Latex for dummies

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How LaTeXWorks

Step 1	Step 2	Step 3
Create a LaTeX input file.	Compiling the input file.	Viewing the outputfile.
Create a textfile (ASCII) with extension name .tex (e.g. filename.tex)	Compiling	Viewing
Notepad, wordpad, copy con, IDE such as Winedit, texmaker, kile, texnic center	latex	dvi viewer
	pdflatex	pdf viewer

The Structure of the Input File


```
\documentclass[class options]{class}
\begin{document}
\end{document}
```

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The class determine the overall layout/type of the document. For example

1. *article: easiest and the most common type*

\begin{document}
\end{document}

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3. *book : for books*

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6. *amsart : for articles submitted to the journal of american mathematical society*
7. *elsart : for articles submitted to the journal of elsevier publishing company*
8. *any customized class for say department of math thesis of some universities*

\begin{document}
\end{document}

The Structure of the Input File

\documentclass[class options]{class}

This part is called the preamble. It contains command which generally affects the entire document and information such as authors, title, etc.

\begin{document}
\end{document}

The Structure of the Input File


```
\documentclass[class options]{class}
\begin{document}
```

This part is called the body. It contains the text and some formatting command which are local in nature.

```
\end{document}
```

The Structure of the Input File


```
\documentclass[class options]{class}
\begin{document}
\end{document}
```

Any texts written here is ignored by latex during compilation

The Structure of the Input File

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
{\bf Hello World }
\end{document}
```

The Structure of the Input File

will produce

Hello World

Spaces

1. One or more whitespace characters such as spaces, tabs or linebreaks are interpretted as single space

Spaces

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2. One or more blank lines start a paragraph

Spaces

For example

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

                    This is

a      silly way          of          w          r
iting      sentences.

F      ollowed by a paragraph.
\end{document}
```

Spaces

will produce

This is a silly way of w r iting sentences.
F ollowed by a paragraph.

Special Characters

Some special characters have special meaning in LaTeXand will not print. For example

1. # \#

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3. % \%

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1. # \#
2. $ \$
3. % \%
4. & \&

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2. $ \$
3. % \%
4. & \&
5. { \{

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5. { \{
6. } \}

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1. # \#
2. $ \$
3. % \%
4. & \&
5. { \{
6. } \}
7. \ \backslash

Special Characters

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
\# \$ \% \& \{ \} \backslash
\end{document}
```

Special Characters

will produce

$ % & { } \

Comments

When latex encounters the % sign during compilation it ignores the rest of the line

Comments

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
The rest of this line will be ignored % I will be ignored be-
cause I am only a comment
% I will also be ignored because I am also a comment
and so is the line above.
\end{document}
```

Comments

will produce

The rest of this line will be ignored
and so is the line above.

LaTeXcommands

1. LaTeXcommands begin with the symbol \.

LaTeXcommands

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2. Examples are \bf \it \centering \LaTeX

LaTeX commands

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
\LaTeX commands begin with the symbol $\backslash$.
\end{document}
```

LaTeXcommands

will produce

LaTeXcommands begin with the symbol \.

Quotation Marks

1. For opening quotation mark, use ‘ ‘ and for closing quotation mark ’ ’.

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2. For single quotes use ‘ and ’.

Quotation Marks

Examples

Quotation Marks

Examples

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
He said, ‘ ‘Hello World. ’ ’
\end{document}
```

produces

Quotation Marks

Examples

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
He said, ‘ ‘Hello World. ’ ’
\end{document}
```

produces

He said, “Hello World.”

Quotation Marks

Examples

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
Do you mean ‘ ‘ eye ’ ’ or ‘ i ’?
\end{document}
```

produces

Quotation Marks

Examples

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
Do you mean ‘ ‘ eye ’ ’ or ‘ i ’?
\end{document}
```

produces

Do you mean “eye” or ‘i’?

Dashes and Hyphens

LaTeXhas three hyphens

1. short dashes -

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1. short dashes -
2. long dashes - -

Dashes and Hyphens

LaTeXhas three hyphens

1. short dashes -
2. long dashes - -
3. longer dashes - - -

Dashes and Hyphens

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
There are three kinds of hyphens or dashes in \LaTeX - - -
the short dash (-), the long dash(- -) and the longer dash(- -
-). \end{document}
```

produces

Dashes and Hyphens

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
There are three kinds of hyphens or dashes in \LaTeX - - -
the short dash (-), the long dash(- -) and the longer dash(- -
-). \end{document}
```

produces

There are three kinds of hyphens or dashes in LaTeX— the short dash (-), the long dash(–) and the longer dash(—).

Font Selection
Font Types

The following are examples of font types in LaTeX

1. roman – \textrm{ ...}

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2. `typewriter` – \texttt{ ...}

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2. `typewriter` – \texttt{ ...}
3. *slanted* – \textsl{ ...}

The following are examples of font types in LaTeX

1. roman – \textrm{ ...}
2. `typewriter` – \texttt{ ...}
3. *slanted* – \textsl{ ...}
4. sans serif – \textsf{ ...}

Font Selection
Font Types

The following are examples of font types in LaTeX

1. roman – \textrm{ ...}
2. `typewriter` – \texttt{ ...}
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4. sans serif – \textsf{ ...}
5. **boldface** – \textbf{ ...}

The following are examples of font types in LaTeX

1. roman – \textrm{ ...}
2. `typewriter` – \texttt{ ...}
3. *slanted* – \textsl{ ...}
4. sans serif – \textsf{ ...}
5. **boldface** – \textbf{ ...}
6. *italic* – \textit{ ...}

Font Selection
Font Types

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
In this \textbf{example}, we \textit{demonstrate} that the \emph{use} of \textit{several} \textsc{font} \textsl{types} in \textsf{one sentence} makes it \texttt{difficult} \textrm{to read.} \end{document}
```

