

Introduction to Latex

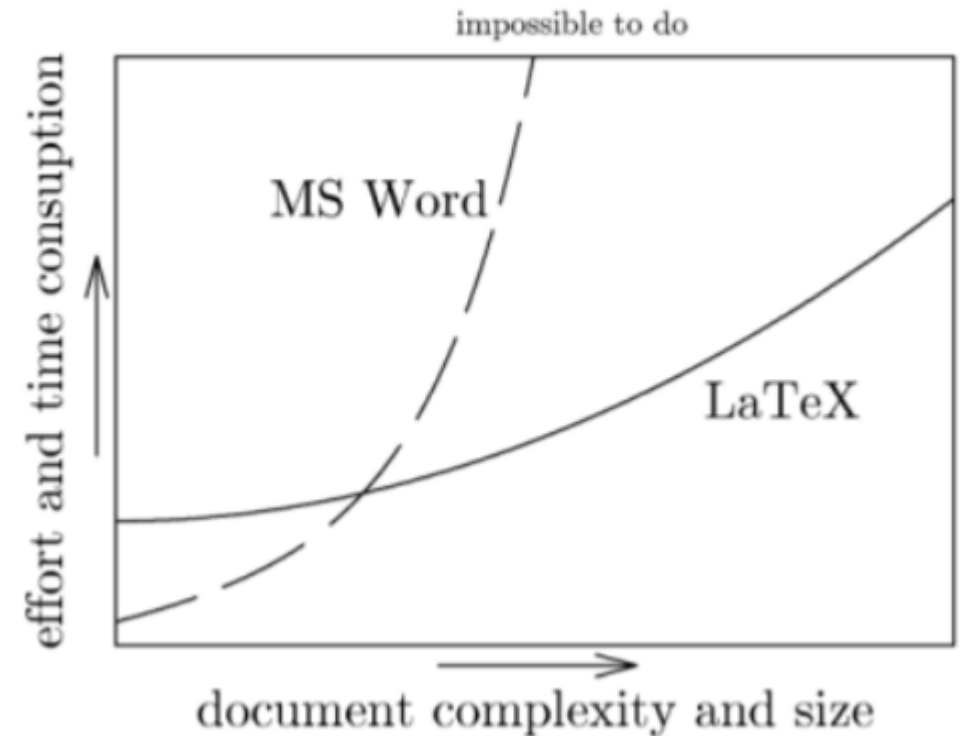
-- Nikhil Vidhani

Word vs Latex

- Problems with Word
 - Great for short, text-only documents
 - If this is all you'll ever need, do not learn Latex!
 - But academics need so many other things to work
 - Citations/bibliography, tables/figures, mathematics, cross-referencing, ...
 - Word gets slow for large documents
 - Content keeps bugging the formatting and vice-versa
- WYSIWYG vs WYSIWYM
 - Word: what you say is what you get
 - Latex: what you say is what you mean

Why Latex

- Word can't handle serious maths
 - Donald Knuth wrote TeX to improve math typesetting. Leslie Lamport extended it to LaTeX.
- Separate content from formatting whilst creating beautiful documents
- Latex is free!
 - Its defacto in science, maths, CS etc
 - Not so in management (yet!)



Is Word useless?

- Not at all!
 - In fact recent releases of Word have gotten way better at handling maths.
- You can still make maths, references, ToC etc work in word
 - BUT it gets difficult as size of your document increases
- My advice:
 - Decide whether Latex has much use for you OR not and then stick to whatever you choose!
 - Think about how much tables and maths would be there in your articles/thesis/reports.
 - I had to use Latex when I started to write me thesis
 - You just can't make *journal-quality* tables work in MS-word

Latex Editors

- Overleaf
 - Cloud based. Easiest to use! No package download needed! Good for writing term papers!
 - IIMB may have a subscription!
- Miktex/Mactex/TexLive
 - You get lots of package pre-bundled! You will still need to download your own packages (if needed!)
 - Its free!
- Tinytex
 - Only download the packages you need! (on the go)
- Rmarkdown
 - Combine analysis and writing in one document!
 - Most of the web content today is written in some form of markdown!
- Tinytex + Rmarkdown
 - This is what I use for thesis (with occasional use of overleaf!)

