

# A Simple L<sup>A</sup>T<sub>E</sub>X Tutorial

Rizauddin Saian  
Faculty of Computer & Mathematical Sciences  
Universiti Teknologi MARA, Perlis

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To my wife and daughters.



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# Preface

## How to Contact Us

Please address comments and questions concerning this book to:

Rizauddin Saian  
Faculty of Computer & Mathematical Sciences  
Universiti Teknologi MARA, Perlis  
Email: [rizauddin@uitm.edu.my](mailto:rizauddin@uitm.edu.my)

## Acknowledgements

A big thank you to my family and all my students.



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# Tutorial 1

## Your First L<sup>A</sup>T<sub>E</sub>X Document

To produce a simple L<sup>A</sup>T<sub>E</sub>X document is very easy. You just need to type in the text. To create a new paragraph, just leave one or more blank lines.

L<sup>A</sup>T<sub>E</sub>X will take care of the indentation of each paragraph. By default, the first paragraph will not be indented in a new section. The rest of the paragraphs will be indented automatically. Take note that if no chapter or section is defined, all paragraphs will be indented.

To produce a single quote, use the ‘ symbol (usually located under the ‘Esc’ key on the keyboard), and close it with the ’ symbol (usually located besides the ‘Enter’ key on the keyboard). For double quote, you should use those keys twice. For example, “the quoted text”.

L<sup>A</sup>T<sub>E</sub>X could produced dashes with various length. There are three types of dashes: ‘hyphens’, ‘en-dashes’ and ‘em-dashes’. Hyphens are obtained in L<sup>A</sup>T<sub>E</sub>X by typing -, en-dashes by typing – and em-dashes by typing —.

Figure 1.1: Your first L<sup>A</sup>T<sub>E</sub>Xdocument.

```
\documentclass[a4paper,12pt]{article}
\begin{document}
```

To produce a simple \LaTeX{} document is very easy. You just need to type in the text. To create a new paragraph, just leave one or more blank lines.

\LaTeX{} will take care of the indentation of each paragraph. By default, the first paragraph will not be indented in a new section. The rest of the paragraphs will be indented automatically. Take note that if no chapter or section is defined, all paragraphs will be indented.

To produce a single quote, use the ‘ symbol (usually located under the ‘Esc’ key on the keyboard), and close it with the ’ symbol (usually located besides the ‘Enter’ key on the keyboard).

For double quote, you should use those keys twice. For example, “the quoted text”.

```
\LaTeX{} could produced dashes with various length.  
There are three types of dashes: 'hyphens', 'en-dashes'  
and 'em-dashes'. Hyphens are obtained in LATEX by  
typing -, en-dashes by typing -- and em-dashes by  
typing ---.  
  
\end{document}
```

**Note:**

**en-dashes** to specify range of numbers, for example, “on pages 12–20”

**em-dashes** used for punctuating, for example, “L<sup>A</sup>T<sub>E</sub>X is a good text processing software—trust me.”

# Tutorial 2

## Title Page

My First L<sup>A</sup>T<sub>E</sub>X Document

Rizauddin bin Saian <sup>\*</sup>  
Faculty of Computer & Mathematical Sciences  
Universiti Teknologi MARA, Perlis

Zeti Zuryani binti Mohd Zakuan <sup>†</sup>  
Faculty of Law  
Universiti Teknologi MARA Perlis

July 11, 2018

put your contents here!

---

<sup>\*</sup>rizauddin@uitm.edu.my  
<sup>†</sup>zeti@uitm.edu.my

Figure 2.1: The title page.

```
\documentclass{article}

\title{My First \LaTeX{} Document}
\author{
Rizauddin bin Saian \thanks{rizauddin@uitm.edu.my} \\
Faculty of Computer \& Mathematical Sciences \\
Universiti Teknologi MARA, Perlis
\and
Zeti Zuryani binti Mohd Zakuan \thanks{zeti@uitm.edu.my} \\
Faculty of Law \\
Universiti Teknologi MARA Perlis
}

\date{\today}

\begin{document}
\maketitle

Put your contents here!
```

## Tutorial 3

# List

This is an ordered list:

1. goat
2. cat

This is an unordered list:

- fuel
- price

Nested ordered list:

1. This is an ordered list:
  - (a) goat
  - (b) cat
2. This is an unordered list:
  - fuel
  - price

Nested unordered list:

- This is an ordered list:
  1. goat
  2. cat
- This is an unordered list:
  - fuel
  - price

