

Learn LaTeX in 30 Minutes

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Use the right tool for the job

Microsoft
Office



Open**Office**.org



L^AT_EX

MiK_TE_X

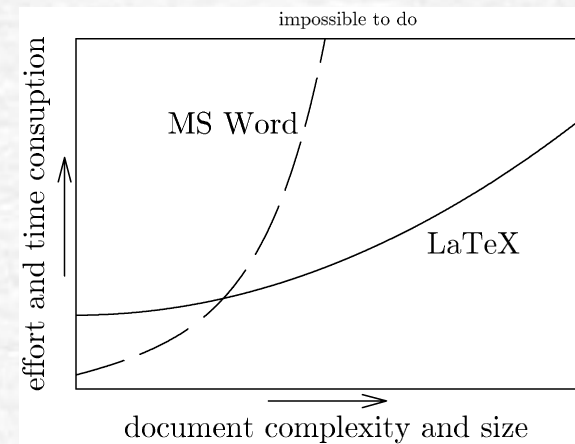
...typesetting beautiful documents...





Latex vs. MS Word

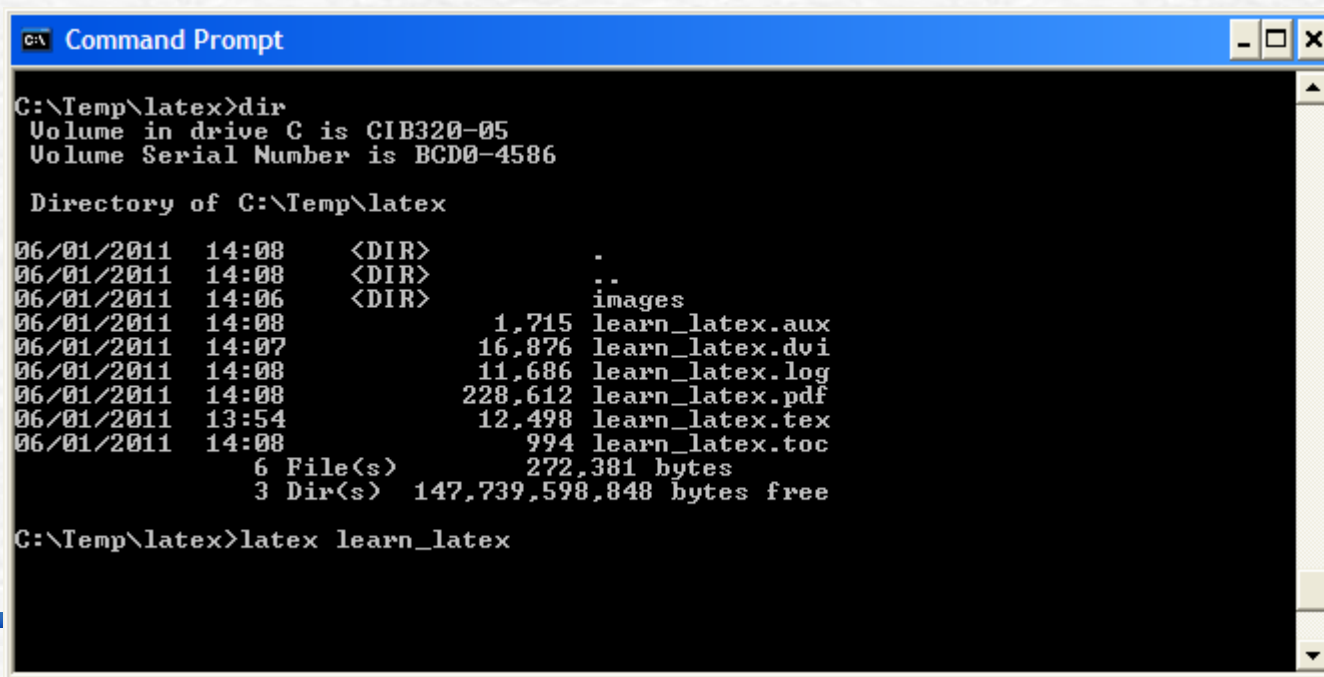
- If you need to write a *short* letter, a cover page, you are best of writing in *Word*. For simple documents, you don't need fancy layout. So, you can save time by writing with a WYSIWYG editor like Word.
- If you are writing a *long document* like a PhD thesis, an article, or a review, you are better of with *LaTeX*.





