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## Introduction

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# Introduction



**T<sub>E</sub>X**, is a typesetting system which was designed and written by **Donald Knuth**, a Stanford University professor, and first released in **1978**, to improve the quality of mathematical notation in his books.



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**L<sup>A</sup>T<sub>E</sub>X** is a software system for document preparation which was created in the early **1980s** by **Leslie Lamport**, when he was working at SRI. He needed to write T<sub>E</sub>X macros for his own use, and thought that with a little extra effort he could make a general package usable by others





MS Word

L<sup>A</sup>T<sub>E</sub>X



MS Word	L <sup>A</sup> T <sub>E</sub> X
Easy to use	Some hours to learn it

MS Word	L <sup>A</sup> T <sub>E</sub> X
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You have to pay for it	It is Free and Open source

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Difficult citation management	Bibliography
Difficult to change	Easy to change

MS Word	L <sup>A</sup> T <sub>E</sub> X
Easy to use	Some hours to learn it
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Difficult to change	Easy to change
What you see is what you get	Needs to be compiled

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Difficult citation management	Bibliography
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What you see is what you get	Needs to be compiled
Slow for large files	Faster because you write down only the contents

MS Word	L <sup>A</sup> T <sub>E</sub> X
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You have to pay for it	It is Free and Open source
Difficult citation management	Bibliography
Difficult to change	Easy to change
What you see is what you get	Needs to be compiled
Slow for large files	Faster because you write down only the contents
Useful for simple editing	Great mathematical tools



MS Word	L <sup>A</sup> T <sub>E</sub> X
Easy to use	Some hours to learn it
Useful for daily use	Technical & Scientific work
You have to pay for it	It is Free and Open source
Difficult citation management	Bibliography
Difficult to change	Easy to change
What you see is what you get	Needs to be compiled
Slow for large files	Faster because you write down only the contents
Useful for simple editing	Great mathematical tools
Not compatible with all versions	Compatible (PDF output)



## 1. Create graphic elements using **TikZ**

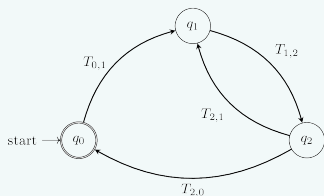


Figure: Simple

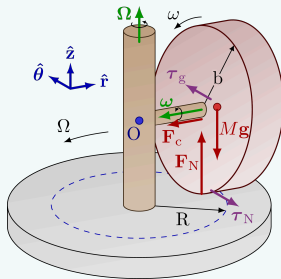


Figure: Complex

1. Create graphic elements using **TikZ**
2. Create presentation slides with **Beamer** (Like our presentation 😊)

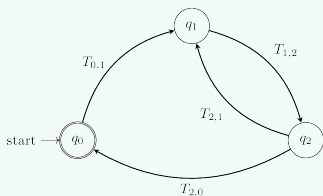


Figure: Simple

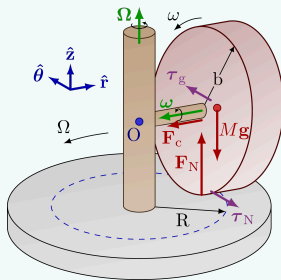


Figure: Complex

# Start using L<sup>A</sup>T<sub>E</sub>X





Online platforms:



## Online platforms:

✓ *Overleaf (Recommended)*



## Online platforms:

- ✓ *Overleaf (Recommended)*
- ✓ *Texlive*





## Online platforms:

- ✓ *Overleaf (Recommended)*
- ✓ *Texlive*
- ✓ *Tutorialspoint*



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## Offline platforms:

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## Offline platforms:

- ✓ *WinEdt + MiKTeX*

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- ✓ *Overleaf (Recommended)*
- ✓ *Texlive*
- ✓ *Tutorialspoint*



## Offline platforms:

- ✓ *WinEdt + MiKTeX*
- ✓ *Texstudio + Tex Live*





*English documents* can be compiled using the procedure bellow:

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1. Create a `[filename].tex` file

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1. Create a `[filename].tex` file
2. Write your program



*English documents* can be compiled using the procedure bellow:

1. Create a `[filename].tex` file
2. Write your program
3. Compile using `$` PDFLaTeX `[filename].tex`

*English documents* can be compiled using the procedure bellow:

