

Document Preparation in LaTeX

Workshop on LaTeX

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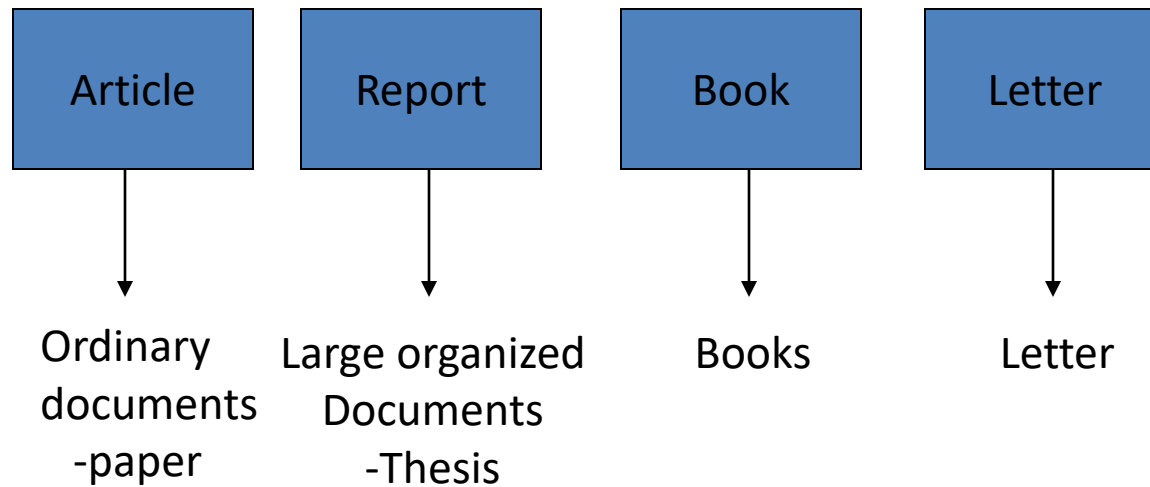
Dept of CSE