Minimal Example

```
\documentclass[11pt,twoside,a4  
paper]{article}
```

```
\usepackage[english]{babel}  
\usepackage{blindtext}
```

```
\title{Introduction to Latex}  
\author{Nikhil Vidhani}
```

```
\begin{document}
```

```
\maketitle
```

```
\begin{abstract}
```

```
\blindtext[1]
```

```
\end{abstract}
```

```
\section{Introduction}
```

```
\blindtext[20]
```

```
\end{document}
```

Document properties

- Paper type
- Font size
- Document class
- A document's body starts with `\begin{document}` and end with `\end{document}`. Anything before `\begin{document}` is called preamble.
- `\documentclass[12pt,a4paper]{article}`
- `\documentclass[11pt,a5paper,twocolumn,landscape]{book}`

Page Margins / Geometry

- `\usepackage[margin=1in]{geometry}`
- `\usepackage[top=1cm,bottom=2cm,left=3cm,right=4cm]{geometry}`
- `\usepackage[a4paper, bindingoffset=2in, margin=0.5in]{geometry}`
 - Try above with ``twoside`` option in ``documentclass``
- `\usepackage[a4paper, inner=0.5in, outer=2in]{geometry}`
 - Again, try with ``twoside`` option!

Fonts

- Default: computer modern (cm)
 - `\renewcommand\familydefault{cmss}` % sans serif
 - `\renewcommand\familydefault{cmtt}` % tele-type
 - `\renewcommand\familydefault{cmr}` % roman
 - More info at https://www.overleaf.com/learn/latex/Font_typefaces#Reference_guide
- `\usepackage{lmodern}` % latin modern
 - `lmr`, `lmss`, `lmtt`, `lmdh`
- Other packages: `mathpazo`, `avant`, `charter`, ... (endless list).
 - See <https://tug.org/FontCatalogue/>
- `\usepackage{microtype}` % improves justification

Title, Author and Date

```
\title{
    \textbf{
        Introduction to \LaTeX{}
    }
}
\author{By Nikhil Vidhani}
\date{December 21, 2018}
\date{\today}
```

- Insert `\maketitle` after `\begin{document}`

Some other packages we will use

```
\usepackage{graphicx} % including external figures
```

```
\usepackage{wrapfig} % wrapping text around figures
```

```
\usepackage{enumitem} % enumerating/listing points
```

```
\usepackage{fancyhdr} % header/footer
```

```
\usepackage{amsmath} % maths
```

```
\usepackage{hyperref} % hyperlinks, cross-referencing
```

Title, ToC, LoT, LoF, page-numbering

`\maketitle`

`\tableofcontents`

`\listoftables`

`\listoffigures`

- `\pagenumbering{roman}` % arabic, roman, Roman, alph, Alph
- `\setcounter{page}{1}` % reset page counter
- All of these go after `\begin{document}`

Header and Footers

```
\usepackage{fancyhdr}
\pagestyle{fancy} % use fancy header instead of default header
\fancyhf{} % clear existing header formatting
\renewcommand{\headrulewidth}{3pt} % header-line width
\renewcommand{\footrulewidth}{1pt} % footer-line width
\fancyhead[LE,RO]{Nikhil Vidhani} % name on left-side on even pages
and right-side on odd pages
\fancyhead[LO,RE]{Intro to \LaTeX} % title on left-side on odd
pages and right-side on even pages
\fancyfoot[C]{Page: \thepage} % centred footer on all pages
\fancyfoot[L]{Section: \thesection} % section number of left-side
for all pages
\fancyfoot[R]{Article: 1} % article number of right-side for all
pages
```

