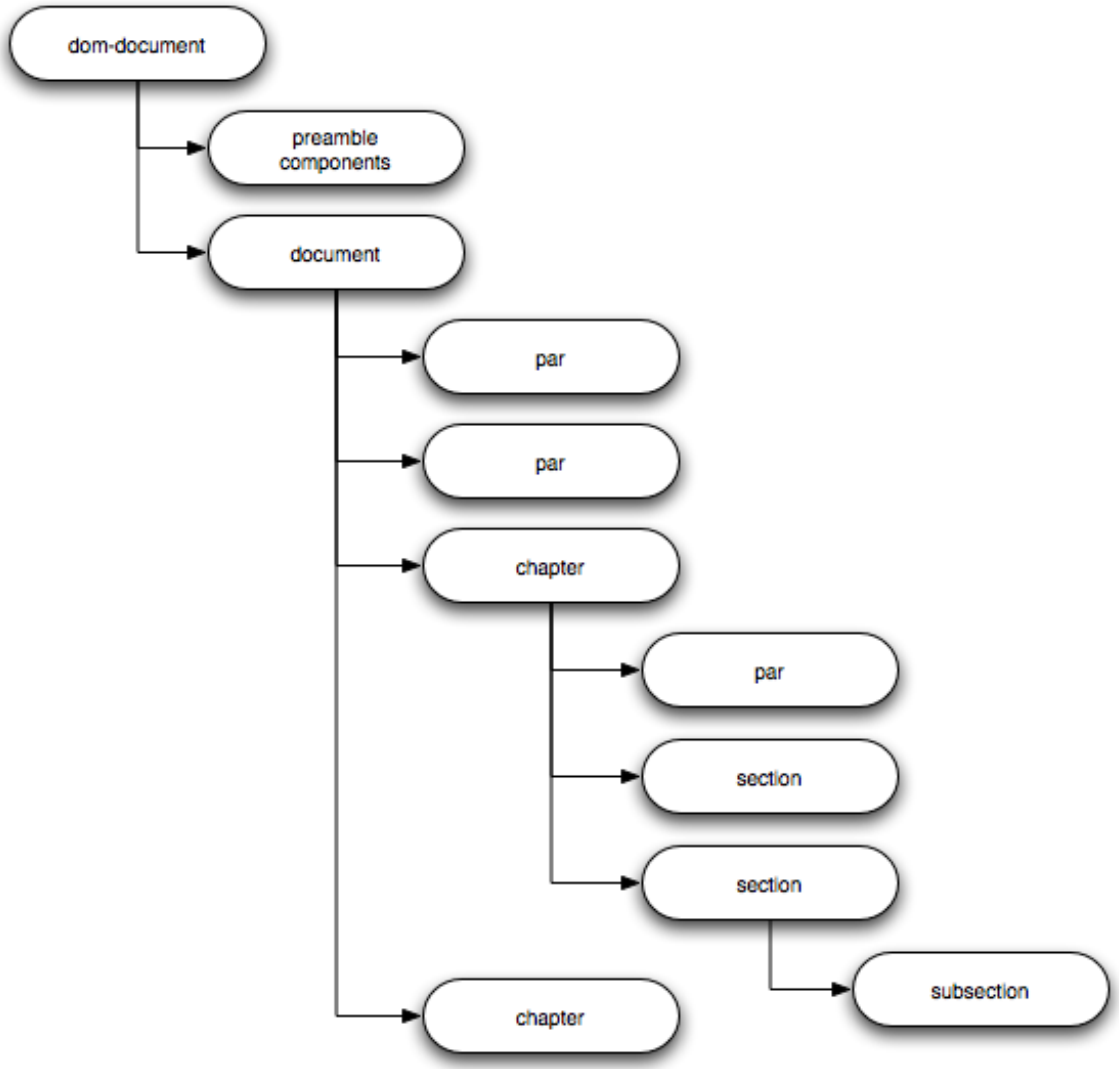

Základní příkazy - documentclass

- **article** for articles in scientific journals, presentations, short reports, program documentation, invitations, ...
- **proc** a class for proceedings based on the article class.
- **minimal** is as small as it can get. It only sets a page size and a base font. It is mainly used for debugging purposes.
- **report** for longer reports containing several chapters, small books, thesis, ...
- **book** for real books
- **slides** for slides. The class uses big sans serif letters.
- **memoir** for changing sensibly the output of the document. It is based on the book class, but you can create any kind of document with it (1)
- **letter** For writing letters.
- **beamer** For writing presentations

Základní informace - struktura dokumentu



[7] Zdroj: plasTeX - A Python Framework for Processing LaTeX Documents

Základní příkazy - usepackage

The Comprehensive TeX Archive Network (CTAN) is the central place for all kinds of material around TeX and LaTeX. CTAN has currently over **4,000 packages**. Most of the packages are free and can be downloaded and used immediately.

You can browse list of TeX and LaTeX packages and class files on CTAN subpage http://www.ctan.org/pkg/.

Bibtex

Nástroj pro práci s literaturou

```
\begin{thebibliography}{}

\end{thebibliography}
```

Užitečné zejména s ve spojení s Mendeley nebo JabRef

Děkuji za pozornost.

[8] Obrázek: Interplay: Fallout