Academic Writing by Using Latex: A Hands-on Workshop

(Oct 12, 1:30 to 2:50 PM)

https://academicworkshops.github.io/Latex/

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Motivations

Dr. Yong Zheng

- Assistant Professor at Illinois Tech, USA
- Roles at ACM SIGITE 2022
  - Program Chair
  - Proceedings Chair
- Motivations for this workshop
  - Several authors at SIGITE used MS WORD
  - Authors were struggling in camera-ready submissions

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About This Workshop

- Website: https://academicworkshops.github.io/Latex/
- Time: Oct 12, 1:30 PM – 2:50 PM
- Hands-on Workshop
  - We are not learning Latex coding from beginning (e.g., variables??)
  - We learn essential and easy-to-use Latex skills
  - We learn several useful tools to facilitate our Latex writing
  - We have hands-on practice
  - We have several useful materials (e.g., templates, tools, resources)

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Schedule

- Latex vs. WORD
- Latex for Academic Writing (https://academicworkshops.github.io/Latex/)
  - Latex: an overview
  - Installation: Latex Environments
  - Document structure and compilation
  - Text Editing (sections, list, font, color, symbols, footnote, equations)
  - Charts and Tables
  - References
  - Useful Tools for Latex writing
- Practice: Converting a WORD doc to Latex document

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- MS Word is the most popular typesetting system

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- Latex is another popular one, especially for academic writing

- Latex is another popular one, especially for academic writing

Pressure Test: Finding Appropriate Data Size for Practice in Data Science Education

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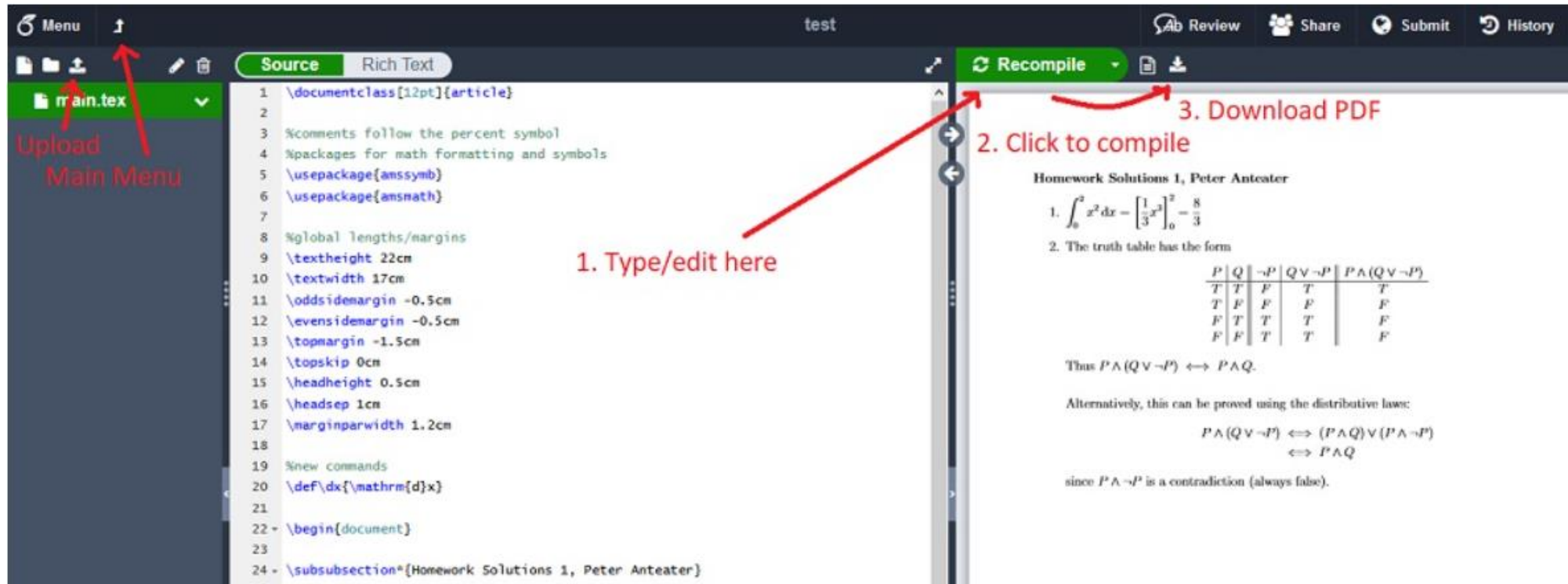
ABSTRACT

Data science, such as data analytics, data mining, machine learning, became one popular curriculum in information technology educations. The lectures on these topics cannot stand alone without coding practice on real-world data sets. Some instructors prefer to utilize small data sets for practice in classroom or assignments, which limits experimental experiences and may even bring misleading experiences to students. Others may try to assign large data sets to students, but students may not be able to bear with the running time due to the efficiency issue raised by several factors (e.g., data

to assist data-driven decision making [17]. With the demand for data scientist positions in industries, more and more academic institutions started to put programs together to provide data science curriculum [4, 9, 10, 22] in both computer science education and information technology education.

Traditional lectures on statistical analytics and data science usually deal with small or toy data sets for the purpose of in-class demos, practice in assignments and projects. Data mining and machine learning algorithms were usually trained on small-scale data sets at the early age. With the development of distributed com-

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	Latex	**MS Word**
Cost	Free	Commercial software
Stability	Stable with low memory usage	More crashes
OS Dependence	Independent	Dependent
Content and Formats	Separated	Mixed together
Symbols	Supported	Not easy to find special symbols
Math Equations	Easy and good-looking	Need third-party supports
Automatic Positioning	Supported	Less supported
Bibliography Management	Superior	Not easy to change styles
Spelling/Grammar Check	Low	Good
Coding Requirements	A little	None
Online Editors	Yes	Yes

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Why Latex

- Advantages
  - Being independent of OS
  - Formats/Styles and Contents are separated => just HTML with CSS!
  - Easy to produce neat Math equations
  - Enriched methods for automatic positioning
  - Powerful in reference management
- Disadvantages
  - Limited grammar check
  - People need special training (however, we have several tools now!)