1. Create a `[filename].tex` file
2. Write your program
3. Compile using `$` **PDFLaTeX** `[filename].tex`

*Persian documents* can be compiled using the procedure bellow:

*English documents* can be compiled using the procedure bellow:

1. Create a `[filename].tex` file
2. Write your program
3. Compile using `$` PDFLaTeX `[filename].tex`

*Persian documents* can be compiled using the procedure bellow:

1. Create a `[filename].tex` file

*English documents* can be compiled using the procedure bellow:

1. Create a `[filename].tex` file
2. Write your program
3. Compile using `$` PDFLaTeX `[filename].tex`

*Persian documents* can be compiled using the procedure bellow:

1. Create a `[filename].tex` file
2. Write your program

*English documents* can be compiled using the procedure bellow:

1. Create a `[filename].tex` file
2. Write your program
3. Compile using `$ PDFLaTeX [filename].tex`

*Persian documents* can be compiled using the procedure bellow:

1. Create a `[filename].tex` file
2. Write your program
3. Compile using `$ XeLaTeX [filename].tex`

# **Basic Concepts**

# Overall structure of T<sub>E</sub>Xfile





## Standard Control Sequences

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





## Standard Control Sequences

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

## Other Classes

{report}, {book}, {letter}, {beamer}, ...

## Standard Control Sequences

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

## Other Classes

{report}, {book}, {letter}, {beamer}, ...

## Example

```
\documentclass[12pt]{article}  
\usepackage{tabularx,graphics}  
\begin{document}  
  Hello world!  
\newpage  
  Seems good using LATEX!  
\end{document}
```





In order to write our documents in persian, we should use the *XePersian package*.

In order to write our documents in persian, we should use the *XePersian package*.

## Typesetting

```
\documentclass{article}  
\usepackage{xepersian}  
\settextfont{XB Niloofar}  
\begin{document}  
    این فقط یک آزمایش است  
  
\end{document}
```

In order to write our documents in persian, we should use the *XePersian package*.

## Typesetting

```
\documentclass{article}  
\usepackage{xepersian}  
\settextfont{XB Niloofar}  
\begin{document}  
    این فقط یک آزمایش است  
  
\end{document}
```

این فقط یک آزمایش است



## Typesetting

```
\documentclass{article}  
\title{Just see how great is LATEX}  
\author{Alireza Lotfi}  
\date{\today}  
\begin{document}  
  \maketitle  
\end{document}
```



## Typesetting

```
\documentclass{article}  
\title{Just see how great is LATEX}  
\author{Alireza Lotfi}  
\date{\today}  
\begin{document}  
  \maketitle  
\end{document}
```

Just see how great is L<sup>A</sup>T<sub>E</sub>X

Alireza Lotfi

March 26, 2022



## Typesetting

```
\documentclass{article}
\begin{document}
  \section{name1}
  Testing section
  \subsection{name2}
  Testing subsection
  \subsubsection{name3}
  Testing subsubsection
  \paragraph{name4}
  Testing paragraph
  \subparagraph{name5}
  Testing subparagraph
\end{document}
```

## Typesetting

```
\documentclass{article}
\begin{document}
  \section{name1}
  Testing section
  \subsection{name2}
  Testing subsection
  \subsubsection{name3}
  Testing subsubsection
  \paragraph{name4}
  Testing paragraph
  \subparagraph{name5}
  Testing subparagraph
\end{document}
```

## 1 name1

Testing section

### 1.1 name2

Testing subsection

#### 1.1.1 name3

Testing subsubsection

**name4** Testing paragraph

**name5** Testing subparagraph

# Table of contents



Table of contents will be automatically created using the syntax bellow.

Table of contents will be automatically created using the syntax bellow.

## Typesetting

```
\documentclass{article}  
\begin{document}  
  \tableofcontents  
  \newpage  
\end{document}
```

Table of contents will be automatically created using the syntax bellow.

## Typesetting

```
\documentclass{article}  
\begin{document}  
  \tableofcontents  
  \newpage  
\end{document}
```

## Contents

1	name1	2
1.1	name2 . . . . .	2
1.1.1	name3 . . . . .	2



# Line break, comment



## Result

I am going to break the line here  
and here.

