Guide for `thesisdtetiugm` Class File

Introduction to LaTeX

Muhammad Yasirroni

May 20, 2023

Universitas Gadjah Mada

Introduction

What is LaTeX?

- LaTeX is a document preparation system that allows users to create professional-looking documents with high-quality typography.
- LaTeX document in `.tex` file can be rendered into portable `.pdf` file. This rendering process supports a formatter in the form of `.cls` document class and `.bst` bibliography style document.

Why using LaTeX?

- Plain text file
- Separates content from formatting
- Great support for mathematical equation and symbols

Where to Learn?

- Learn LaTeX in 30 minutes by Overleaf here.
- Learn LaTeX by learnlatex.org here.

Getting Started

Minimal Working Example

Create a new project in Overleaf (link), and type:

```
\documentclass{report}

\title{Minimal Working Example}
\author{Muhammad Yasirroni}

\begin{document}
\maketitle

\chapter{Introduction}
\section{Background}
\subsection{Related Works}
Hello world! This is a simple example!

\subsection{Conclusion}
See you!

\end{document}
```

Using thesisdtetiugm.cls

```
% change documentclass to use thesisdtetiugm.cls
\documentclass[master,bahasa,table,xcdraw]{thesisdtetiugm}

\title{Minimal Working Example}
\author{Muhammad Yasirroni}{<<NIM>>}  % add NIM

% minimal data for cover
\program{<<Program name>>}{<<Program coordinator>>}{<<NIP>>}
\major{<<Major>>}
\yearsubmit{<<year submit>>}

\begin{document}
\printcover{images/logougm.png}{Tesis}  % replacing \maketitle

\chapter{Introduction}
\section{Background}
\subsection{Related Works}
Hello world! This is a simple example!

\subsection{Conclusion}
See you!
```

Style Using Document Class

Document Class

Template or a blueprint for your document. It determines the overall layout, formatting, and structure of your document. To use it, use `\documentclass{}` syntax. Some built-in document class example are:

- article: short documents, such as papers or reports
- report: longer documents, such as theses or technical reports
- book: for writing books with two kinds of pages and various book supports
- beamer: presentation files with slides

Custom Document Class

Publisher often provide their own document class in `.cls` file format. Some custom document class are:

- thesisdtetiugm: UGM thesis style for various degrees
- IEEEtran: IEEE Transaction style
- ieeeaccess: IEEE Access style
- elsarticle: Elsevier style

Benefit of Using LaTeX

Benefit of Using LaTeX #1

Mixing Style

Even when you use `.cls` styler document, you still can add your own style inside your `.tex` file. Both `.cls` and `.tex` use same syntax and (in most cases) you can think of `\documentclass{}` as "load all the text in `.cls` to the `.tex` file."

To create a new command, use `\newcommand` and use `\renewcommand` to redefine existing command that is already define previously, including in `.cls` styler document.

Benefit of Using LaTeX #2

Code

Whenever you update your code, your output `.pdf` file will also get updated upon rendering. Thus you can take advantage of it by:

- Place your simulation code under `codes/` folder.
- Output the graph of your simulation directly to `images/` folder in `.png` or `.pdf` file.

Benefit of Using LaTeX #3

Tables and Figures

Tables and figures are automatically numbered and placed on the right place. Very useful for journal publication where it require every tables and figures to be placed after mentioned.

Benefit of Using LaTeX #4

References

One file to store references in `.bib` file that can be written manually or imported from various references manages such as Mendeley, Zotero, and Semantic Scholar.

The citation style can be easily formatted using `.bst` file, make it easy to change style if your paper got rejected.

Benefit of Using LaTeX #5

Plain Text

`.tex` file is a plain file that can take advantages of:

- Use any editor you like, such as TeX VSCode, Overleaf, and even Notepad
- Use Git or Overleaf for version control and colaboration
- Easy help from various tools such as ChatGPT and Python scripts

Syntax and Commands

Notable Syntaxes

- \\ change line
- % comment
- \ escape character
- \FUNCTION[PARAMETERS]{INPUT}

Notable Commands

- `\includeonly` and `\include`
- `\begin{...}` ... `\end{...}` for document, figure, table, enumerate, and itemize
- `\chapter`, `\section`, `\subection`, `\subsubection`, ...
- `\textit`, `\textbf`, and `\texttt`