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Latex: An Overview

- LATEX (pronounced "LAY-tek" or "LAH-tek") is a tool for typesetting professional-looking documents.
- Contents and Formats are separated, just like HTML

support by open-source libraries

Style controls

by .css

HTML

Latex

Style controls

by .cls or .sty

Display contents with
Styles in Web browser

Obtain .eps or .pdf file
after compilation by
A Tex distribution system

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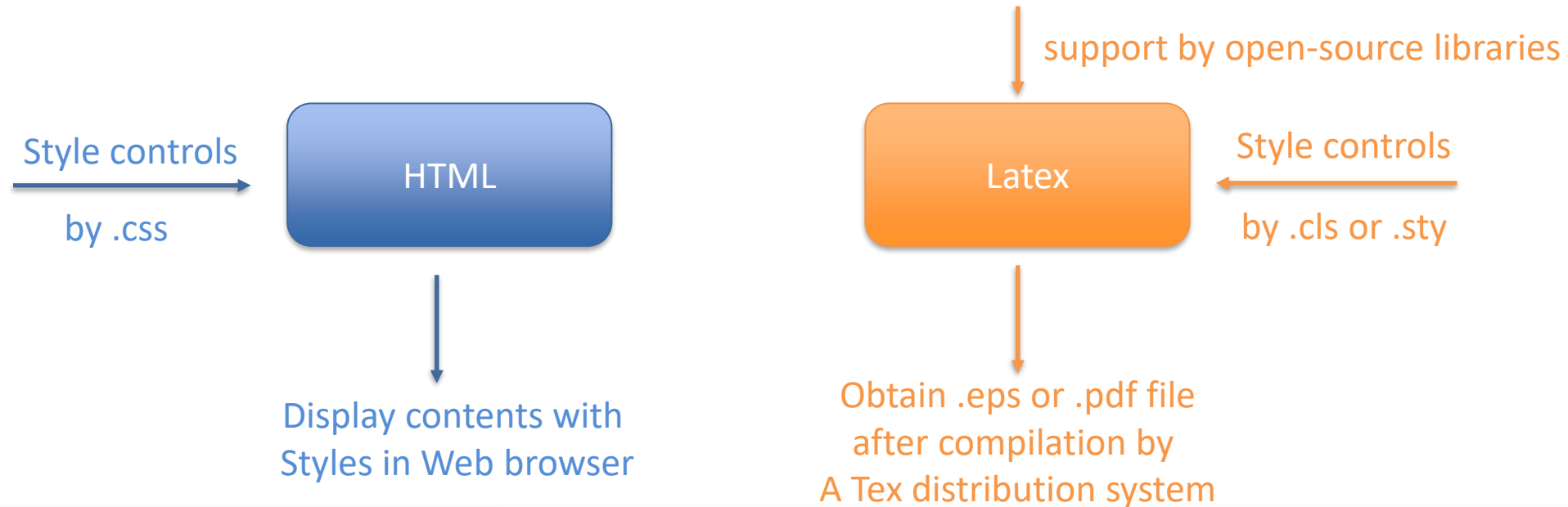
Latex: An Overview

- ## Latex is similar to HTML coding.
  - Example: Hello, world!

- **LaTeX:**

```latex
\documentclass{article}
\begin{document}
Hello, LaTeX!
\end{document}
```

- **HTML:**

```html
<!DOCTYPE html>
<html>
<head>
    <title>HTML Example</title>
</head>
<body>
    <p>Hello, HTML!</p>
</body>
</html>
```

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Latex: An Overview

- ## Latex is similar to HTML coding.
  - – Example: sections & headings →
  - – Example: Hyperlinks

- **LaTeX:**
```latex
\section{Introduction}
This is the introduction section.
\subsection{Subsection}
This is a subsection.
```
`latex` Copy code

- **HTML:**
```html
<h1>Introduction</h1>
<p>This is the introduction section.</p>
<h2>Subsection</h2>
<p>This is a subsection.</p>
```
`html` Copy code

- **LaTeX:**
```latex
\href{https://www.example.com}{Visit Example}
```
`latex` Copy code

- **HTML:**
```html
<a href="https://www.example.com">Visit Example</a>
```
`html` Copy code

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Latex: An Overview

- Latex is similar to HTML coding.
  - Example: lists
  - Example: Images

LaTeX:

```latex
\begin{itemize}
\item Item 1
\item Item 2
\end{itemize}
```

HTML:

```html
<ul>
    <li>Item 1</li>
    <li>Item 2</li>
</ul>
```

LaTeX:

```latex
\includegraphics[width=0.5\textwidth]{image.png}
```

HTML:

```html
<img src="image.png" alt="Image">
```

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Latex: An Overview

- Tex vs Latex
  - TeX is a low-level typesetting system created by Donald Knuth. LaTeX is built on top of TeX and provides a higher-level, user-friendly interface. It defines document structures and formatting conventions using macros and templates.
  - In TeX, users must define the entire document structure, including headers, footers, etc. LaTeX abstracts many of these formatting details into document classes and packages.
  - LaTeX comes with a vast collection of packages and macros that extend its functionality.

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Installation: Latex Environments

- To set up the Latex environment, we need two components
  - Tex Integrated Development Environment (IDE)
    - Examples: TeXstudio, Texmaker, Overleaf (online), WinEdit, etc.
  - Tex Distribution System
    - Examples: Tex Live, MacTex, MikeTex, CTex (for Chinese characters), etc.
    - A Tex distribution system must have following components
      - Tex Engine: for compilation and formatting purpose
      - Macros and Packages, as well package managers
      - Fonts, utilities, reference tools and management
      - Editor integration, so that they can work together with any IDE

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Installation: Latex Environments

We have two options for this workshop (https://academicworkshops.github.io/Latex/)

- Option 1: Local copy on your device
  - Tex distribution: MikTex, https://miktex.org/
  - Latex IDE: Texmaker, https://www.xm1math.net/texmaker/

- Option 2: Overleaf – an online Latex environment
  - Website: register an account at https://www.overleaf.com/
  - ACM template, https://www.overleaf.com/latex/templates/acm-conference-proceedings-primary-article-template/wbvnghjbzwpc

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Installation: Latex Environments

- ## Option 1: Local copy by MikTex + Texmaker

Document sections

4. PDF Viewer

2. Quick build

1. Coding Editor

3. Compilation logs

Installation: Latex Environments

- Option 2: Overleaf – an online Latex environment

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Latex: Document Structures

- Note: we are not learning how to create a Latex document or template from beginning. We focusing on how to complete our academic writing by using a specific Latex template, such as the ACM template for ACM proceedings

- ACM template is included
  - Practice.zip, https://academicworkshops.github.io/Latex/
  - Overleaf, https://www.overleaf.com/latex/templates/acm-conference-proceedings-primary-article-template/wbvnghjbzwpc

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Latex: Document Structures

- ACM templates
  - .cls, .sty: define doc format, e.g., margins, single/double columns, etc.
    - .bib: raw list of references
    - .bbl: list of references after compiling
    - .bst: format of references, such as APA style, Chicago style, etc.
    - .tex: the main Tex file for us to put contents in
    - .pdf, .eps, .dvi, .ps: document after compiling
  - .jpg, .png, .eps: image files
  - Other files: not important files or intermediate files during compiling

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Latex: Document Structures

```latex
\documentclass{article}

% Packages
\usepackage{graphicx} % For including graphics
\usepackage{algorithm} % For algorithms

% Document information
\title{My LaTeX Document with References}
\author{Your Name}
\date{\today}

\begin{document}

\maketitle

\section{Introduction}
This is the introduction section of my document.

\subsection{Subsection}
This is a subsection within the introduction.

\section{Another Section}
This is another section in the document.

% Insert citations where needed in your document
Smith's study~\cite{smith2010} provides valuable insights.

\bibliographystyle{ACM-Reference-Format} % Specify the bibliography style
\bibliography{sample-base} % Include your .bib file without the extension

\end{document}
```

My LaTeX Document with References

Your Name

October 9, 2023

1 Introduction

This is the introduction section of my document.