But you can't see what I have written bellow. Maybe you should check the  
comments 😊.

## Result

I am going to break the line here  
and here.

But you can't see what I have written bellow. Maybe you should check the  
comments 😊.

## Typesetting

```
\documentclass{article}
```

```
\begin{document}
```

I am going to break the line here \\  
and here. \newline

But you can't see what I have written bellow. Maybe you should check the  
comments 😊.

```
\% Congratulations!! You found the comment.
```

```
\end{document}
```

# **Fundamental Commands**



## Result

This is tiny.

This is scriptsize.

This is footnotesize.

This is small.

This is normal size.

This is large.

This is Large.

This is LARGE.

This is huge.

This is Huge.

## Result

This is tiny.

This is scriptsize.

This is footnotesize.

This is small.

This is normal size.

This is large.

This is Large.

This is LARGE.

This is huge.

This is Huge.

## Typesetting

```
\documentclass{article}
```

```
\begin{document}
```

```
\tiny This is tiny.
```

```
\scriptsize This is scriptsize.
```

```
\footnotesize This is footnotesize.
```

```
\small This is small.
```

```
\normalsize This is normal size.
```

```
\large This is large.
```

```
\Large This is Large.
```

```
\LARGE This is LARGE.
```

```
\huge This is huge.
```

```
\Huge This is Huge.
```

```
\end{document}
```





## Result

Do not *worry about* your **difficulties** in mathematic, I assure you that mine are **greater**.

*Einstein, Albert* (1879-1955)

## Result

Do not *worry about* your **difficulties** in mathematic, I assure you that mine are **greater**.

*Einstein, Albert* (1879-1955)

## Typesetting

```
Do not \textit{worry about} your \textbf{difficulties} in
\underline{mathematic}, I assure you that mine are \huge greater \normalsize.
% You don't need to know what is flushright!
\begin{flushright}
  \underline{\textbf{\textit{Einstein, Albert}}}} (1879-1955)
\end{flushright}
```

# Ordered list



## Typesetting

```
\documentclass{article}
\begin{document}
  \begin{enumerate}
    \item First item
    \item Second item
    \item Third item
  \end{enumerate}
\end{document}
```

## Typesetting

```
\documentclass{article}
\begin{document}
  \begin{enumerate}
    \item First item
    \item Second item
    \item Third item
  \end{enumerate}
\end{document}
```

## Result

1. First item
2. Second item
3. Third item

# Unordered list



## Typesetting

```
\documentclass{article}  
\begin{document}  
  \begin{itemize}  
    \item First item  
    \item Second item  
    \item Third item  
  \end{itemize}  
\end{document}
```

## Typesetting

```
\documentclass{article}
\begin{document}
  \begin{itemize}
    \item First item
    \item Second item
    \item Third item
  \end{itemize}
\end{document}
```

## Result

- ✓ First item
- ✓ Second item
- ✓ Third item



# Nested lists



## Typesetting

```
\documentclass{article}  
\begin{document}  
  \begin{enumerate}  
    \item First item  
      \begin{itemize}  
        \item First nested item  
        \item Second nested item  
      \end{itemize}  
    \item Second item  
    \item Third item  
  \end{enumerate}  
\end{document}
```

## Typesetting

```
\documentclass{article}
\begin{document}
  \begin{enumerate}
    \item First item
      \begin{itemize}
        \item First nested item
        \item Second nested item
      \end{itemize}
    \item Second item
    \item Third item
  \end{enumerate}
\end{document}
```

## Result

1. First item
  - ▶ First nested item
  - ▶ Second nested item
2. Second item
3. Third item

# Simple table



## Typesetting

```
\documentclass{article}  
\begin{document}  
  \begin{tabular}{c|c|c}  
    Function & X & Y \\\hline  
    f(x, y) & 10 & 11 \\  
    z(x, y) & 12 & 13 \\  
    w(x, y) & 14 & 15 \\  
  \end{tabular}  
\end{document}
```

## Typesetting

```
\documentclass{article}
\begin{document}
  \begin{tabular}{c|c|c}
    Function & X & Y \\ \hline
    f(x, y) & 10 & 11 \\
    z(x, y) & 12 & 13 \\
    w(x, y) & 14 & 15 \\
  \end{tabular}
\end{document}
```