**ordered list** numbered list

**unordered list** bulleted list

without any title

Figure 3.1: List.

```
\documentclass{article}
\begin{document}

This is an ordered list:
\begin{enumerate}
\item goat
\item cat
\end{enumerate}

\noindent This is an unordered list:
\begin{itemize}
\item fuel
\item price
\end{itemize}

\noindent Nested ordered list:
\begin{enumerate}
\item This is an ordered list:
\begin{enumerate}
\item goat
\item cat
\end{enumerate}

\item This is an unordered list:
\begin{itemize}
\item fuel
\item price
\end{itemize}
\end{enumerate}

\noindent Nested unordered list:
\begin{itemize}
\item This is an ordered list:
\begin{enumerate}
\item goat
\item cat
\end{enumerate}

\item This is an unordered list:
\begin{itemize}
\item fuel
\item price
\end{itemize}
\end{itemize}

\begin{description}
\item[ordered list] numbered list
\item[unordered list] bulleted list
\end{description}
```

```
        \item without any title
\end{description}
\end{document}
```





# Tutorial 4

## Table

This text is before the table.

Year	Cost (RM)
2000	1.30
2001	0.20
2002	1.00
2003	1.50
2004	1.70
2005	1.80
2008	2.70

Table 1: Sample Data

According to Table 1, ...

Figure 4.1: Table.

```
\documentclass{article}

\begin{document}
This text is before the table.

\begin{table}[h]
  \begin{center}
    \begin{tabular}{|c|c|} \hline
      Year & Cost (RM) \\ \hline \hline
      2000 & 1.30 \\
      2001 & 0.20 \\
      2002 & 1.00 \\
      2003 & 1.50 \\
      2004 & 1.70 \end{tabular}
  \end{center}
\end{table}
```

```

                2005 & 1.80  \\
                2008 & 2.70  \\
                \hline
            \end{tabular}
        \end{center}
\caption {Sample Data}
\label{tab:TheCost}
\end{table}

According to Table~{\ref{tab:TheCost}}, $\dots$.

\end{document}
```

4.1 Spanning the table

Table 1 shows how to have headings that don't span all of the columns.

<i>i</i>	Times (seconds)				Ball two
	Ball one				
	Technique				
	<i>g<sub>A</sub></i>	<i>g<sub>B</sub></i>	<i>d<sub>A</sub></i>	<i>d<sub>B</sub></i>	
1					
2					
3					
4					
5					
average					
<i>g</i>					

Table 1: Timing data

Figure 4.2: Spanning the table.

```

\documentclass{article}

\begin{document}
Table~{\ref{tab:ngdata}} shows how to have headings
that don't span all of the columns.
\begin{table}[ht!]
\begin{center}
\begin{tabular}{|c|p{1cm}|p{1cm}|p{1cm}|p{1cm}|p{1.5cm}|} \hline
&\multicolumn{5}{|c|}{Times (seconds)} \\ \cline{2-6}
&\multicolumn{4}{|c|}{Ball one}& Ball two \\ \cline{2-5}
&\multicolumn{4}{|c|}{Technique} & \\ \hline
i & gA & gB & dA & dB & \\ \hline
1 & & & & & \\
2 & & & & & \\
3 & & & & & \\
\end{tabular}
\end{center}
\end{table}
```

```
4 & & & & & \\  
5 & & & & & \\  
\hline \hline  
  
average& & & & & \\  
\hline  
$g$ & & & & & \\  
\hline  
\end{tabular}  
\end{center}  
\caption {Timing data}  
\label{tab:ngdata}  
\end{table}  
  
\end{document}
```

4.2 The Table of Tables

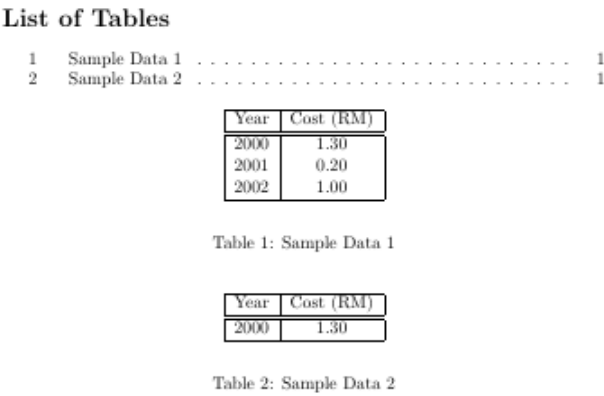


Figure 4.3: The table of tables.

```
\documentclass{article}  
  
\begin{document}  
  
\listoftables  
  
\begin{table}[h]  
\begin{center}  
\begin{tabular}{|c|c|} \hline  
Year & Cost (RM) \\  
\hline \hline  
2000 & 1.30 \\  