1.1 Subsection

This is a subsection within the introduction.

2 Another Section

This is another section in the document.
Smith's study [?] provides valuable insights.

```latex
\documentclass{article}

% Packages
\usepackage{graphicx} % For including graphics
\usepackage{algorithm} % For algorithms

% Document information
\title{My LaTeX Document with References}
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\date{\today}

\begin{document}

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% Insert citations where needed in your document
Smith's study~\cite{smith2010} provides valuable insights.

\bibliographystyle{ACM-Reference-Format} % Specify the bibliography style
\bibliography{sample-base} % Include your .bib file without the extension

\end{document}
```

Define document class

The options are pre-defined in .cls file.

The following options can be applied to ACM tex:
opt: sigconf,review,anonymous,manuscript,nonacm

\documentclass[sigconf]{acmart}
- sigconf, double-column format
- manuscript, single-column format
- review, add line numbers to manuscript
- anonymous, remove author names
- nonacm, remove ACM reference format

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```latex
latex                                                  Copy code

\documentclass{article}  ───────────────────────────────►  Define document class

% Packages
\usepackage{graphicx} % For including graphics
\usepackage{algorithm} % For algorithms

% Document information
\title{My LaTeX Document with References}
\author{Your Name}
\date{\today}

\begin{document}

\maketitle

\section{Introduction}
This is the introduction section of my document.

\subsection{Subsection}
This is a subsection within the introduction.

\section{Another Section}
This is another section in the document.

% Insert citations where needed in your document
Smith's study~\cite{smith2010} provides valuable insights.

\bibliographystyle{ACM-Reference-Format} % Specify the bibliography style
\bibliography{sample-base} % Include your .bib file without the extension

\end{document}
```

Hints

- You use the following for one-column submission
  \documentclass[manuscript,review,anonymous]{acmart}

- In camera-ready submission, you can use
  \documentclass[manuscript]{acmart} for 1-col submission
  or \documentclass[sigconf]{acmart} for 2-col submission

- You can also use \documentclass[sigconf]{acmart} to help
  adjust figures or tables

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```latex
\documentclass{article}

% Packages
\usepackage{graphicx} % For including graphics
\usepackage{algorithm} % For algorithms

% Document information
\title{My LaTeX Document with References}
\author{Your Name}
\date{\today}

\begin{document}

\maketitle

\section{Introduction}
This is the introduction section of my document.

\subsection{Subsection}
This is a subsection within the introduction.

\section{Another Section}
This is another section in the document.

% Insert citations where needed in your document
Smith's study~\cite{smith2010} provides valuable insights.

\bibliographystyle{ACM-Reference-Format} % Specify the bibliography style
\bibliography{sample-base} % Include your .bib file without the extension

\end{document}
```

Load open-sourced packages
We can add any packages if necessary
e.g., graphics is used to add images/figures
algorithm is used to insert pseudo coding

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```latex
\documentclass{article}

% Packages
\usepackage{graphicx} % For including graphics
\usepackage{algorithm} % For algorithms

% Document information
\title{My LaTeX Document with References}
\author{Your Name}
\date{\today}

\begin{document}

\maketitle

\section{Introduction}
This is the introduction section of my document.

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This is a subsection within the introduction.

\section{Another Section}
This is another section in the document.

% Insert citations where needed in your document
Smith's study~\cite{smith2010} provides valuable insights.

\bibliographystyle{ACM-Reference-Format} % Specify the bibliography style
\bibliography{sample-base} % Include your .bib file without the extension

\end{document}
```
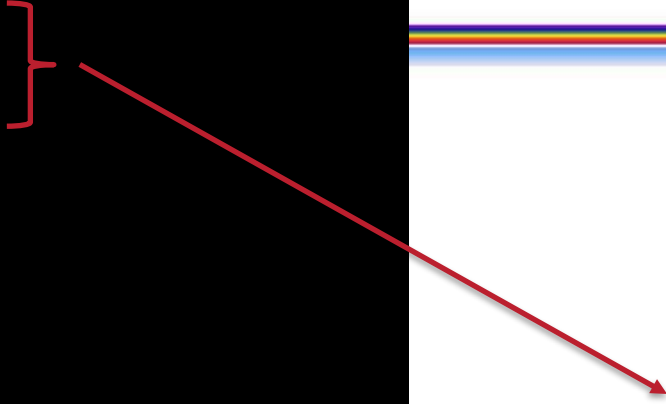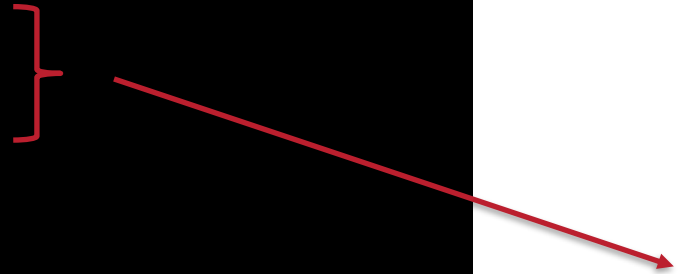
Titles, authors, abstracts, keywords
Here, they are included before \begin{document}.
Some templates may put them after
\begin{document}, such as the ACM template.
It depends on the definitions in .cls file.

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```latex
\documentclass{article}

% Packages
\usepackage{graphicx} % For including graphics
\usepackage{algorithm} % For algorithms

% Document information
\title{My LaTeX Document with References}
\author{Your Name}
\date{\today}

\begin{document}

\maketitle

\section{Introduction}
This is the introduction section of my document.

\subsection{Subsection}
This is a subsection within the introduction.

\section{Another Section}
This is another section in the document.

% Insert citations where needed in your document
Smith's study~\cite{smith2010} provides valuable insights.

\bibliographystyle{ACM-Reference-Format} % Specify the bibliography style
\bibliography{sample-base} % Include your .bib file without the extension

\end{document}
```
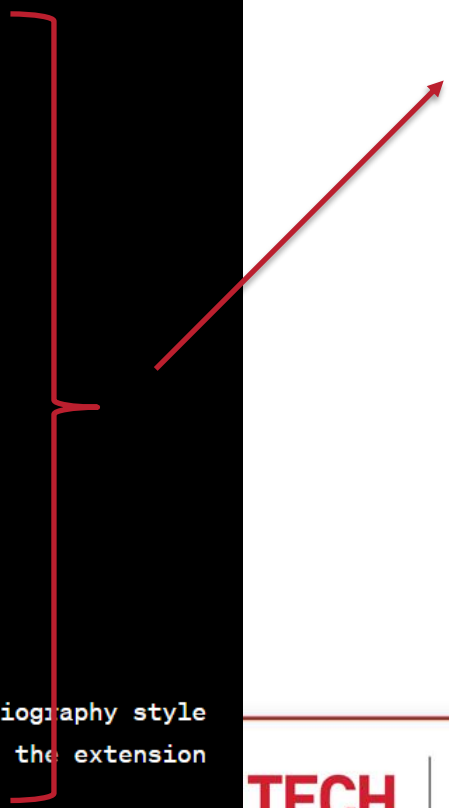
Main contents
- Sections and subsections
- Texts, equations, tables, figures
- Algorithms
- References
- ......