## Result

Function	X	Y
f(x, y)	10	11
z(x, y)	12	13
w(x, y)	14	15

# Positioning table



## Typesetting

```
\documentclass{article}
\begin{document}
  \begin{table}[h]
    \centering
    \begin{tabular}{c|c|c}
      Function & X & Y \\\hline
      fx, y & 10 & 11 \\
      z(x, y) & 12 & 13 \\
      w(x, y) & 14 & 15 \\
    \end{tabular}
    \caption{This is our table}
    \label{table_ref_1}
  \end{table}
\end{document}
```



## Typesetting

```
\documentclass{article}
\begin{document}
  \begin{table}[h]
    \centering
    \begin{tabular}{c|c|c}
      Function & X & Y \\\hline
      f(x, y) & 10 & 11 \\
      z(x, y) & 12 & 13 \\
      w(x, y) & 14 & 15 \\
    \end{tabular}
  \end{table}
  \caption{This is our table}
  \label{table_ref_1}
\begin{table}
\end{table}
\end{document}
```

## Result

Function	X	Y
$f(x, y)$	10	11
$z(x, y)$	12	13
$w(x, y)$	14	15

Table: This is our table



You can use any of these "delimiters" to typeset your math in **inline mode**:

You can use any of these "delimiters" to typeset your math in **inline mode**:

✓  $\dots$

You can use any of these "delimiters" to typeset your math in **inline mode**:

✓  $\left( \dots \right)$

✓  $\$ \dots \$$

You can use any of these "delimiters" to typeset your math in **inline mode**:

✓  $\dots$

✓  $\$...\$$

✓  $\begin{math}...\end{math}$

You can use any of these "delimiters" to typeset your math in **inline mode**:

✓ `\(...\)`

✓ `$...$`

✓ `\begin{math}...\end{math}`

Use one of these constructions to typeset maths in **display mode**:

You can use any of these "delimiters" to typeset your math in **inline mode**:

- ✓ `\(...\)`
- ✓ `$...$`
- ✓ `\begin{math}...\end{math}`

Use one of these constructions to typeset maths in **display mode**:

- ✓ `\[...\]`



You can use any of these "delimiters" to typeset your math in **inline mode**:

- ✓ `\(...\)`
- ✓ `$...$`
- ✓ `\begin{math}...\end{math}`

Use one of these constructions to typeset maths in **display mode**:

- ✓ `\[...\]`
- ✓ `\begin{displaymath}...\end{displaymath}`

You can use any of these "delimiters" to typeset your math in **inline mode**:

- ✓ `\(...\)`
- ✓ `$...$`
- ✓ `\begin{math}...\end{math}`

Use one of these constructions to typeset maths in **display mode**:

- ✓ `\[...\]`
- ✓ `\begin{displaymath}...\end{displaymath}`
- ✓ `\begin{equation}...\end{equation}`

# Inline mode example



## Typesetting

```
\documentclass{article}
```

```
\begin{document}
```

Ex 1:  $f(x) = 2 \times x + 5$

Ex 2:  $f(x) = 2 \times x + 5$

Ex 3:  $f(x) = 2 \times x + 5$

```
\end{document}
```

## Typesetting

```
\documentclass{article}
```

```
\begin{document}
```

```
Ex 1: \(\mathit{f}(x) = 2\times x + 5\)\ \
```

```
Ex 2: $\mathit{f}(x) = 2\times x + 5$\ \
```

```
Ex 3: \begin{math}f(x) = 2\times x + 5\end{math}
```

```
\end{document}
```

## Result

Ex 1:  $f(x) = 2 \times x + 5$

Ex 2:  $f(x) = 2 \times x + 5$

Ex 3:  $f(x) = 2 \times x + 5$

# Display mode example



## Typesetting

```
\documentclass{article}
```

```
\begin{document}
```

Ex 1: `\[f(x) = 2\times x + 5\]` `\`

Ex 2: `\begin{displaymath}f(x) = 2\times x + 5 \end{displaymath}`

Ex 3: `\begin{equation}f(x) = 2\times x + 5 \end{equation}`

```
\end{document}
```