```

```

2001 & 0.20  \\
2002 & 1.00  \\
\hline
\end{tabular}
\end{center}
\caption {Sample Data 1}
\label{tab:TheCost}
\end{table}

\begin{table}[h]
\begin{center}
\begin{tabular}{|c|c|} \hline
Year & Cost (RM)  \\ \hline \hline
2000 & 1.30  \\ \hline
\end{tabular}
\end{center}
\caption {Sample Data 2}
\label{tab:TheCost}
\end{table}

\end{document}

```

## Tutorial 5

# Figures



Figure 1: RM10

Figure 1 shows a RM10 note.

Figure 5.1: Figures.

```
\documentclass{article}

\usepackage{graphicx}

\begin{document}
\begin{figure}[htbp]
\centering
\includegraphics[width=0.6\textwidth]{ten}
\caption{RM10}
\label{fig:car}
\end{figure}

Figure~{\ref{fig:car}} shows a RM10 note.

\end{document}
```

You can also scale the picture using `[scale=0.8]` instead of `[width=0.6\textwidth]`

## 5.1 Table of Figures

### List of Figures

1	RM10	.....	1
2	RM5	.....	1



Figure 1: RM10



Figure 2: RM5

Figure 5.2: Table of figures.

```
\documentclass{article}
\usepackage{graphicx}

\begin{document}

\listoffigures

\begin{figure}[h]
\centering
\includegraphics[width=0.7\linewidth]{ten}
\caption{RM10}
\label{fig:ten}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=0.7\linewidth]{five}
\caption{RM5}
\label{fig:five}
\end{figure}

\end{document}
```

# Tutorial 6

## Document Styles

### 6.1 Article document style

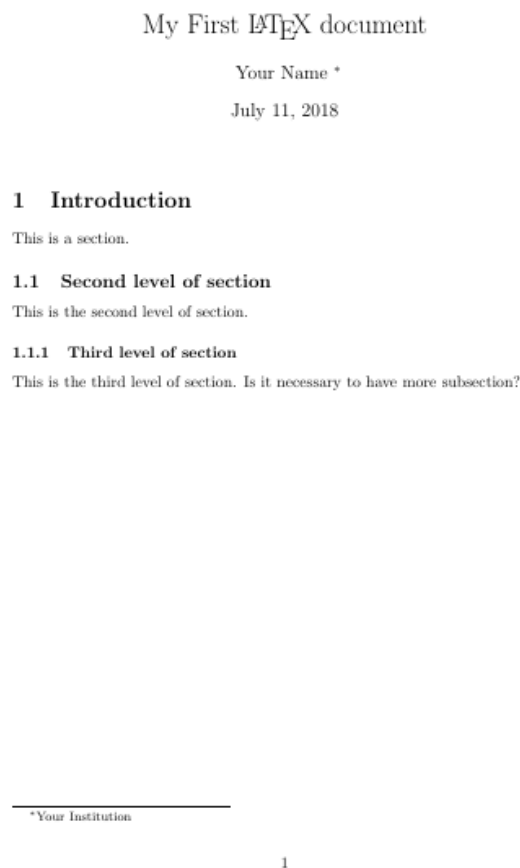


Figure 6.1: Article document style.



```

\documentclass{article}

\title{My First \LaTeX{} document}
\author{Your Name \thanks{Your Institution}}
\date{\today}

\begin{document}
\maketitle

\section{Introduction}

This is a section.

\subsection{Second level of section}

This is the second level of section.

\subsubsection{Third level of section}

This is the third level of section.
Is it necessary to have more subsection?

\end{document}

```

## 6.2 Report document style

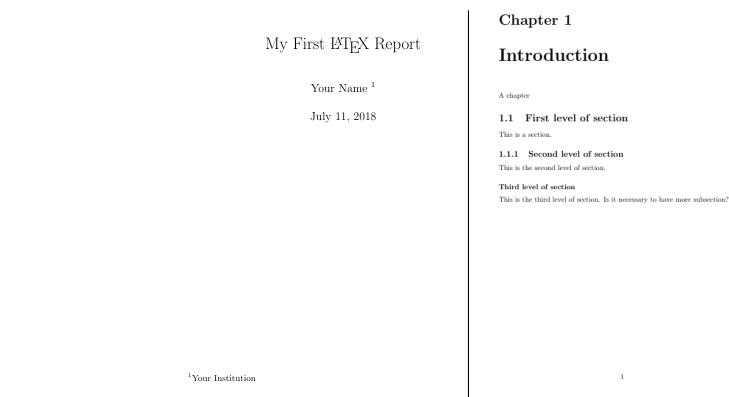


Figure 6.2: Report document style.

```

\documentclass{report}

\title{My First \LaTeX{} Report}
\author{Your Name \thanks{Your Institution}}
\date{\today}