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```latex
\documentclass{article}

% Packages
\usepackage{graphicx} % For including graphics
\usepackage{algorithm} % For algorithms

% Document information
\title{My LaTeX Document with References}
\author{Your Name}
\date{\today}

\begin{document}

\maketitle

\section{Introduction}
This is the introduction section of my document.

\subsection{Subsection}
This is a subsection within the introduction.

\section{Another Section}
This is another section in the document.

% Insert citations where needed in your document
Smith's study~\cite{smith2010} provides valuable insights.

\bibliographystyle{ACM-Reference-Format} % Specify the bibliography style
\bibliography{sample-base} % Include your .bib file without the extension

\end{document}
```

Reference Controls
- ACM-Reference-Format.bst, style file
- Sample-base.bib, raw list of references

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Latex: Compilation

- ## By Using Overleaf
  - It is an online editor, where you do not need local Text distribution systems

Compiling

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Latex: Compilation

- By Using Local Environment: MikTex + Texmaker
  - There are several options
    - Latex => compile tex, get dvi
    - PDFLaTex => get pdf
    - BibTex => compile bib to bbl
    - QuickBuild = PDFLaTex + View PDF
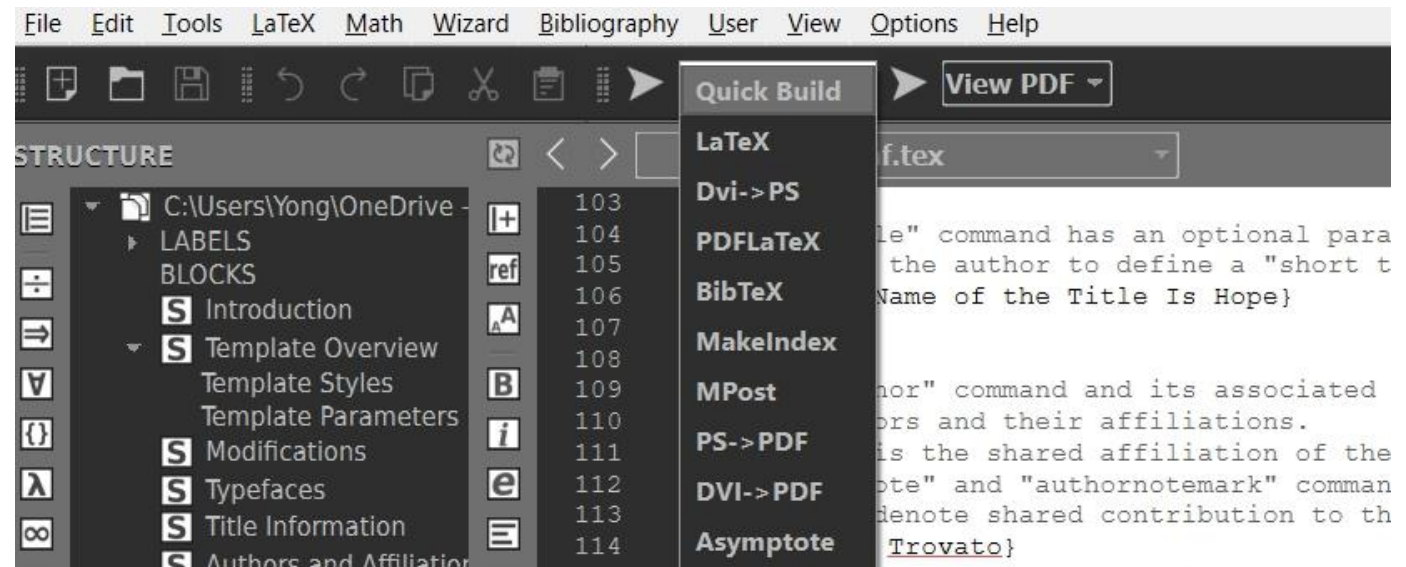
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Latex: Compilation

- **By Using Local Environment: MikTex + Texmaker**
  - Special notes for references
    - Run BibTex first
      It will update .tex and .bib
      to produce new bbl file

    - Run PDFLaTex or QuickBuild
      The actual changes will be
      updated on final PDF files

  - You may need to run BibTex + PDFLaTex (or QuickBuild)
    for several rounds (especially run "QuickBuild" for several times)
    in order to have updates of references in final PDF file
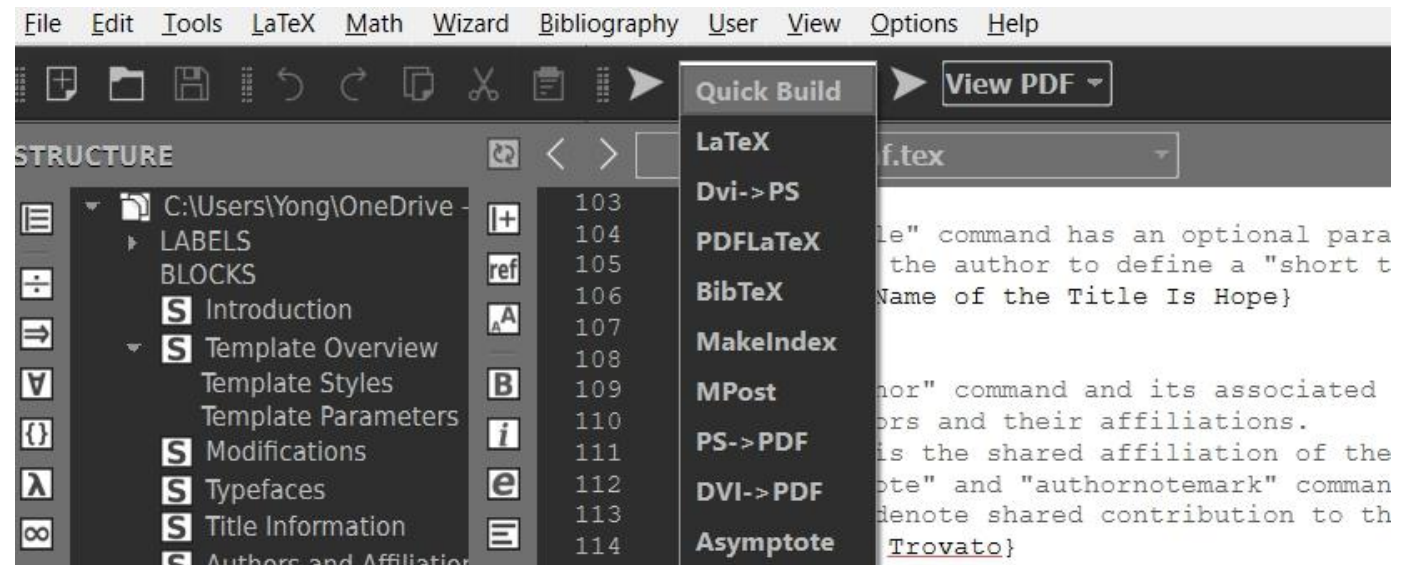
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Text Editing in Latex: Sections

- You can create sections in multiple depth