## Typesetting

```
\documentclass{article}
```

```
\begin{document}
```

```
Ex 1: \[f(x) = 2\times x + 5\] \\\
```

```
Ex 2: \begin{displaymath}f(x) = 2\times x + 5 \end{displaymath}
```

```
Ex 3: \begin{equation}f(x) = 2\times x + 5 \end{equation}
```

```
\end{document}
```

## Result

Ex 1:

$$f(x) = 2 \times x + 5$$

Ex 2:

$$f(x) = 2 \times x + 5$$

Ex 3:

$$f(x) = 2 \times x + 5 \tag{1}$$



# Subscripts and superscripts



## Typesetting

```
\documentclass{article}
\begin{document}
  Superscript: \[f(x) = x^{2+y} + 5\]
  Subscript: \[x_{n} = x_{n-1} + x_{n-2}\]
\end{document}
```

## Typesetting

```
\documentclass{article}
\begin{document}
  Superscript: \[f(x) = x^{2+y} + 5\]
  Subscript: \[x_{n} = x_{n-1} + x_{n-2}\]
\end{document}
```

## Result

Superscript:

$$f(x) = x^{2+y} + 5$$

Superscript:

$$x_n = x_{n-1} + x_{n-2}$$

# Basic operations



Description	Command	Output

Description	Command	Output
multiplication (times)	<code>\times</code>	×

Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$

Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$
division symbol	<code>\div</code>	$\div$



Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$
division symbol	<code>\div</code>	$\div$
division (slash)	<code>/</code>	$/$

Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$
division symbol	<code>\div</code>	$\div$
division (slash)	<code>/</code>	$/$
fraction	<code>\frac{a}{b}</code>	$\frac{a}{b}$

Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$
division symbol	<code>\div</code>	$\div$
division (slash)	<code>/</code>	$/$
fraction	<code>\frac{a}{b}</code>	$\frac{a}{b}$
square root	<code>\sqrt{x}</code>	$\sqrt{x}$

Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$
division symbol	<code>\div</code>	$\div$
division (slash)	<code>/</code>	$/$
fraction	<code>\frac{a}{b}</code>	$\frac{a}{b}$
square root	<code>\sqrt{x}</code>	$\sqrt{x}$
$n$ th root	<code>\sqrt[n]{x}</code>	$\sqrt[n]{x}$

Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$
division symbol	<code>\div</code>	$\div$
division (slash)	<code>/</code>	$/$
fraction	<code>\frac{a}{b}</code>	$\frac{a}{b}$
square root	<code>\sqrt{x}</code>	$\sqrt{x}$
$n$ th root	<code>\sqrt[n]{x}</code>	$\sqrt[n]{x}$
exponentiation	<code>a^b</code>	$a^b$

Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$
division symbol	<code>\div</code>	$\div$
division (slash)	<code>/</code>	$/$
fraction	<code>\frac{a}{b}</code>	$\frac{a}{b}$
square root	<code>\sqrt{x}</code>	$\sqrt{x}$
$n$ th root	<code>\sqrt[n]{x}</code>	$\sqrt[n]{x}$
exponentiation	<code>a^b</code>	$a^b$
natural log	<code>\ln(x)</code>	$\ln(x)$

Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$
division symbol	<code>\div</code>	$\div$
division (slash)	<code>/</code>	$/$
fraction	<code>\frac{a}{b}</code>	$\frac{a}{b}$
square root	<code>\sqrt{x}</code>	$\sqrt{x}$
$n$ th root	<code>\sqrt[n]{x}</code>	$\sqrt[n]{x}$
exponentiation	<code>a^b</code>	$a^b$
natural log	<code>\ln(x)</code>	$\ln(x)$
logarithms	<code>\log_a b</code>	$\log_a b$

Description	Command	Output
multiplication (times)	<code>\times</code>	$\times$
multiplication (dot)	<code>\cdot</code>	$\cdot$
division symbol	<code>\div</code>	$\div$
division (slash)	<code>/</code>	$/$
fraction	<code>\frac{a}{b}</code>	$\frac{a}{b}$
square root	<code>\sqrt{x}</code>	$\sqrt{x}$
$n$ th root	<code>\sqrt[n]{x}</code>	$\sqrt[n]{x}$
exponentiation	<code>a^b</code>	$a^b$
natural log	<code>\ln(x)</code>	$\ln(x)$
logarithms	<code>\log_a b</code>	$\log_a b$
exponential function	<code>e^x = \exp(x)</code>	$e^x = \exp(x)$