Why LaTeX

- Very powerful control of document generation, particularly large technical documents
- Very easy for formatting, numbering, and referencing
- You can learn all about it in a couple of hours.



```
C:\Temp\latex>dir
Volume in drive C is CIB320-05
Volume Serial Number is BCD0-4586

Directory of C:\Temp\latex

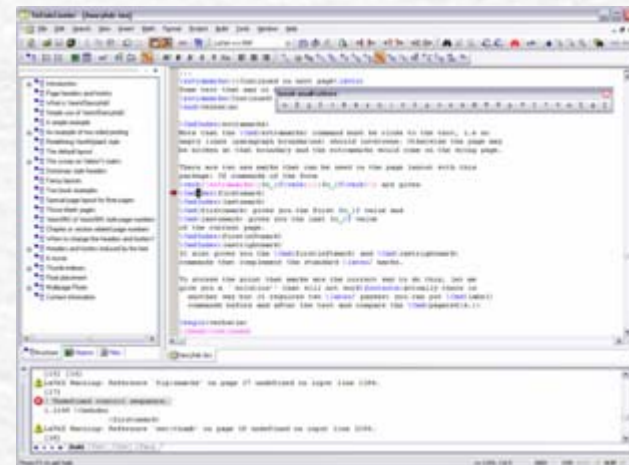
06/01/2011  14:08    <DIR>          .
06/01/2011  14:08    <DIR>          ..
06/01/2011  14:06    <DIR>          images
06/01/2011  14:08                1,715 learn_latex.aux
06/01/2011  14:07                16,876 learn_latex.dvi
06/01/2011  14:08                11,686 learn_latex.log
06/01/2011  14:08               228,612 learn_latex.pdf
06/01/2011  13:54                12,498 learn_latex.tex
06/01/2011  14:08                 994 learn_latex.toc
               6 File(s)                272,381 bytes
               3 Dir(s)  147,739,598,848 bytes free

C:\Temp\latex>latex learn_latex
```



What is Needed

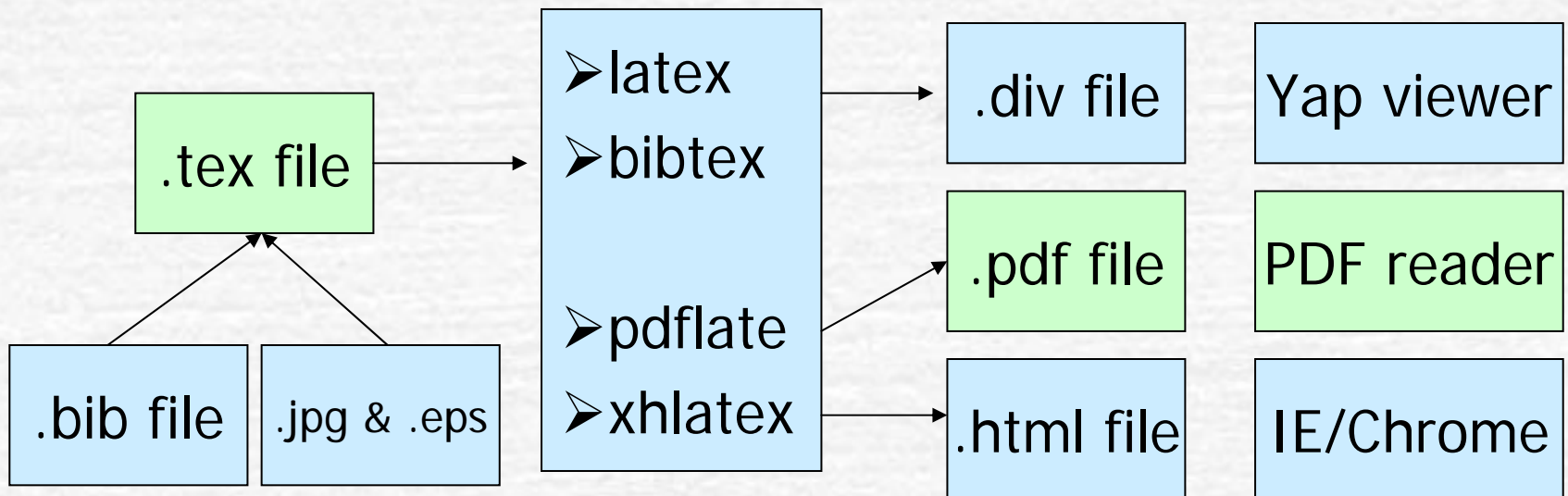
- Use MikTeX for Microsoft windows platform. MikTeX is free.
 - <http://www.miktex.org/>
- Use TEXnicCentre as your editor.
 - <http://www.texniccenter.org/>





The LaTeX Process

1. Create a text file with your favorite text editor (TeXnicCenter Editor).
2. "Compile" or "Build" your document using the LaTeX program
3. Display resulting Document in either PDF or DVI
4. Continue writing and go to 1 until finished.