```
\section{My Section}
\subsection{one sub section}
\subsection{another sub section}
\subsubsection{a sub sub section}
\subsubsubsection{a sub sub section}
```

→

12 MY SECTION

12.1 one sub section

12.2 another sub section

12.2.1 a sub sub section. a sub sub section

- By default, Tex system only supports up to 3 levels in depth
  The \subsubsubsection{} above is not working

- But you can add your own commands to support it
  Hint: ask ChatGPT about how to do this

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Text Editing in Latex: Texts

- Text formats
  - **Bold**: bold text in LaTeX is typeset using the \textbf{...} command.
  - *Italics*: italicised text is produced using the \textit{...} command.
  - <u>Underline</u>: to underline text use the \underline{...} command.

```
Some of the \textbf{greatest}
discoveries in \underline{science}
were made by \textbf{\textit{accident}}.
```

Some of the **greatest** discoveries in <u>science</u> were made by *accident*.

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Text Editing in Latex: Texts

- Text color

```
\documentclass{article}
\usepackage{xcolor}  % add this package

\begin{document}

This is regular black text.

\textcolor{red}{This text is in red.}

More regular black text.

\end{document}
```

use \textcolor{color}{texts} command

This is regular black text.
This text is in red.
More regular black text.

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Text Editing in Latex: Texts

- Text size
  - Change font size for the whole document

    \documentclass[12pt]{article}

  - Change font size for specific texts
    - Use pre-defined size

      This is \large{large} text.

    - Use self-defined size

      \fontsize{14}{16}\selectfont This is a custom font size.

      the 1st argument = font size in points
      the 2nd argument = line spacing

- `\tiny`: Tiny text.
- `\scriptsize`: Scriptsize text.
- `\footnotesize`: Footnotesize text.
- `\small`: Small text.
- `\normalsize`: Normal (default) text size.
- `\large`: Large text.
- `\Large`: Larger text.
- `\LARGE`: Even larger text.
- `\huge`: Huge text.
- `\Huge`: Largest text.

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Text Editing in Latex: List

- ## Unordered List

  - Use \itemize and put entries in \item

```
\begin{itemize}
  \item The individual entries are indicated with a black dot, a so-called bullet.
  \item The text in the entries may be of any length.
\end{itemize}
```

- The individual entries are indicated with a black dot, a so-called bullet.

- The text in the entries may be of any length.

  - Change bullet styles by loading the enumitem package

```
\usepackage{enumitem}

\begin{itemize} [label=$\ast$]
  \item Item 1
  \item Item 2
\end{itemize}
```

`-`: A hyphen or dash.

$\ast$: An asterisk.

$\bullet$: A filled bullet.

$\cdot$: A small centered dot.

$\circ$: A hollow circle.

$\diamond$: A diamond shape.

$\triangleright$: A right-pointing triangle.

$\rightarrow$: A right arrow symbol.

$\rightarrowtail$: A right arrow with a tail.

$\Rightarrow$: A double right arrow.

$\hookrightarrow$: A hooked right arrow.

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Text Editing in Latex: List

- Ordered List

  - Use \enumerate and put entries in \item

    ```
    \begin{enumerate}
      \item This is the first entry in our list.
      \item The list numbers increase with each entry we add.
    \end{enumerate}
    ```

    1. This is the first entry in our list.

    2. The list numbers increase with each entry we add.

  - Change numbering styles by loading the enumitem package

    \usepackage{enumitem}

    \begin{enumerate} [label=\Roman*)]
      \item Item I
      \item Item II
      \item Item III
    \end{enumerate}

    I) Item I

    II) Item II

    III) Item III

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Text Editing in Latex: Others

- ## Subscript and Superscript
  - Use x_2 and x^{2}

- ## Hyperlinks

\usepackage{hyperref}
\href{https://www.example.com}{texts}

- ## Footnotes

Your texts\footnote{texts for footnote}

x_2 is used to describe a variable, where x^{2} denotes the squared value of x. You can visit my website \href{https://www.iit.edu}{https://www.iit.edu} for more references\footnote{https://www.iit.edu}.

x_2 is used to describe a variable, where x^2 denotes the squared value of x. You can visit my website https://www.iit.edu for more references[1].

[1]https://www.iit.edu

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Text Editing in Latex: Symbols & Equations

- We can use online tools to produce symbols and equations
- Online tool: HostMath, https://www.hostmath.com/


```
\frac{-b\pm\sqrt{b^2-4ac}}{2a}
```

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Text Editing in Latex: Symbols & Equations

- To put symbols or equations in main content/texts, you need to put them in $your symbol or equation$

I use this formula, $\frac{-b\pm\sqrt{b^2-4ac}}{2a}$ for the calculations. ⟶ I use this formula, $\frac{-b\pm\sqrt{b^2-4ac}}{2a}$ for the calculations.

- Or, you can create an equation with index number

I use Equation~\ref{eq:dev} for the calculations.

\begin{equation}
\frac{-b\pm\sqrt{b^2-4ac}}{2a}
\label{eq:dev}
\end{equation}

I use Equation 1 for the calculations.

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \qquad (1)$$

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  - References
  - Useful Tools for Latex writing
- Practice: Converting a WORD doc to Latex document

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Latex: Charts / Figures

- Load the package "graphic", \usepackage{graphicx}

- Insert any images (jpg, png, pdf) into Latex