Items

```
\begin{itemize}
  \item 1 Cup Spinach
  \item 1 Cup Frozen Blueberries
  \item 2 Bananas
  \item 1.5 Cups Almond Milk
  \item Powders
  % List within a list
  \begin{itemize}
    \item 1 Tbs PBJ
    \item 1 Tsp Amla Powder
    % List within a list within a list
    \begin{itemize}
      \item 1 tsp sugar
      \item 0.5 tsp salt
    \end{itemize}
  \end{itemize}
  \item six Dates
\end{itemize}
```

Enumeration

```
\usepackage{enumitem}  
% enumerating points  
(named itemize)
```

You can use enumerate and itemize in a mix and match manner!

```
\begin{enumerate}[font=\bfseries]  
  \item 1 Cup Spinach  
  \item 1 Cup Frozen Blueberries  
  \item 2 Bananas  
  \item 1.5 Cups Almond Milk  
  \item Powders  
  \begin{enumerate}[font=\itshape]  
    \item 1 Tbs PBJ  
    \item 1 Tsp Amla Powder  
    \begin{enumerate}  
      \item 1 tsp sugar  
      \item 0.5 tsp salt  
    \end{enumerate}  
  \end{enumerate}  
  \item six Dates  
\end{enumerate}
```

Adding a figure

- Upload a pic/pdf to overleaf folder
- `\usepackage[margin=0.5in]{geometry}`

```
\begin{figure}[t] % t: top, b: bottom (best-effort only)
\centering % to centre the figure
\includegraphics[width=4in]{universe.jpg}
\caption{This is a figure!}
% can be a pdf too. In fact, pdfs (vector graphics) are
% preferred for plots. Try playing with the width argument!
\end{figure}
```

- `\begin{figure} ... \end{figure}` acts like a container for the actual figure and caption.

Wrapping text around a figure

- `\usepackage{wrapfig}`

```
\blindtext[1]
\begin{wrapfigure}{r}{0.5\textwidth} % r: right, l: left, i:
inside-edge, o: outside-edge. i and o are w.r.t. odd/even page.
% Image width relative to text width
\centering % to centre the figure
\includegraphics[width=\linewidth]{universe.jpg} % \linewidth
changes in different environments (wrapfigure)
\caption{This is a wrapped figure!}
\end{wrapfigure}
\blindtext[1]
```

Sections

```
\section{Name of Section}
```

Section body!

```
\subsection{Name of subsection}
```

Sub-section body!

```
\subsubsection{Name of subsubsection}
```

Sub-section body!

- And so on...
- Latex automatically takes care of section numbering.
- An asterisk after section makes an un-numbered section

```
\section*{Section w/o a number}
```

Section body!

- This works for other stuff in latex as well: equations, lists, chapters etc

Line-breaks

`\section*{Spacing}`

First-line of a section is not indented.

A simple carriage-return (enter) doesn't change anything.

To get a line-break enter two backslashes (`\textbackslash\textbackslash`) after the end of line.`\\`

This line appears after a line-break. Note that here also there is no-indent.`\\\\`

In fact, multiple line-breaks also do not create indent!

More space can be added by specifying amount.`\\[20pt]`

Lot of gap now!

Adding two carriage-returns (enters) means a change of paragraph. Here there will be indent.

You can use `\textbackslash\texttt{noindent}` to skip indentation.

`\noindent` No indent here! If you want no indentation in the entire document then use `\textbackslash\texttt{usepackage\{parskip\}}`

Special Characters

- Latex has some special characters: `\{'`, `\}'`, `\#'`, `\%'`, `\$'`, `\&'`, `_'` and, `\textbackslash'`. To print them you must use a `\textbackslash`, i.e.
`\textbackslash\texttt{\{}`, `\textbackslash\texttt{\}}`,
`\textbackslash\texttt{\#}`, `\textbackslash\texttt{\%}`,
`\textbackslash\texttt{\$}`, `\textbackslash\texttt{\&}`
and, `\textbackslash\texttt{_}`. For printing
`\textbackslash'` you have to use the command
`\textbackslash\texttt{\textbackslash}`
- `\noindent` Alternatively, you could use `\verb|\{|` to print `\{`
- Put the above in latex and then see the output!