SSNCE

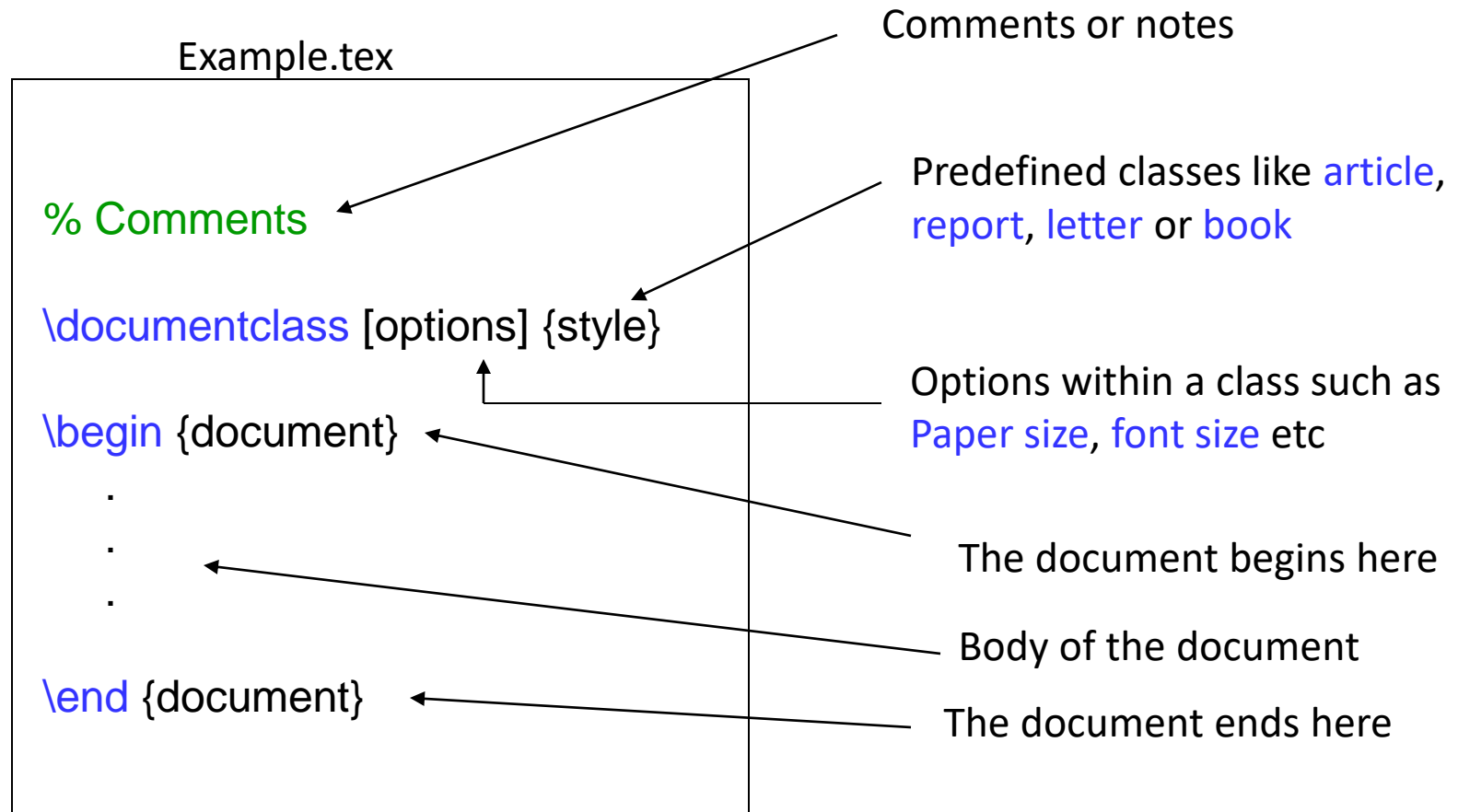
Document Creation

- Document classes
- Displaying the title of document
- Basic formatting
 - Abstract
 - Sections / Paragraphs
- Comments
- Images
- Bibliography

LaTeX Classes



Writing a document in Latex



Writing a document in Latex

Example.tex

```
% This is an example.tex
```

```
\documentclass {article}
```

```
\begin {document}
```

```
This is a test
```

```
\end {document}
```

This is a test

Writing a document in Latex

Title, author

Example.tex

```
% This is an example.tex  
  
\documentclass [12pt]{article}  
  
\begin {document}  
  
\title {This is an example}  
\author {James Bond}  
\maketitle  
This is a test  
\end {document}
```

This is an example

James Bond

September 19, 2005

This is a test

Writing a document in Latex

Font size \tiny to \Huge

Example.tex

```
% This is an example.tex

\documentclass [12pt]{article}

\begin {document}
\noindent
This is a test \\
\small {This is a test}\\
\Large {This is a test}\\
\Huge {This is a test}\\

\end {document}
```

This is a test

This is a test

This is a test

Writing a document in Latex

Section and Subsection

Example.tex

```
% This is an example.tex
```

```
\documentclass [12pt]{article}
```

```
\begin {document}
```

```
\title {This is an example}
```

```
\author {James Bond}
```

```
\maketitle
```

```
\section {Introduction}
```

```
\subsection {Experiment}
```

```
\end {document}
```

This is an example

James Bond

September 19, 2005

1 Introduction

1.1 Experiment

Writing a document in Latex

References within a document

Example.tex

```
% This is an example.tex  
\documentclass [12pt]{article}
```

```
\begin {document}  
\section {Introduction}  
\label {intro}
```

This is section on Introduction.

```
\subsection {experiment}  
\label {exp}
```

This is an example subsection.
Please refer Section.\ref {intro} for
introduction. Refer Section \ref {exp}

```
\end {document}
```

1 Introduction

This is section on Introduction.