```
\begin{figure}
  \centering
  \includegraphics[scale=0.8]{sample-franklin.png}
  \caption{This is an example image.}
  \label{fig:example}
\end{figure}
```

Update image size

Full path of image

Figure 1: This is an example image.

- Refer to my image~\ref{fig:example}

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Latex: Tables

- We can use online tools, "Tables Generator", https://www.tablesgenerator.com/

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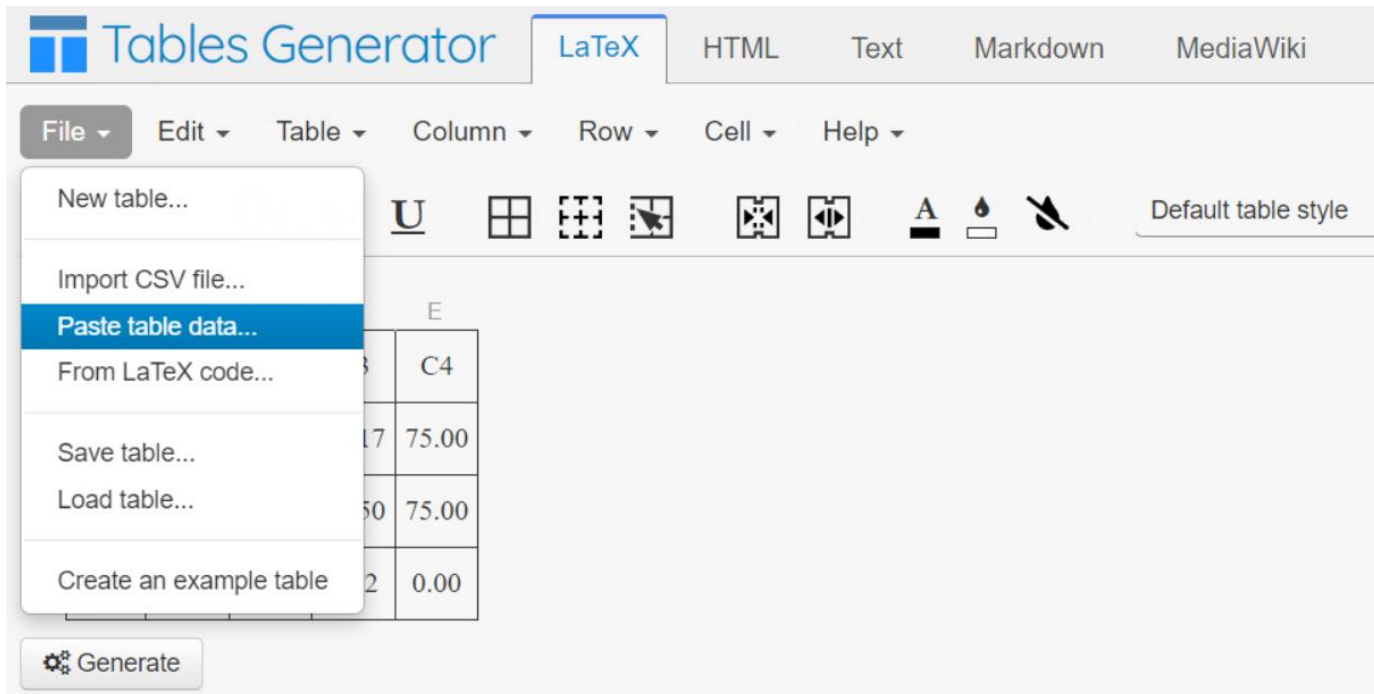
Latex: Tables

- You can prepare data table in Excel, and then load into the web UI
- Or, you can import a csv document

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Latex: Tables

- You should have a basic understanding about Latex tables, if you would like more advanced design in future

```
\begin{table}[ht!]
\centering
\caption{table caption}\label{tab:mytable}
\begin{tabular}{|c|c|c|c|c|}
\hline
     & C1   & C2   & C3   & C4    \\ \hline
mean & 80.25 & 77.56 & 73.17 & 75.00 \\ \hline
q2   & 80.25 & 77.25 & 73.50 & 75.00 \\ \hline
std  & 4.60  & 8.87  & 2.02  & 0.00  \\ \hline
\end{tabular}
\end{table}
```
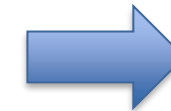
"ht!" is used for auto-positioning / table floating

```
\begin{table}
\end{table}
```
→ Use one column width in two-column ACM template

```
\begin{table*}
\end{table*}
```
→ Use the whole page width in two-column ACM template

Figure 1: Seattle Mariners at Spring Training, 2010.

ABSTRACT
A clear and well-documented LaTeX document is presented as an article formatted for publication by ACM in a conference proceedings or journal publication. Based on the "acmart" document class, this article presents and explains many of the common variations, as well as many of the formatting elements an author may use in the preparation of the documentation of their work.

CCS CONCEPTS

KEYWORDS
datasets, neural networks, gaze detection, text tagging

ACM Reference Format:
Ben Trovato, G.K.M. Tobin, Lars Thørväld, Valerie Béranger, Aparna Patel, Huifen Chan, Charles Palmer, John Smith, and Julius P. Kumquat. 2018. The Name of the Title Is Hope. In *Proceedings of Make sure to enter the correct conference title from your rights confirmation emai (Conference acronym 'XX).* ACM, New York, NY, USA, 6 pages. https://doi.org/XXXXXXX.XXXXXXX

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Latex: Tables

- You should have a basic understanding about Latex tables, if you would like more advanced design in future

```
\begin{table}[ht!]
\centering                                          → Table alignment
\caption{table caption}\label{tab:mytable}          → Table caption and label
\begin{tabular}{|c|c|c|c|c|}                         → Table column alignment and formats
\hline
    & C1   & C2   & C3   & C4   \\ \hline             → 1st row, table header
mean & 80.25 & 77.56 & 73.17 & 75.00 \\ \hline
q2   & 80.25 & 77.25 & 73.50 & 75.00 \\ \hline       → Regular rows with data
std  & 4.60  & 8.87  & 2.02  & 0.00  \\ \hline
\end{tabular}
\end{table}
```

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Schedule

- Latex vs. WORD
- Latex for Academic Writing (https://academicworkshops.github.io/Latex/)
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Latex: Reference Management

```latex
\documentclass{article}

% Packages
\usepackage{graphicx} % For including graphics
\usepackage{algorithm} % For algorithms

% Document information
\title{My LaTeX Document with References}
\author{Your Name}
\date{\today}

\begin{document}

\maketitle

\section{Introduction}
This is the introduction section of my document.

\subsection{Subsection}
This is a subsection within the introduction.

\section{Another Section}
This is another section in the document.

% Insert citations where needed in your document
Smith's study~\cite{smith2010} provides valuable insights.

