

# Introduction to LaTeX

Ashim Khadka

Gandakai College of Engineering and Science

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# Outline

## ① Introduction

### Create Document

## ② Latex Writing

# Introduction

- LaTeX is a software for typesetting documents
  - It's a document preparation system

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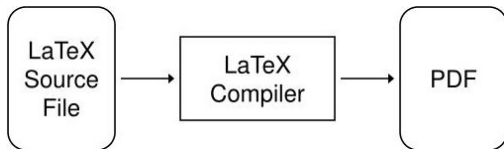


Figure: What is latex?

- LaTeX is a software for typesetting documents
  - It's a document preparation system

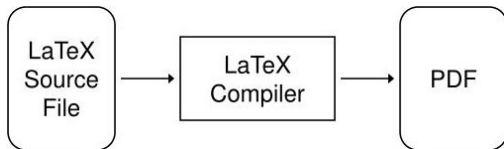


Figure: What is latex?

- LaTeX is a free, open source software

- LaTeX is a software for typesetting documents
  - It's a document preparation system

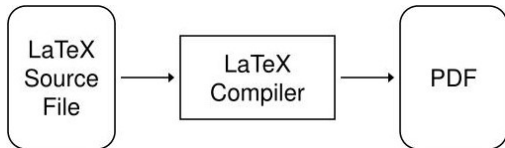
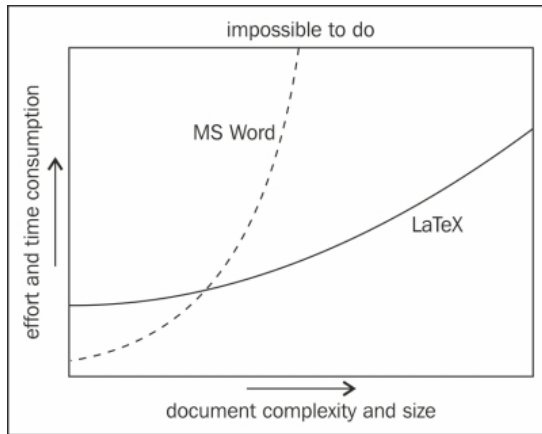


Figure: What is latex?

- LaTeX is a free, open source software
- LaTeX is especially well-suited for scientific and technical documents
  - Superior typesetting of mathematical formulas is legendary
  - Cross-referencing capabilities

## Comparison



**Figure:** Using LaTeX on Windows by Marko Pinteric  
([www.pinteric.com/miktex.html](http://www.pinteric.com/miktex.html))



# How to use LaTeX?

## LOCALLY

Need to install Tex  
Distribution & Editor

Windows OS:

**TeXLive**  
**MiKTeX**

**Texstudio**

Editors:

**TeXnicCenter**

**TeXmaker**

Mac OS:

**MacTeX**

**MiKTeX**

Editors:

**Texstudio**

**TeXmaker**

## REMOTELY

No installation required

**Overleaf**

[www.overleaf.com](http://www.overleaf.com)

# Why use LaTeX?

- Free: Open Source
- Looks better
  - Especially math
- Separation of content & formatting
- More flexible
- Easier concurrent editing
- Easier citations

# Create Document

# Creating Document

- 1 Launch the **LaTeX editor**: Click on the **New** button
- 2 Enter the following lines:  
$$\text{\texttt{\textit{\textbackslash documentclass\{article\}}}}$$

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

```
\end{document}
```

# Creating Document

- 1 Launch the **LaTeX editor**: Click on the **New** button
- 2 Enter the following lines:

```
\documentclass{article}
```

```
\begin{document}
```

This is our first document.

```
\end{document}
```

# Creating Document

- 1 Launch the **LaTeX editor**: Click on the **New** button
- 2 Enter the following lines:

```
\documentclass{article}
```

```
\begin{document}
```

This is our first document.

```
\end{document}
```

- 3 Click on the **Save** button and save the document

# Creating Document

- 1 Launch the **LaTeX editor**: Click on the **New** button
- 2 Enter the following lines:

```
\documentclass{article}  
\begin{document}  
    This is our first document.  
\end{document}
```
- 3 Click on the **Save** button and save the document
- 4 Click on the **Build & Run** or **Typeset** button



# Modify Document

```
\documentclass[a4paper,11pt]{article}
\begin{document}
  \title{Example 2}
  \author{My name}
  \date{February 6, 2021} or \date{\today}
  \maketitle
  \section{Introduction}
  This is our first document.
  \subsection{GCES}
  Gandaki college of engineering and science
\end{document}
```

# Latex Writing

# Latex Writing

- Creating Lists
- Inserting Figures
- Creating Column
- Typing Math Formulas

# Creating Lists

# Creating Lists

- Arranging text in the form of a list can be very reader-friendly
- Present several ideas by a clear structure which is easy to survey
  - ① Bulleted lists
  - ② Numbered lists
  - ③ Definition lists

## Example: Creating Lists

```
\begin{itemize}
```

```
\item Bulleted lists
```

```
\begin{enumerate}[l]
```

```
\item Hello
```

```
\end{enumerate}
```

```
\item Numbered lists
```

```
\item Definition lists
```

```
\end{itemize}
```

- Bulleted lists

- ① Hello

- Numbered lists

- Definition lists

```
\begin{enumerate}
```

```
\item Bulleted lists
```

```
\begin{enumerate}[a]
```

```
\item Hello
```

```
\end{enumerate}
```

```
\item Numbered lists
```

```
\item Definition lists
```

```
\end{enumerate}
```

- ① Bulleted lists

- a Hello

- ② Numbered lists

- ③ Definition lists

Figure: Listing

# Inserting Figure

## Inserting Figure

### Visual representation

```
\begin{figure}  
  \centering  
  \includegraphics[width=0.7\linewidth]{what-is-latex}  
  \caption{What is Latex?}  
  \label{fig:what-is-latex}  
\end{figure}
```

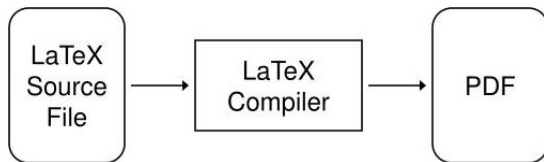


Figure: What is Latex?



# Creating Column

# Creating Column

Representation document in column

```
\begin{columns}
```

```
\column{0.4\textwidth}
```

Hi

```
\column{0.4\textwidth}
```

Hello

```
\end{columns}
```

Hi

Hello

# Typing Mathematics Formulas

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- LaTeX offers excellent quality for mathematical typesetting
- `\usepackage{amssymb}`
- `\usepackage{amsmath}`

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$$x^2 + \lim_{\theta \rightarrow 0} \frac{\sin x}{x}$$

`$expression$`

`{expression}_ {subscript}`

`{expression}^ {superscript}`

`\sqrt[order]{value}`

`\frac{numerator}{denominator}`

`\begin{align}`

`x+y`

`\label{math}`

`\end{align}`

From (1)

$$x^2 + \lim_{\theta \rightarrow 0} \frac{\sin x}{x} \tag{1}$$

# Referring to a key

## Assigning a key

- Command `\label{name}` assigns the current position to the key name
- Figure: `\label{fig:name}` Figure `\label{eq:name}`

# Referring to a key

- Once a label has been set and given a name
- `\ref{name}`: From (1)(`\ref{eq:math}`)

# Presentation: Beamer



# Presentation: Beamer

- Beamer is a powerful and flexible LaTeX class to create great looking presentations
- This article outlines the basis steps to making a Beamer slideshow:
  - creating the title page
  - highlighting important points
  - making a table of contents and adding effects to the slideshow