```

```

\begin{document}
\maketitle

\chapter{Introduction}

A chapter

\section{First level of section}

This is a section.

\subsection{Second level of section}

This is the second level of section.

\subsubsection{Third level of section}

This is the third level of section.
Is it necessary to have more subsection?

\end{document}

```

## 6.3 Book document style

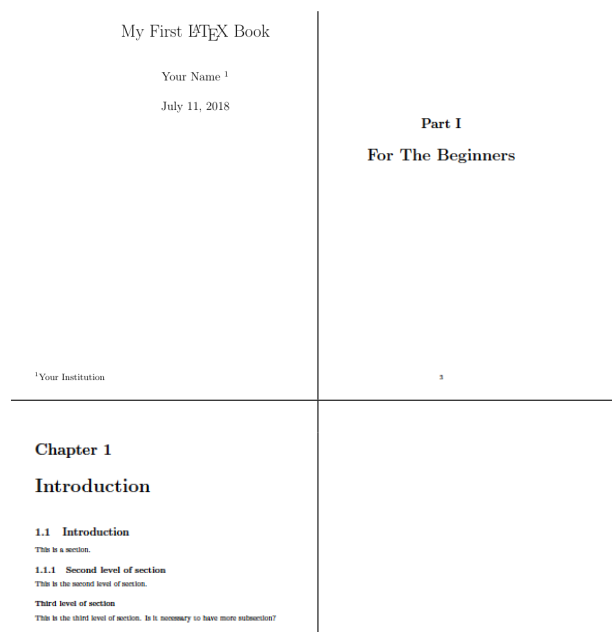


Figure 6.3: Book document style.

```
\documentclass{book}

\title{My First \LaTeX{} Book}
\author{Your Name \thanks{Your Institution}}
\date{\today}

\begin{document}
\maketitle

\part{For The Beginners}

\chapter{Introduction}

\section{Introduction}

This is a section.

\subsection{Second level of section}

This is the second level of section.

\subsubsection{Third level of section}

This is the third level of section.
Is it necessary to have more subsection?

\end{document}
```

# Tutorial 7

## Table of Contents

To generate a table of contents, insert “\tableofcontents” after the “\maketitle” command.

My First L<sup>A</sup>T<sub>E</sub>X document

Your Name \*

July 11, 2018

**Contents**

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Second level of section . . . . .	1
1.1.1	Third level of section . . . . .	1

**1 Introduction**

This is a section.

**1.1 Second level of section**

This is the second level of section.

**1.1.1 Third level of section**

This is the third level of section. Is it necessary to have more subsection?

---

\*Your Institution

Figure 7.1: The table of contents.

```
\documentclass{article}

\title{My First \LaTeX{} document}
\author{Your Name \thanks{Your Institution}}
\date{\today}

\begin{document}
\maketitle

\tableofcontents

\section{Introduction}

This is a section.

\subsection{Second level of section}

This is the second level of section.

\subsubsection{Third level of section}

This is the third level of section.
Is it necessary to have more subsection?

\end{document}
```

# Tutorial 8

## Abstract

My First L<sup>A</sup>T<sub>E</sub>X document

Your Name \*

July 11, 2018

**Abstract**

Note that the **abstract** environment in L<sup>A</sup>T<sub>E</sub>X is defined for reports and articles (but not for books) so that it gets typeset differently from other sections.

**Contents**

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Second level of section . . . . .	1
1.1.1	Third level of section . . . . .	1

**1 Introduction**

This is a section.

**1.1 Second level of section**

This is the second level of section.

**1.1.1 Third level of section**

This is the third level of section. Is it necessary to have more subsection?

---

\*Your Institution

Figure 8.1: The abstract.

```
\documentclass{article}

\title{My First \LaTeX{} document}
\author{Your Name \thanks{Your Institution}}
\date{\today}

\begin{document}
\maketitle

\begin{abstract}
Note that the \textbf{abstract} environment in \LaTeX\
is defined for
reports and articles (but not for books) so
that it gets typeset
differently from other sections.
\end{abstract}

\tableofcontents

\section{Introduction}

This is a section.

\subsection{Second level of section}

This is the second level of section.

\subsubsection{Third level of section}

This is the third level of section.
Is it necessary to have more subsection?

\end{document}
```

# Tutorial 9

## Bibliography

### 9.1 Plain format

According to [3], . . .  
Bla bla bla is bla bla bla [2, 1].  
Hey, I can add page too [3, p. 32].