\bibliographystyle{ACM-Reference-Format} % Specify the bibliography style
\bibliography{sample-base} % Include your .bib file without the extension

\end{document}
```

Reference Controls

- ACM-Reference-Format.bst, style file
- Sample-base.bib, raw list of references

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Latex: Reference Management

- .bib file
  - You need to put raw entries in .bib file
  - You can easily find the bib entries from Google Scholar

Latex: Reference Management

- Make sure that you turn on it in Google Scholar Settings

Latex: Reference Management

- How to cite a paper in paper content

```
@inproceedings{zheng2023multi,
  title={Multi-Objective Portfolio Optimization
  author={Zheng, Yong and Shukla, Kumar Neelotpa
  booktitle={Proceedings of the 6th ACM SIGCAS/S
  pages={124--128},
  year={2023}
}
```
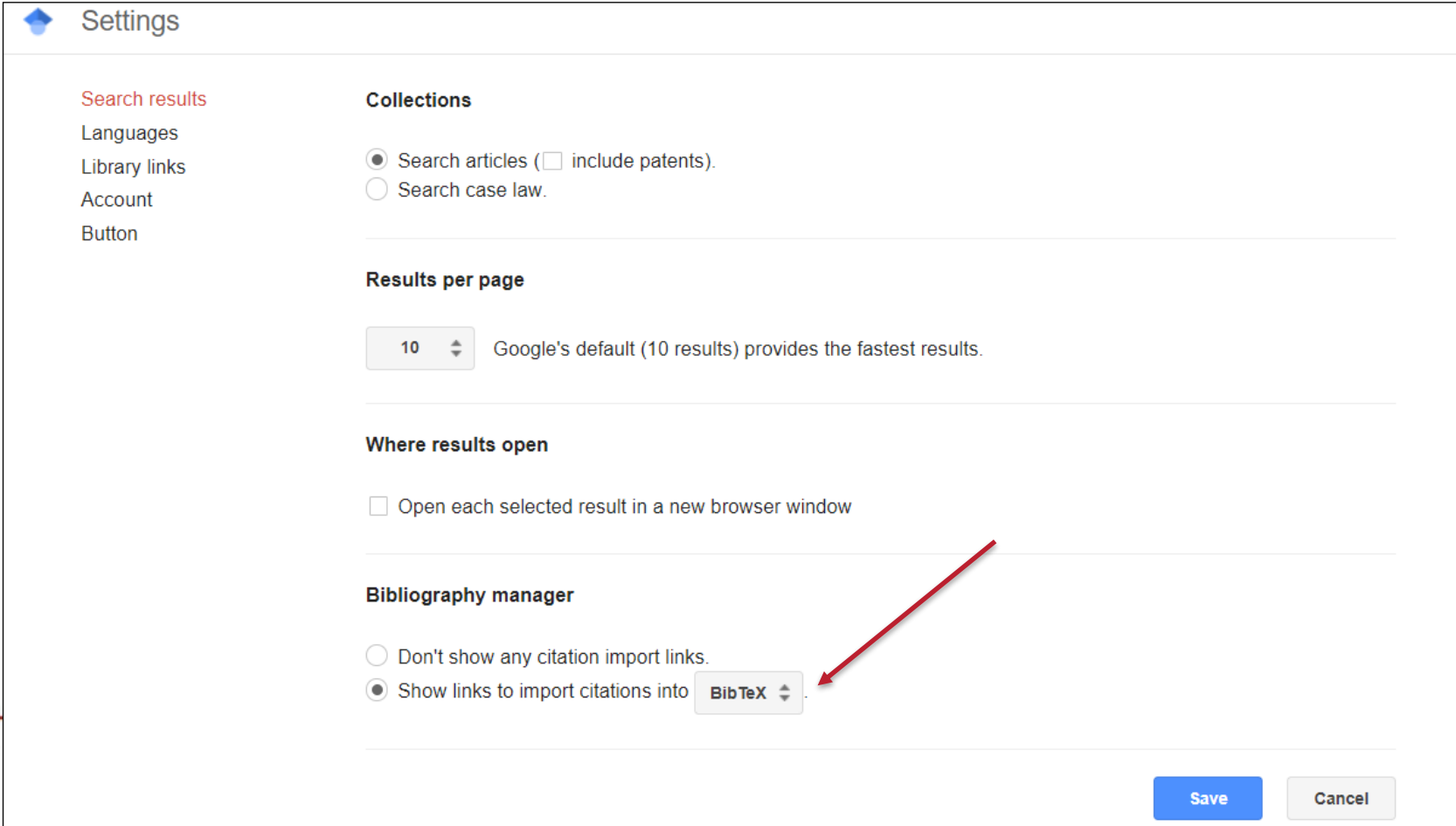
  – Find the key of the reference

  – Use \cite{key} or \citep{key} in your texts

  – Example: Dr. Zheng et al.~\cite{zheng2023multi} proposed and built an open-source library for multi-objective portfolio optimization

- \cite{}

  Dr. Zheng et al. [39] proposed and built an open-source library for multi-objective portfolio optimization

- \citep{}

  Dr. Zheng et al. (Zheng et al., 2023) proposed and built an open-source library for multi-objective portfolio optimization

By using "article" as document class, and the "apelike" in bib style

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Latex: Reference Management

- By Using Overleaf
  - It is an online editor, where you do not need local Text distribution systems

Compiling

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Latex: Reference Management

- By Using Local Environment: MikTex + Texmaker
  - Special notes for references
    - Run BibTex first
      It will update .tex and .bib to produce new bbl file

    - Run PDFLaTex or QuickBuild
      The actual changes will be updated on final PDF files

    - You may need to run BibTex + PDFLaTex (or QuickBuild)
      for several rounds in order to have updates of references in final PDF file
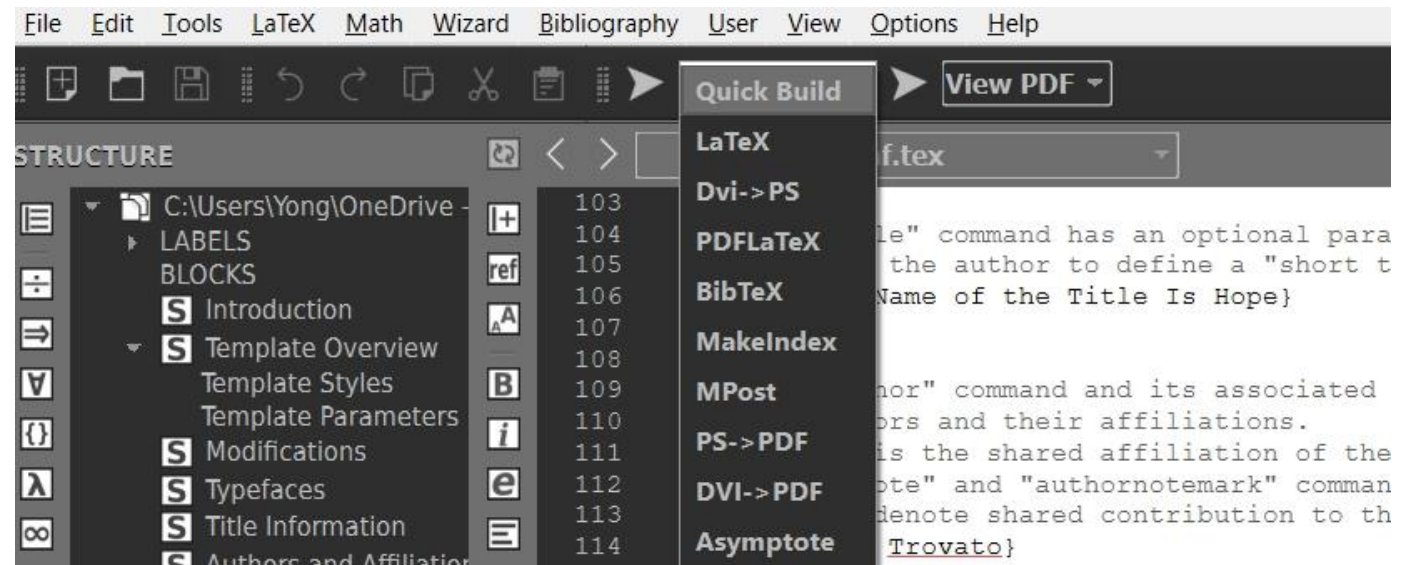
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Latex: Useful Tools