## Typesetting

```
\documentclass{article}  
\usepackage{hyperref}  
\begin{document}  
  \url{link}  
  \href{link}{text}  
\end{document}
```

## Typesetting

```
\documentclass{article}  
\usepackage{hyperref}  
\begin{document}  
  \url{link}  
  \href{link}{text}  
\end{document}
```

## Example

```
Typesetting \documentclass{article}  
\usepackage{hyperref}  
\begin{document}  
  \url{https://google.com/}  
  \href{https://google.com/}{Google}  
\end{document}
```

## Typesetting

```
\documentclass{article}  
\usepackage{hyperref}  
\begin{document}  
  \url{link}  
  \href{link}{text}  
\end{document}
```

## Result

<https://google.com>  
Google

## Example

```
Typesetting \documentclass{article}  
\usepackage{hyperref}  
\begin{document}  
  \url{https://google.com/}  
  \href{https://google.com/}{Google}  
\end{document}
```

# Simple image



## Typesetting

```
\documentclass{article}  
\usepackage{graphicx}  
\begin{document}  
  \includegraphics{[Options]{File path}}  
\end{document}
```

## Typesetting

```
\documentclass{article}  
\usepackage{graphicx}  
\begin{document}  
  \includegraphics{[Options]{File path}}  
\end{document}
```

## Example

```
\documentclass{article}  
\usepackage{graphicx}  
\begin{document}  
  \includegraphics[width=0.6 \textwidth]{Images/ziarati.jpg}  
\end{document}
```

## Typesetting

```
\documentclass{article}  
\usepackage{graphicx}  
\begin{document}  
  \includegraphics[[Options]{File path}}  
\end{document}
```



## Example

```
\documentclass{article}  
\usepackage{graphicx}  
\begin{document}  
  \includegraphics[[width=0.6 \textwidth]{Images/ziarati.jpg}}  
\end{document}
```



# Positioning image



## Typesetting

```
\documentclass{article}
\usepackage{graphicx}
\begin{document}
  \begin{figure}[h]
    \centering
    \includegraphics[width=0.12 \textwidth]{Images/ziarati2.jpeg}
    \caption{This is our image}
    \label{image_ref_1}
  \end{figure}
\end{document}
```

## Typesetting

```
\documentclass{article}  
\usepackage{graphicx}  
\begin{document}  
  \begin{figure}[h]  
    \centering  
    \includegraphics[width=0.12 \textwidth]{Images/ziarati2.jpeg}  
    \caption{This is our image}  
    \label{image_ref_1}  
  \end{figure}  
\end{document}
```



Figure: This is our image

# Bibliography (thebibliography environment)



## Typesetting

```
\documentclass{article}  
\begin{document}  
  \begin{thebibliography}{maxItems}  
    \bibitem{ref1} item 1  
    \bibitem{ref2} item 2  
  \end{thebibliography}  
\end{document}
```

## Typesetting

```
\documentclass{article}
\begin{document}
  \begin{thebibliography}{maxItems}
    \bibitem{ref1} item 1
    \bibitem{ref2} item 2
  \end{thebibliography}
\end{document}
```

## Example

```
\documentclass{article}
\begin{document}
  Using first reference \cite{first} and
  second reference \cite{second}.
  \begin{thebibliography}{9}
    \bibitem{first} first ref
    \bibitem{second} second ref
  \end{thebibliography}
\end{document}
```

## Typesetting

```
\documentclass{article}
\begin{document}
  \begin{thebibliography}{maxItems}
    \bibitem{ref1} item 1
    \bibitem{ref2} item 2
  \end{thebibliography}
\end{document}
```

Using first reference [1] and second reference [2].

## References

[1] first ref

[2] second ref

## Example

```
\documentclass{article}
\begin{document}
  Using first reference \cite{first} and
  second reference \cite{second}.
  \begin{thebibliography}{9}
    \bibitem{first} first ref
    \bibitem{second} second ref
  \end{thebibliography}
\end{document}
```

# Bibliography (bibtex)





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- ✓ Let the style file worry about formatting the bibliography.

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Why should you use Bibtex?

- ✓ Let the style file worry about formatting the bibliography.
- ✓ Avoid retyping the same references for your next paper (even if it is for a journal with a completely difference bibliography style).