#### References

- [1] Michel Goossens, Sebastian PQ Rahtz, Sebastian Rahtz, and Frank Mittelbach. *The L<sup>A</sup>T<sub>E</sub>X graphics companion: Illustrating documents with T<sub>E</sub>X and PostScript*, volume 1. Addison-Wesley Professional, 1997.
- [2] David F Griffiths and Desmond J Higham. *Learning E<sup>T</sup>X*. SIAM, 1997.
- [3] Leslie Lamport. *E<sup>T</sup>X: A document preparation system: User's guide and reference manual*. Addison-Wesley, 1994.

Figure 9.1: Plain format.

```
\documentclass{article}

\begin{document}

According to \cite{lamport1994latex}, \dots.

Bla bla bla is bla bla bla \cite{griffiths1997learning,
goossens1997latex}.

Hey, I can add page too \cite[p.~32]{lamport1994latex}.

\bibliographystyle{plain}
\bibliography{ref}

\end{document}
```

```
%ref.bib
%random articles
```



```

@book{lampport1994latex,
  title={\LaTeX}: A document preparation system: User's guide
  and reference manual},
  author={Lampport, Leslie},
  year={1994},
  publisher={Addison-Wesley}
}
@book{goossens1997latex,
  title={The {\LaTeX} graphics companion: Illustrating documents
  with {\TeX} and PostScript},
  author={Goossens, Michel and Rahtz,
  Sebastian PQ and Rahtz, Sebastian and Mittelbach, Frank},
  volume={1},
  year={1997},
  publisher={Addison-Wesley Professional}
}
@book{griffiths1997learning,
  title={Learning {\LaTeX}},
  author={Griffiths, David F and Higham, Desmond J},
  year={1997},
  publisher={SIAM}
}

```

## 9.2 APA Format

According to Lampport (1994), . . .  
 Bla bla bla is bla bla bla (Griffiths & Higham, 1997; Goossens, Rahtz, Rahtz,  
 & Mittelbach, 1997).  
 Hey, I can add page too (Lampport, 1994, p. 32).

### References

Goossens, M., Rahtz, S. P., Rahtz, S., & Mittelbach, F. (1997). *The L<sup>A</sup>T<sub>E</sub>X graphics companion: Illustrating documents with T<sub>E</sub>X and postscript* (Vol. 1). Addison-Wesley Professional.  
 Griffiths, D. F., & Higham, D. J. (1997). *Learning L<sup>A</sup>T<sub>E</sub>X*. SIAM.  
 Lampport, L. (1994). *L<sup>A</sup>T<sub>E</sub>X: A document preparation system: User's guide and reference manual*. Addison-Wesley.

Figure 9.2: APA format.

```

\documentclass{article}
\usepackage{apacite}

\begin{document}

According to \citeA{lampport1994latex}, \dots.

Bla bla bla is bla bla bla \cite{griffiths1997learning,
goossens1997latex}.

```

```

Hey, I can add page too \cite[p.~32]{lamport1994latex}.

\bibliographystyle{apacite}
\bibliography{ref}

\end{document}

```

## 9.3 IEEE Format

According to [1], ....  
 Bla bla bla is bla bla bla [2, 3].  
 Can add page also [1, p. 32].

### References

- [1] L. Lamport, *LaTeX: A document preparation system: User's guide and reference manual*. Addison-Wesley, 1994.
- [2] D. F. Griffiths and D. J. Higham, *Learning LaTeX*. SIAM, 1997.
- [3] M. Goossens, S. P. Rahtz, S. Rahtz, and F. Mittelbach, *The LaTeX graphics companion: Illustrating documents with TeX and PostScript*. Addison-Wesley Professional, 1997, vol. 1.

Figure 9.3: IEEE Format.

```

\documentclass{article}

\usepackage[numbers]{natbib}
\begin{document}

According to \cite{lamport1994latex}, \dots.

Bla bla bla is bla bla bla
  \cite{griffiths1997learning, goossens1997latex}.

Can add page also \cite[p.~32]{lamport1994latex}.

\bibliographystyle{IEEEtranN}
\bibliography{ref}

\end{document}

```



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