- Latex Tables, https://www.tablesgenerator.com/
- Latex Equations and Symbols, http://www.hostmath.com/
- Online Latex Editor, https://www.overleaf.com/
- Online Diagrams for free, https://app.diagrams.net/
- ChatGPT for advanced Latex coding, https://chat.openai.com/

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Latex: Useful Tools

Online Diagrams for free, https://app.diagrams.net/

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Latex: Useful Tools

ChatGPT for advanced Latex coding, https://chat.openai.com/

- Query: how to put three tables side by side in a same row?

- ChatGPT: example of coding…… (not shown here)

- Outputs by using sample coding from ChatGPT

Table 1: Table 1

A	B
1	2

Table 2: Table 2

X	Y
3	4

Table 3: Table 3

I	II
5	6

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus

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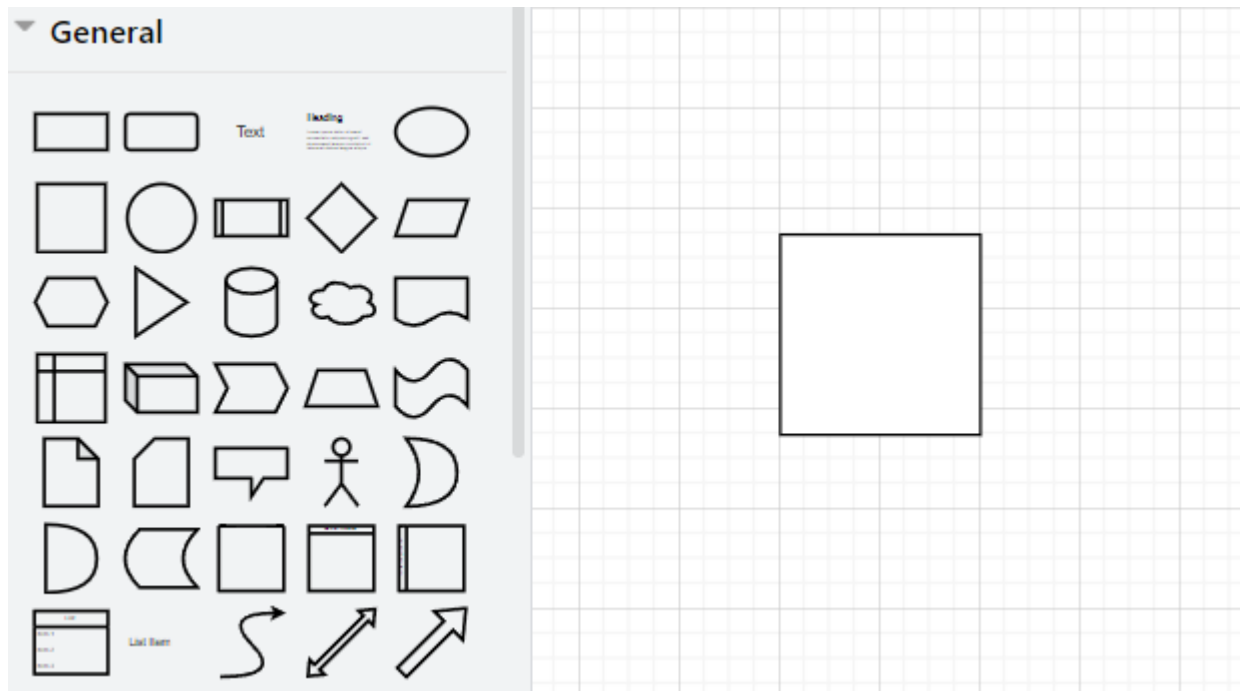- Practice: Converting a WORD doc to Latex document

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Hands-on Practice

- Website: https://academicworkshops.github.io/Latex/

- Hands-on Practice

  - Download the practice.zip file

  - Unzip it

    - Fig1.png
    - Fig2.png
    - Fig3.png
    - Fig4_1.png
    - Fig4_2.png
    - PDF_Pressure Test.docx
    - PDF_Pressure Test.pdf
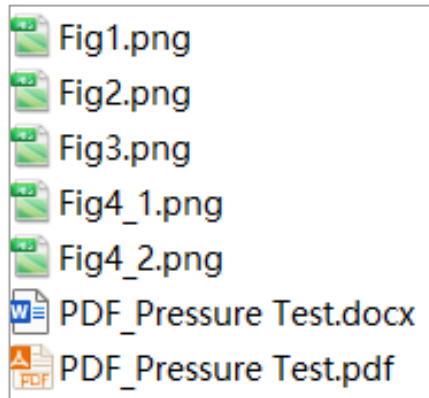
  - Convert the WORD file to Latex coding by using ACM two-column template

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Conclusions

- Latex writing is not difficult, especially we have several smart tools to help us. Using Latex actually can save time in formatting & revisions.

- Hopefully you have learned something useful from this workshop. Remember, ChatGPT is your best friend/instructor in future. I will still show around at the SIGITE conference.

- Now, I will move to my paper presentation, "ChatGPT for Teaching and Learning: An Experience from Data Science Education" at 3 PM. Welcome to join my talks.

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Academic Writing by Using Latex: A Hands-on Workshop

(Oct 12, 1:30 to 2:50 PM)

https://academicworkshops.github.io/Latex/

Yong Zheng

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