1.1 experiment

This is an example subsection. Please refer Section.1 for introduction. Refer
Section. 1.1

Very easy to manage all the references in long documents

Writing a document in Latex

Example.tex

Equations

```
\documentclass [12pt]{article}
\begin {document}
\title {This is an example}
\author {James Bond}
\maketitle
\section {Introduction}
\begin {equation}
g_{\gamma_{\{n\}}}(t) =
\frac{1}{\sqrt{s_{\{n\}}}}g(\frac{t-p_{\{n\}}}{s_{\{n\}}})\exp\{j(2\pi f_{\{n\}}t+\phi_{\{n\}})\},
\label {eq1}
\end {equation}
\end {document}
```

1 Introduction

$$g_{\gamma_n}(t) = \frac{1}{\sqrt{s_n}} g\left(\frac{t - p_n}{s_n}\right) \exp \{j(2\pi f_n t + \phi_n)\}, \quad (1)$$

Writing a document in Latex

Figures

Example.tex

```
% This is an example.tex
```

```
\documentclass [12pt]{article}
```

```
\usepackage {graphicx}
```

```
\begin {document}
```

```
\begin {figure}
```

```
\includegraphics[width=2in,height=2in]
```

```
{sample}
```

```
\caption {Sample Figure.}
```

```
\label {fig1}
```

```
\end {figure}
```

```
\end {document}
```

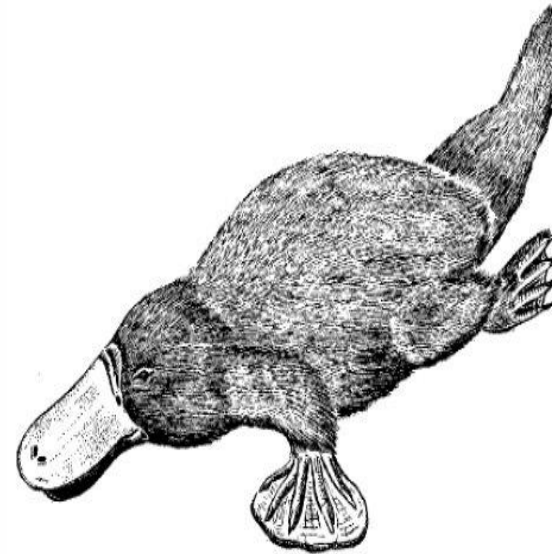


Figure 1: Sample Figure.

Writing a document in Latex

Example.tex

Table

```
% This is an example.tex

\documentclass [12pt]{article}
\begin {document}

\begin {table}
  \centering
  \begin {tabular}{|c|c|c|c|c|} \hline
Method & Groups & Normal & Abnormal & Total \\ \hline
LR & Normal & 40 & 11 & 51 \\
& Abnormal & 17 & 22 & 39 \\ \hline
% & Normal & \bf{78.4} & 21.6 & 100 \\
& Abnormal & 43.6 & \bf{56.4} & 100 \\ \hline
\end {tabular}
  \caption {Sample Table}
  \label {tab1}
\end {table}
\end {document}
```

Method	Groups	Normal	Abnormal	Total
LR	Normal	40	11	51
	Abnormal	17	22	39
%	Normal	78.4	21.6	100
	Abnormal	43.6	56.4	100

Table 1: Sample Table



Writing a document in Latex

Why BibTex

- Complements LaTeX documents by managing bibliography and references
- Minimizes the drudgery of formatting, numbering, and referencing

Writing a document in Latex

Making references in LaTeX

```
\documentclass{article}
\begin{document}
\emph{My mother} is a
  \underline{fish} \cite{WF}.
\begin{thebibliography}{99}
\bibitem{WF}
William Faulkner, \emph{As I
  Lay Dying}
\end{thebibliography}
\end{document}
```

My mother is a fish [1].