Line-spacing

- `\usepackage[singlespacing]{setspace}` % this is the accepted spacing for publication. Most documents are single-spaced
- `\usepackage[onehalfspacing]{setspace}` % you can use this if you feel your document is difficult to read
- `\usepackage[doublespacing]{setspace}` % this is used in a draft version. Double spacing allows space for handwritten comments above each line
- For other options of spacing use,
`\usepackage{setspace}`
`\setstretch{2.5}` % use a number suitable to you

Tabbing

```
\section*{Tabbing}
```

A simple tabbed list. Think of it like a bare-bone table without lines.

```
\begin{tabbing}
```

```
\textbf{S.No.} \hspace{0.5in} \textbf{=} \textbf{Name} \\ \hspace{0.5in} \textbf{=} \textbf{City} \hspace{0.5in} \textbf{=} \\ \textbf{Area} \\\
```

```
1 \> Nikhil \> Agra \> Finance \\\
```

```
2 \> Abhishek \> Ranchi \> Economics \\\
```

```
3 \> Pranjal \> Raipur \> Decision Sciences \\\
```

```
\end{tabbing}
```

Tabular

- `\usepackage{booktabs}` % provides different line thicknesses to be used in tables like `\toprule`, `\midrule`, `\bottomrule`, `\hline`

`\begin{tabular}{| l || c ||| r |||}` % alignment of columns. The first alignment letter ``l`` not vertical bar. The second and third columns are centre and right aligned. Also note that the number of vertical bars correspond to number of vertical lines!

`\toprule`

`\textbf{Name} & \textbf{Command} & \textbf{Sample Text} \\`

`\midrule`

% if you want to print the command then put it inside `\verb|`. These are vertical bars not letter ``l``

`italic` `& \verb|\textit|` `& \textit{abcdefgh}` `\\` % italicized text

`bold` `& \verb|\textbf|` `& \textbf{abcdefgh}` `\\` % bold face text

`small capped` `& \verb|\textsc|` `& \textsc{abcdefgh}` `\\` % capital letters but in small face

`roman family` `& \verb|\textrm|` `& \textrm{abcdefgh}` `\\` % roman fonts

`sans serif` `& \verb|\textsf|` `& \textsf{abcdefgh}` `\\` % sans serif fonts (w/o pointiness!)

`typewriter` `& \verb|\texttt|` `& \texttt{abcdefgh}` `\\` % (constant-width fonts)

% ampersand (``&``) align the table entries

`\bottomrule`

`\end{tabular}`

Table

- Similar to a figure container, we can wrap around a tabular environment inside a table container.
 - We can add positioning (top/bottom) and captions as well.

```
\begin{table}[t]
\centering
\begin{tabular}{| l || c ||| r |||}
\toprule
\textbf{Name} & \textbf{Command} & \textbf{Sample Text} & \\
\midrule
italic & \verb|\textit| & \textit{abcdefgh} & \\
bold & \verb|\textbf| & \textbf{abcdefgh} & \\
\bottomrule
\end{tabular}
\caption{This is a table}
\end{table}
```