To use bibtex you must:

1. Create a database (.bib) file that describes the articles that you want to reference.
2. Specify the style and location of the bibliography in your LaTeX document.
3. Run latex and bibtex.

Why should you use Bibtex?

- ✓ Let the style file worry about formatting the bibliography.
- ✓ Avoid retyping the same references for your next paper (even if it is for a journal with a completely difference bibliography style).
- ✓ It is more efficient.



To use bibtex you must:

1. Create a database (.bib) file that describes the articles that you want to reference.
2. Specify the style and location of the bibliography in your LaTeX document.
3. Run latex and bibtex.

Why should you use Bibtex?

- ✓ Let the style file worry about formatting the bibliography.
- ✓ Avoid retyping the same references for your next paper (even if it is for a journal with a completely difference bibliography style).
- ✓ It is more efficient.
- ✓ It is not hard!

# Example bibliography database



## Research on **DoS attack** and detection programming

W Liu - 2009 Third International Symposium on Intelligent ..., 2009 - [ieeexplore.ieee.org](http://ieeexplore.ieee.org)

... In this paper, the **DoS attack** principle is discussed and some **DoS attack** methods are ... , the **DoS attack** principle and some **attack** methods are introduced and the program for **attack** and ...

☆ Save 🔖 Cite Cited by 48 Related articles All 5 versions

# Example bibliography database



× Cite


MLA Liu, Wentao. "Research on DoS attack and detection programming." *2009 Third International Symposium on Intelligent Information Technology Application*. Vol. 1. IEEE, 2009.

APA Liu, W. (2009, November). Research on DoS attack and detection programming. In *2009 Third International Symposium on Intelligent Information Technology Application* (Vol. 1, pp. 207-210). IEEE.

Chicago Liu, Wentao. "Research on DoS attack and detection programming." In *2009 Third International Symposium on Intelligent Information Technology Application*, vol. 1, pp. 207-210. IEEE, 2009.

Harvard Liu, W., 2009, November. Research on DoS attack and detection programming. In *2009 Third International Symposium on Intelligent Information Technology Application* (Vol. 1, pp. 207-210). IEEE.

Vancouver Liu W. Research on DoS attack and detection programming. In *2009 Third International Symposium on Intelligent Information Technology Application* 2009 Nov 21 (Vol. 1, pp. 207-210). IEEE.

 [BibTeX](#) [EndNote](#) [RefMan](#) [RefWorks](#)

```
@inproceedings{liu2009research,  
  title={Research on DoS attack and detection programming},  
  author={Liu, Wentao},  
  booktitle={2009 Third International Symposium on Intelligent Information Technology Application},  
  volume={1},  
  pages={207--210},  
  year={2009},  
  organization={IEEE}  
}
```



## Typesetting

```
\documentclass{article}  
\begin{document}  
...  
  \bibliographystyle{style}  
  \bibliography{.bib file name}  
\end{document}
```

## Typesetting

```
\documentclass{article}  
\begin{document}  
...  
  \bibliographystyle{style}  
  \bibliography{.bib file name}  
\end{document}
```

## Example

```
\documentclass{article}  
\begin{document}  
  This reference \cite{liu2009research}  
  is what we were talking about.  
  \bibliographystyle{plain}  
  \bibliography{database}  
\end{document}
```



## Typesetting

```
\documentclass{article}  
\begin{document}  
...  
\bibliographystyle{style}  
\bibliography{.bib file name}  
\end{document}
```

## Example

```
\documentclass{article}  
\begin{document}  
  This reference \cite{liu2009research}  
  is what we were talking about.  
  \bibliographystyle{plain}  
  \bibliography{database}  
\end{document}
```

This reference [1] is what we were talking about.

## References

- [1] Wentao Liu. Research on dos attack and detection programming. In *2009 Third International Symposium on Intelligent Information Technology Application*, volume 1, pages 207–210. IEEE, 2009.

1. <https://en.wikipedia.org>
2. <https://www.latex-project.org>
3. <https://www.overleaf.com>
4. <https://www.learnlatex.org>
5. <https://texlive.net/run>
6. <https://www.unf.edu>
7. <https://realtechnologytools.com>
8. <http://mirrors.ibiblio.org>

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