Exercises for the GSNS LaTeX Workshop

TeXniCie, A-Eskwadraat

February 9th, 2021

Contents

The solutions to the exercises can be found in the Team after the workshop is done. Exercises 1 and 3 are also in the slides, but Exercise 2 would not be very readable on small screens.

1 Exercise 1

Look at the following code.

```latex
\documentclass{article}

\title{Algebraic Geometry and Feynman Diagrams}
\author{Pepijn de Maat}

\begin{document}

\maketitle
% Maybe I should add a Table of Contents
\clearpage

\section{Introduction} %TODO
This subject is very important for TO DO reasons.

\paragraph{Physical Relevance}
TO DO, something with Cern.
\paragraph{Historical Interest}
TO DO, was there any?
\end{document}
```

1. Who is the author?

2. What date will be used in the PDF if the document is compiled today (February 9th, 2021)?

3. Which entries would be in the table of contents?

4. Can you guess what the % sign does?

2 Exercise 2

Recreate the following single page document in LaTeX. The document partially describes itself. If you are done early, you can try to implement the 'Future Updates' suggestions at the bottom.

<div align="center">

LaTeX sample file

J. J. J. Ûròk

February 9th, 2021

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Contents

This is a work of fiction. Names, characters, places and incidents either are products of the author's imagination or are used fictitiously. Any resemblance to actual events or locales or persons, living or dead, is entirely coincidental.

1 Introduction

This is just an arbitrary article to explore LaTeX (this fancy LaTeX can be made using '\LaTeX\'). By the way, the backslashes are made using \textbackslash.
This is a new line within the same paragraph made with \\. Using this is considered bad practice.
    This is a new paragraph. You can see the difference clearly; all the paragraphs except the first one have an indent. A paragraph can be created by using white-space (a 'double enter') in the .tex file, or by using the \par command.

    Now I used a \bigbreak, in order to create a whitespace. This can improve readability. The \bigbreak command also creates a natural place for the compiler to end the page and continue on a new page.

1.1 Historical remarks

There are no historical remarks, for this is a very recently made article. Note how you need to compile twice before the table of contents has updated to include this new subsection.

1.2 Previous Versions

This is version 1.0.0. Version 0.9.0 didn't use the Geometry package, which meant that the margins were huge compared to the current 2cm margins.

1.3 Future Updates

Things to add in future versions:

1. Use the Geometry package. [DONE]

2. Include an enumerate environment. [DONE]

3. Make the article 'twocolumn' using an optional argument [twocolumn] between \documentclass and the 'article' between brackets. (Does this really make it look more professional?)

4. Add a picture. (Of what?)

5. Change the font to Comic Sans. (Might be too hard?)

3 Exercise 3

Reconstruct the following formulas in the document of the previous Exercise.

$$\int_{-\infty}^{\infty} e^{ax^2} = \sqrt{\frac{\pi}{a}}$$

$$R_{\mu\nu} - \frac{1}{2}Rg_{\mu\nu} + \Lambda g_{\mu\nu} = \kappa T_{\mu\nu}$$

(This formula uses the Lambda and the mu, nu and kappa from Greek.)