Changing font size

```
\begin{tabular}{| 1 | 1 | 1 |}  
\toprule  
\textbf{Fontsize} & \textbf{Latex command} & \textbf{Output} \\  
\midrule  
tiny & \verb|\tiny{Sampe text}| & \tiny{Sampe text} \\  
scriptsize & \verb|\scriptsize{Sampe text}| & \scriptsize{Sampe text} \\  
footnotesize & \verb|\footnotesize{Sampe text}| & \footnotesize{Sampe text} \\  
small & \verb|\small{Sampe text}| & \small{Sampe text} \\  
normalsize & \verb|\normalsize{Sampe text}| & \normalsize{Sampe text} \\  
large & \verb|\large{Sampe text}| & \large{Sampe text} \\  
Large & \verb|\Large{Sampe text}| & \Large{Sampe text} \\  
LARGE & \verb|\LARGE{Sampe text}| & \LARGE{Sampe text} \\  
huge & \verb|\huge{Sampe text}| & \huge{Sampe text} \\  
Huge & \verb|\Huge{Sampe text}| & \Huge{Sampe text} \\  
\bottomrule  
\end{tabular}
```

Quote

- It keeps some space both at front and at end

```
\blindtext[1]  
\begin{quote}  
    \blindmathtrue  
    \blindtext[1]  
\end{quote}  
\blindtext[1]
```

Cross-referencing

- Latex allows you to reference any object in the whole document
- Put a (unique) label and then reference it
 - You can reference multiple times
 - Your reference can come before the label
 - This means you can reference section 5 inside section 1
- Generally labels are created for
 - Equations, figures, tables and (sub...)-sections
- You need [hyperref](#) package if you want to navigate by clicking on hyperlinks

```

\section{One}
\label{sec:one}

See Sections \ref{sec:one},
\ref{sec:two} and, \ref{subsec:inside-
two}. Also see Table \ref{tab:my_label}
and Figure \ref{fig:my_label}.

\section{Two}
\label{sec:two}

See Sections \ref{sec:one},
\ref{sec:two} and, \ref{subsec:inside-
two}. Also see Table \ref{tab:my_label}
and Figure \ref{fig:my_label}.

\subsection{Inside Two}
\label{subsec:inside-two}

See Sections \ref{sec:one},
\ref{sec:two} and, \ref{subsec:inside-
two}. Also see Table \ref{tab:my_label}
and Figure \ref{fig:my_label}.

```

```

\begin{table}[t]
    \centering
    \begin{tabular}{|c|c|}
        a & b \\
        c & d
    \end{tabular}
    \caption{Table Caption}
    \label{tab:my_label}
\end{table}

\begin{figure}[t]
    \centering
    \includegraphics[width=2in]{universe.jpg}
    \caption{Figure Caption}
    \label{fig:my_label}
\end{figure}

```

- Now include `\usepackage{hyperref}`
 - All cross-references are now clickable

- We can color references as:

```
\hypersetup{  
  colorlinks=true,  
  linkcolor=red,  
  citecolor=blue,  
  urlcolor=blue  
}
```

Website Link

URL: `\url{https://sraf.nd.edu/}\`

Hyperlink: `\hyperref[sec:intro]{Introduction}\`

Weblink: `\href{https://www.google.com}{Google}\`

- Notice that `\hyperref[]{}` is different from `\ref{}`

Footnote

- Adding a footnote is as easy as writing your text `\footnote{and then suddenly put everything inside \texttt{\textbackslash footnote\{\}\}}` and then continue writing where you left!
- See how the above text appears!
- Put `\renewcommand{\thefootnote}{\textit{\alph{footnote}}}` in preamble for getting italicized footnotes with alphabetic numbering.
 - Needless to say, you can further modify it!

Custom Commands

- Suppose you frequently need to write boldfaced, italicized, underlined, bigger font, typewriter text in your document.
- How would you do that?

- `\underline{\textit{\textbf{\texttt{\Large{A}}}}}`

- OR you can write a custom command

```
\newcommand{\mycmd}[1]{  
    \underline{\textit{\textbf{\texttt{\Large{#1}}}}}  
}
```

% the above goes into preamble while the below in body

```
\mycmd{This is fun!}
```


Custom Commands: without argument

```
\newcommand{\tableinfo}{
```

All independent variables are one month lagged variables. Definitions of all the variables appears in Appendix A2. All regression specifications have industry and year fixed effects. Standard errors are double clustered by firm and year-month. Statistical significance of 10%, 5% and 1% are indicated by *, ** and *** respectively.

```
}
```