References

[1] William Falkner, *As I Lay Dying*

Writing a document in Latex

Need to compile the document twice

- Because we are using symbolic references, e.g., `\cite{WF}`,
 - a second pass is necessary
- The second pass will resolve references

Writing a document in Latex

Problem with this method

- User is burdened with deciding how to format article titles, journal names, proceeding references
- Difficult to reuse references in other documents

Writing a document in Latex

The BibTeX Process

1. Create a **BibTeX** file with Reference entries
2. Get a ***.bst** file (bibliographic style file)
3. “Compile” or “Build” your **LaTeX** document to create an ***.aux** file
4. Run **BibTeX** on your **LaTeX** file
5. Run **LaTeX** twice on your updated file
6. View the **pdf** file

Writing a document in Latex

Types of Documents BibTex can handle

- ARTICLE
- BOOK
- BOOKLET
- INBOOK
- INCOLLECTION
- INPROCEEDINGS
- MANUAL
- MISC
- PHDTHESIS
- PROCEEDINGS
- TECHREPORT
- UNPUBLISHED

Writing a document in Latex

Each Document type can have the following entries

- address
- author
- booktitle
- chapter
- crossref
- edition
- editor
- howpublished
- institution
- journal
- key
- language
- month
- note
- number
- organization
- pages
- publisher
- school
- series
- title
- type="Ph.D. dissertation"
- volume
- year

Writing a document in Latex

Sample BibTex Book Entry (mybib.bib)

```
@BOOK{Erl,  
  AUTHOR    ="Erl, T.",  
  TITLE      ="{Web Service Contract Designing and  
              Versioning  for SOA}",  
  PUBLISHER  ="Prentice Hall",  
  YEAR       ="2009",  
}
```

Writing a document in Latex

Sample BibTex Article Entry

```
@ARTICLE{CostBenefit,  
AUTHOR      = "{Yin, Y., Zhang, X., and Zhang, B.}",  
TITLE       = "{Cost-Benefit Analysis for Adaptive  
Web Service Substitution with  
Compensation}",  
JOURNAL     = "Proceedings of ICICA 2011",  
YEAR        = "2011",  
PAGES       = "505-512",  
EDITOR      = {Lin, B. and Chai, C.},  
SERIES      = {Lecture Notes in Computer Science},  
PUBLISHER    = {Springer-Verlag Berlin / Heidelberg},  
VOLUME      = {7030},  
}
```

Writing a document in Latex

Citing other works

Example.tex

```
% This is an example.tex
\documentclass [12pt]{article}
\bibliographystyle {IEEEtran}
\begin {document}
\section {Introduction}
\label {intro}

This is section on Introduction.

\subsection {experiment}
\label {exp}

This is an example subsection. This
work is based on the
MP algorithm \cite {mallat2}

\bibliography {bibfile}
\end {document}
```

1 Introduction

This is section on Introduction.

1.1 experiment

This is an example subsection. This work is based on the MP algorithm [1]

References

- [1] S. G. Mallat and Z. Zhang, "Matching pursuit with time-frequency dictionaries," *IEEE Trans. Signal Processing*, vol. 41, no. 12, pp. 3397–3415, 1993.

Order and numbering of the references are automatic. Inserting a new citation reorders the references (a cool feature !)

Different Formatting Styles

- To invoke a particular style, go to
 - <http://www.ctan.org>
- Bibliography styles are defined in `*.bst` files
 - `mla.bst`
 - `amsplain.bst`

To invoke these styles in your document

- Copy them to your current working directory with your **LaTeX** and **BibTeX** document
- Edit your **LaTeX** file to appropriately reference these style guides

Writing a document in Latex

Let us put everything together

- \documentclass
- \title
- \author
- \begin
- \end
- \maketitle
- \section
- \subsection
- \par
- figure
- Table
- \ref
- \cite

Thank You