produces

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
In this \textbf{example}, we \textit{demonstrate} that the \emph{use} of \textit{several} \textsc{font} \textsl{types} in \textsf{one sentence} makes it \texttt{difficult} \textrm{to read.} \end{document}
```

produces

In this **example**, we *demonstrate* that the *use* of *several* FONT *types* in one sentence makes it `difficult` to read.

The default font size for the entire document is set with the command

\documentclass

For example the command “\documenclass[11pt]{article}” sets the default font size for the entire document to 11 point. Other options are 10pt and 12pt. If no specification is given, the default size is 10pt

Font Selection
Font sizes

From the default fontsize other fontsizes in LaTeXare automatically calculated.

1. tiny – {\tiny ...}

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2. scriptsize – {\scriptsize ...}

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2. scriptsize – {\scriptsize ...}
3. footnotesize – { \footnotesize ...}

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4. small – { \small ...}

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4. small – { \small ...}
5. normalsize – { \normalsize ...}

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6. large size – { \large ...}

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6. large size – { \large ...}
7. larger size – { \Large ...}

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6. large size – { \large ...}
7. larger size – { \Large ...}
8. still larger – {\LARGE ...}

From the default fontsize other fontsizes in LaTeXare automatically calculated.

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6. large size – { \large ...}
7. larger size – { \Large ...}
8. still larger – {\LARGE ...}
9. huge – {\huge ...}

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5. normalsize – { \normalsize ...}
6. large size – { \large ...}
7. larger size – { \Large ...}
8. still larger – {\LARGE ...}
9. huge – {\huge ...}
10. larger than huge – {\Huge ...}

Font Selection
Font sizes

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
When combining a change in size and font types, remember
that {\Large \textbf{size}} command should appear {\Large
\textbf{first}} than the {\Large \textbf{font}} command. }
\end{document}
```

produces

For example

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In LaTeX, paragraphs are created by

1. a blank line

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1. a blank line
2. the command \par

In LaTeX, paragraphs are created by

1. a blank line
2. the command \par
3. the comand \\ or \newline

By default LaTeXindents paragraphs except when following a Chapter, Section and the like or the commands \\ or \newline.

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
Oh Sushi, \\ also carred firipin meat \\ Oh Susie.
\end{document}
```

produces

For example

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\documentclass[a4paper,12pt]{article}
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\begin{document}
Oh Sushi, \\ also carred firipin meat \\ Oh Susie.
\end{document}
```

produces

Oh Sushi,
arso carred firipin meat
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Formatting Paragraphs
Indentions


```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
Normally \LaTeX indents every paragraph like the next para-
graph. \par This paragraph is indented \\ But this one is not.
\end{document}
```

produces

Formatting Paragraphs
Indentions


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

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Normally LaTeXindents every paragraph like the next paragraph.

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But this one is not.

Indentions in LaTeXmay be suppressed by the commmand \noindent and enforced by the command \indent.

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For example,

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
These examples demonstrate how indentions of paragraphs can be manipulated. \par This paragraph is indented. \\ This paragraph is not indented \par \noindentThis paragraph is not indented
\indent This paragraph is indented. \end{document}
```

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For example,

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\usepackage{amsmath}
\begin{document}
These examples demonstrate how indentions of paragraphs can be manipulated. \par This paragraph is indented. \\
This paragraph is not indented \par \noindentThis paragraph is not indented
\indent This paragraph is indented. \end{document}
```

These examples demonstrate how indentions of paragraphs can be manipulated.

    This paragraph is indented.

This paragraph is not indented
This paragraph is not indented
This paragraph is indented.

The spacing between paragraphs may be controlled by these commands

1. \smallskip

The spacing between paragraphs may be controlled by these commands

1. \smallskip
2. \medskip

The spacing between paragraphs may be controlled by these commands

1. \smallskip
2. \medskip
3. \bigskip

Paragraphs
Spacing between paragraphs

For example

```
\documentclass[a4paper,12pt]{article}
\usepackage{amsmath}
\begin{document}
Here is an example of \ldots
different spacings \ldots
\smallskip
between paragraphs.
\medskip
This is useful in highlighting certain paragraphs.
\bigskip
It is also useful with equations, tables and diagrams.
\end{document}
```

Paragraphs
Spacing between paragraphs

Here is an example of . . .
different spacings . . .

between paragraphs.

This is useful in highlighting certain paragraphs.

It is also useful with equations, tables and diagrams.

Environments
Definition

Environements are predefined formats or templates examples are equation, enumerate, itemize, lists„verbatim, quote etc.

There are three different lists environment in LaTeX.

1. enumerate

There are three different lists environment in LaTeX.

1. enumerate
2. itemize

There are three different lists environment in LaTeX.

1. enumerate
2. itemize
3. description


```
\begin{enumerate}
\item The \texttt{enumerate} environment numbers the
elements in the list.
\item The \texttt{itemize} environment precedes each item
by a large dot as follows:
   \begin{itemize}
   \item This is the first item of an \texttt{itemize}
environment.
   \item And this is the second.
   \end{itemize}
\item This is an example of the \texttt{description}
environment.
   \begin{description}
   \item[First] item in the list.
   \item[Second] item in the list.
   \end{description}
\end{enumerate}
```