% the above goes into preamble while the below in body

```
\tableinfo
```

Custom Commands: Multiple Arguments

```
\newcommand{\contact}[3]{  
    Author is a final year PhD student at \href{#1}{Indian  
Institute of Management, Bangalore}.  
    \emph{email}: \href{mailto:#2}{#2}  
    Phone: \href{tel:#3}{#3}  
}  
  
% the above goes into preamble while the below in body  
  
\contact{https://sites.google.com/view/nikhilvidhani}{nikhil.  
vidhani16@iimb.ac.in}{+91-797-555-7296}
```

Sub-figures

Need to include

```
\usepackage{subcaption}
```

```
\begin{figure}[h]
```

```
\begin{subfigure}{0.5\textwidth}
```

```
\includegraphics[width=0.9\linewidth]{un  
iverse.jpg}
```

```
\caption{Sub-caption 1}
```

```
\end{subfigure}
```

```
% there should be no gap here!
```

```
\begin{subfigure}{0.5\textwidth}
```

```
\includegraphics[width=0.9\linewidth]{un  
iverse.jpg}
```

```
\caption{Sub-caption 2}
```

```
\label{fig:subim2}
```

```
\end{subfigure}
```

```
\caption{Main caption}
```

```
\end{figure}
```

Parbox & minipage

```
\parbox{0.4\textwidth}{\raggedright \blindtext[1]} %  
raggedright justifies left  
% no gaps here  
\hspace{0.2\textwidth}  
% no gaps here  
\parbox{0.4\textwidth}{\raggedleft \blindtext[1]} %  
raggedleft justifies right
```

- A `\parbox{}` may only contain a single paragraph. For more general case use `\minipage{}`

```
\begin{minipage}{0.45\textwidth}
\blindtext[1]
\end{minipage}
% no space in between
\hspace{0.1\textwidth} % horizontal space between 2 minipages
\begin{minipage}{0.45\textwidth}
\blindtext[1]
\end{minipage}

\vspace{11pt} % vertical space between two minipages

\hspace{0.1\textwidth} % horizontal space before 3rd minipage
\begin{minipage}{0.8\textwidth}
\blindtext[1]
\end{minipage}
\hspace{0.1\textwidth} % horizontal space after 3rd minipage
```

Math Symbols

- A big advantage of latex is the availability of math symbols.
- At any point in your text you can insert math by enclosing math formulas inside ``$ $`` or ``\(` `)``
- You can math on a new line if you enclose math symbols within ``\[`` or ``$$ $$``

Quadratic equation is `$ax^2 + bx + c = 0$` with `\(a > 0 \)`. The roots are given by `\[\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \]`