My First LaTeX Document

```
\documentclass{article}  
\begin{document}  
I do not like Microsoft word.  
\end{document}
```



Add Sections

```
\documentclass{article}
\begin{document}
\section{Word} \label{sec:word}
  I do not like Microsoft word.

\section{Latex}\label{sec:tex}
  I like Latex. As meantioned in
  Section \ref{sec:word} I do not like
  MS Word.
\end{document}
```




Equation Example

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

\begin{equation} \label{eq:sum}
s = \sum_{i=1}^n x_{i}
\end{equation}

\end{document}
```

$$s = \sum_{i=1}^n x_i$$



Equation Example (2)

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

\begin{equation} \label{eq:mean}
\bar{x} = \frac{\sum_{i=1}^n x_{i}}{n}
\end{equation}
```

```
In Equation \ref{eq:mean} ...
\end{document}
```

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$$



Equation Example (3)

```
\documentclass{report}
\begin{document}

\begin{equation} \label{eq:sd}
\sigma =
\sqrt{\frac{\sum\limits_{i=1}^n
\left(x_{i} - \bar{x}\right)^2}
{n-1}}
\end{equation}
\end{document}
```

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}}$$



Document Class

Use different class for your document.

```
\documentclass{article}
```

```
\documentclass{book}
```

```
\documentclass{letter}
```

```
\documentclass{report}
```



Report Document

```
\documentclass{report}
```

```
\title{Learn Latex}
```

```
\author{A. Lotfi}
```

```
\begin{document}
```

```
\maketitle
```

```
\tableofcontents
```

```
\end{document}
```



Report Document – Include Chapters

```
\documentclass{report}  
\title{Learn Latex}  
\author{A. Lotfi}  
\begin{document}  
\maketitle  
\tableofcontents  
  \include{chapter_1}  
  \include{chapter_2}  
  \include{chapter_3}  
\end{document}
```




Including Images

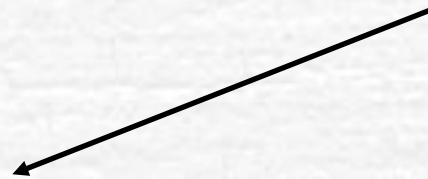
- Need to convert your image graphics into JPG and/or EPS.
- Need to include an extension package to LaTeX called "graphics" using command `\usepackage{graphics}`



Image Graphics Example

```
\documentclass{article}
\usepackage{graphics}
\begin{document}
  \begin{figure}
    \includegraphics{MyCat}
    \caption{This is My Cat} \label{fig:cat}
  \end{figure}
  In Figure \ref{fig:cat} ...
\end{document}
```

.jpg or .eps
Do not specify
The extension.





Comments in LaTeX

- To comment a line or a paragraph use:

%

- Ignores the rest of the line
- Any text after `\end{document}` also will be discarded.



Special Characters

- Use the `\` character
 - e.g.
 - `My_Name.vsd`
 - `More than 10\%`
- Use `` `` and `''` for quotation marks. This is different from `" "`. In Latex `` `cat''` should be used to have double quote.



Making References

```
\documentclass{article}
```

```
\begin{document}
```

Because we are using symbolic references,
e.g., `\cite{AL}` a second pass is necessary.

```
\begin{thebibliography}{99}
```

```
\bibitem{AL}
```

```
A Lotfi, \emph{Learn Latex in 30 Minutes}
```

```
\end{thebibliography}
```

```
\end{document}
```



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



Making References - BibTeX

```
\documentclass{article}
```

```
\begin{document}
```

Because we are using symbolic references, e.g., `\cite{AL}` a second pass is necessary.

```
\bibliographystyle{plain}
```

```
\bibliography{mybib}
```

```
\end{document}
```




The BibTeX Process

1. Create a **BibTeX** file with Rerefence entries
2. Get a ***.bst** file (bibliographic style file. IEEE.bst or Springer.bst)
 - You can use plain, abbrev, unstr or alpha
3. "Compile" or "Build" your **LaTeX**.
4. Only references that you actually cited will appear on the list.



Types of Documents BibTex can handle

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



Sample BibTex Book Entry

```
@BOOK{Press,  
author="A. Lotfi",  
title="Applications and Science in Soft  
  Comuting, Series.",  
publisher="Springer",  
year=2004,  
}
```



Create BibTex File

- From RefWorks, export your references in BibTex format. This is the easiest way of generating your BIB file.
- For Harvard system, use Natbib package.



Harvard System

- Use natbib package for Harvard citation style.

```
\documentclass{article}
```

```
\usepackage{natbib}
```

```
\bibpunct{( )}{;}{a}{,}{,}
```

```
\begin{document}
```

```
In \citet{AL} more details about this item is  
explained \citep{AL}.
```

```
\bibliographystyle{plainnat}
```

```
\bibliography{mybib}
```

```
\end{document}
```



Examples

- Download a copy of this note and all example files from:

<http://lotfi.net/latex/>

- Also available:
 - Writing a Scientific Paper in Latex
 - Writing a PhD Thesis in Latex