Math-mode symbols

\leq	<code>\leq</code>	\geq	<code>\geq</code>	\neq	<code>\neq</code>	\approx	<code>\approx</code>
\times	<code>\times</code>	\div	<code>\div</code>	\pm	<code>\pm</code>	\cdot	<code>\cdot</code>
$^{\circ}$	<code>^{\circ}</code>	\circ	<code>\circ</code>	$'$	<code>\prime</code>	\cdots	<code>\cdots</code>
∞	<code>\infty</code>	\neg	<code>\neg</code>	\wedge	<code>\wedge</code>	\vee	<code>\vee</code>
\supset	<code>\supset</code>	\forall	<code>\forall</code>	\in	<code>\in</code>	\rightarrow	<code>\rightarrow</code>
\subset	<code>\subset</code>	\exists	<code>\exists</code>	\notin	<code>\notin</code>	\Rightarrow	<code>\Rightarrow</code>
\cup	<code>\cup</code>	\cap	<code>\cap</code>	$ $	<code>\mid</code>	\Leftrightarrow	<code>\Leftrightarrow</code>
\dot{a}	<code>\dot{a}</code>	\hat{a}	<code>\hat{a}</code>	\bar{a}	<code>\bar{a}</code>	\tilde{a}	<code>\tilde{a}</code>
α	<code>\alpha</code>	β	<code>\beta</code>	γ	<code>\gamma</code>	δ	<code>\delta</code>
ϵ	<code>\epsilon</code>	ζ	<code>\zeta</code>	η	<code>\eta</code>	ε	<code>\varepsilon</code>
θ	<code>\theta</code>	ι	<code>\iota</code>	κ	<code>\kappa</code>	ϑ	<code>\vartheta</code>
λ	<code>\lambda</code>	μ	<code>\mu</code>	ν	<code>\nu</code>	ξ	<code>\xi</code>
π	<code>\pi</code>	ρ	<code>\rho</code>	σ	<code>\sigma</code>	τ	<code>\tau</code>
υ	<code>\upsilon</code>	ϕ	<code>\phi</code>	χ	<code>\chi</code>	ψ	<code>\psi</code>
ω	<code>\omega</code>	Γ	<code>\Gamma</code>	Δ	<code>\Delta</code>	Θ	<code>\Theta</code>
Λ	<code>\Lambda</code>	Ξ	<code>\Xi</code>	Π	<code>\Pi</code>	Σ	<code>\Sigma</code>
Υ	<code>\Upsilon</code>	Φ	<code>\Phi</code>	Ψ	<code>\Psi</code>	Ω	<code>\Omega</code>

- There are hundreds of maths symbols. Impossible to list all of them!

- See:
<https://ctan.um.ac.ir/info/symbols/comprehensive/symbols-a4.pdf#page=123>

Equation

```
\begin{equation}
\frac{df}{dt} = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}
\end{equation}
```

```
\begin{equation*}
F = G \frac{m_1 m_2}{r^2}
\end{equation*}
```

% `\begin{equation*}` is similar
to `$$... $$` or `\[... \]`

```
\begin{flalign}
\nonumber (x+y)^2 &= (x+y)(x+y) \\
\nonumber &= x^2 + xy + yx + y^2 \\
\nonumber &= x^2 + 2xy + y^2
\end{flalign}
```

```
\begin{flalign}
&& (x+y)^2 &= (x+y)(x+y) \\
&& &= x^2 + xy + yx + y^2 \\
&& &= x^2 + 2xy + y^2
\end{flalign}
```

```
\begin{flalign}
\nonumber (x+y)^2 &= (x+y)(x+y) && \\
\nonumber &= x^2 + xy + yx + y^2 && \\
&& &= x^2 + 2xy + y^2 &&
\end{flalign}
```


Matrices

```
\[
\begin{matrix} \leq & & \geq \\ \neq & & \cong \end{matrix} \hspace{2em}
\begin{pmatrix} \infty & & \lim \\ \forall & & \exists \end{pmatrix} \hspace{2em}
\begin{bmatrix} \int & & \iint \\ \oint & & \sum \end{bmatrix} \hspace{2em}
\begin{Bmatrix} \oplus & & \otimes \\ \circ & & \subset \end{Bmatrix} \hspace{2em}
\begin{vmatrix} 1/2 & & a^2 \\ \sqrt{5} & & a_{22} \end{vmatrix} \hspace{2em}
\]
```

Multi-page Table

```
\usepackage{longtable}
```

```
\begin{longtable}[t]{lccc}
```

```
\caption{\label{tab:mytab}Disagreement by Industry}\\
```

```
\multicolumn{4}{p{\linewidth}}{
```

```
    \underline{\textbf{Optional Description}}: \blindtext[1]  
}\\
```

```
\toprule
```

```
\textbf{Industry} &
```

```
\textbf{\% Sample} &
```

```
\textbf{\shortstack{Avg. Disagreement \\ (Ranks)}} &
```

```
\textbf{\shortstack{Std. Dev. of \\ Disagreement \\ (Ranks)}} & \\
```

```
\midrule
```

Multi-page Table

...continued

```
\endfirsthead
```

```
\caption{Disagreement by Industry \textit{(continued)}}\\  
\toprule
```

```
\endhead
```

```
\multicolumn{4}{p{\linewidth}}{  
    \centerline{\textit{to be continued...}}  
}
```

```
\endfoot
```

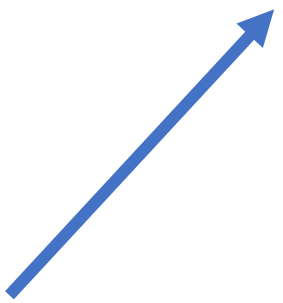
```
\bottomrule  
\multicolumn{4}{p{\linewidth}}{  
    \textit{Note:} This marks the end of table!  
}
```

```
\endlastfoot
```

Multi-page Table

...continued

Repeat these
6/7 times



<code>\textbf{Coal}</code>	<code>&</code>	<code>0.19</code>	<code>&</code>	<code>53.2</code>	<code>&</code>	<code>24.4</code>	<code>\\</code>
Pharmaceuticals	<code>&</code>	<code>5.52</code>	<code>&</code>	<code>69.6</code>	<code>&</code>	<code>22.3</code>	<code>\\</code>
Precious-Metals	<code>&</code>	<code>0.28</code>	<code>&</code>	<code>59.9</code>	<code>&</code>	<code>23.9</code>	<code>\\</code>
Medical-Equipment	<code>&</code>	<code>2.88</code>	<code>&</code>	<code>58.1</code>	<code>&</code>	<code>25.8</code>	<code>\\</code>
Computers	<code>&</code>	<code>3.43</code>	<code>&</code>	<code>56.2</code>	<code>&</code>	<code>24.9</code>	<code>\\</code>
Real-Estate	<code>&</code>	<code>0.75</code>	<code>&</code>	<code>56.0</code>	<code>&</code>	<code>24.6</code>	<code>\\</code>
IT Services	<code>&</code>	<code>9.87</code>	<code>&</code>	<code>54.3</code>	<code>&</code>	<code>24.9</code>	<code>\\</code>
Construction	<code>&</code>	<code>1.27</code>	<code>&</code>	<code>53.4</code>	<code>&</code>	<code>24.3</code>	<code>\\</code>

`\end{longtable}`

Bibliography and Citations

- To manage bibliography, you need to create a master bibliography file. Lets call it `references.bib`
 - You can create this file in overleaf itself
- Populate the file with references from google scholar
 - Choose the `BibTeX` entry
 - Make sure each entry has a unique tag

```
\usepackage[natbibapa]{apacite}
```

```
\bibliographystyle{apacite}
```

- The above is an accepted way to cite papers in most management journals.

It is no surprise that the year 1905 is hailed as the miracle year of science. In a series of four papers Einstein (`\citeyear{einstein1905_photo_electric, einstein_brownian, einstein_spc_rel, einstein_emc2}`) changed the way we understand modern physics. `\cite{einstein1905_photo_electric}` demonstrated particle nature of light, `\cite{einstein_brownian}` gave evidence of existence of atoms, `\cite{einstein_spc_rel}` proposed modifications to notion of time at speeds approaching c and `\cite{einstein_emc2}` finally showed equivalence between mass and energy through $E=mc^2$. Later, `\cite{einstein_gen_rel}` explained gravity as a curvature of spacetime against the accepted notion of it being a perceived force.

The first citation `\cite{example}` always list all authors. Subsequent citations `\cite{example}` will be abbreviated with `\verb|et al.|`. To get a full citation `\cite*{example}` use `\verb|\cite*|` instead.

Sources

- <https://www.brown.edu/academics/sciencecenter/sites/brown.edu/academics.science-center/files/uploads/beginningLaTeX.pdf>
- <https://www.cse.iitb.ac.in/~vahanwala/latex/introduction.pdf>
- <https://wch.github.io/latexsheet/latexsheet-a4.pdf>