CO1
on
Report writing using LaTeX

Session 1

Agenda

- Installation.
- Introduction to LaTeX
- Difference between TeX and LaTeX
- Different TeX software.
- Basic template creation.

Learning objectives

- At the end of the session students will be able to
- Understand the Concept of report writing using markup language LaTeX.
- Build reports using LaTeX.

Session Plan

- *Recall about last session - 5mins*
- *Introduction to LaTeX - 20 mins*
- *Installation of Latex -20 min*
- *The quiz is of 10 mins and will conduct in two parts.*
- *Practice of commands in TexStudio is of 20 mins*
- Activity - 20 min
- *Discussion is of 5 mins at the end*

What is LaTeX

- Pronunciation (its Lay - tec not lay – tex)
- Writing: LaTeX (and not latex or Latex)

- TeX inventor: Donald Knuth
- LaTeX inventor: Lesile Lamport
- Low level markup language

Common tools using for report writing

- Microsoft word
- Google Docs
- LaTeX
- Apache OpenOffice Writer. ...
- LibreOffice Writer. ...
- WPS Office Writer. ...
- In our course work we are going to use LaTeX

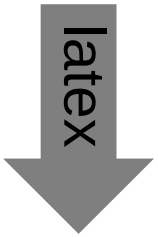
Why LaTeX?

- It makes beautiful documents
  - Especially mathematics
- It was created by scientists, for scientists
  - A large and active community
- It is powerful — you can extend it
  - Packages for papers, presentations, spreadsheets, . . .

How does it work?

- You write your document in plain text with commands that describe its structure and meaning.
- The latex program processes your text and commands to produce a beautifully formatted document.

```
The rain in Spain falls \emph{mainly} on the plain.
```



The rain in Spain falls *mainly* on the plain.

More examples of commands. .

```
\begin{itemize}
\item Tea
\item Milk
\item Biscuits
\end{itemize}
```

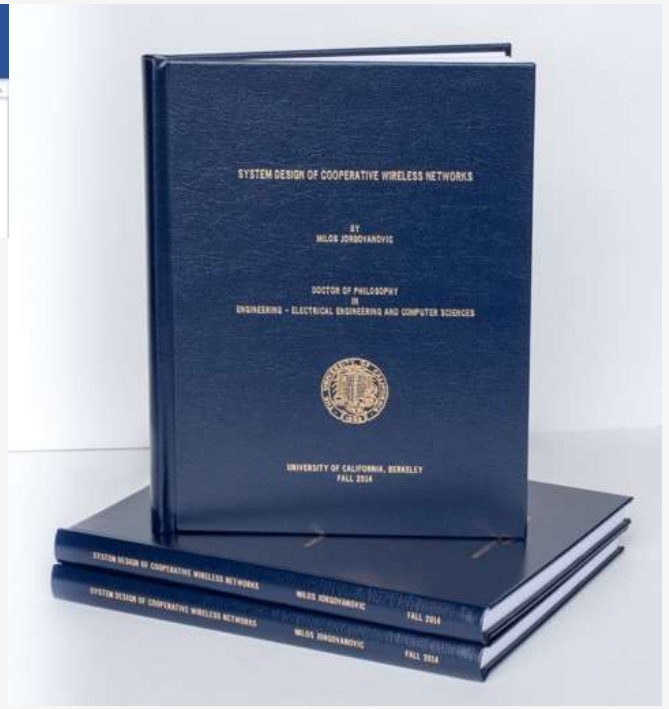
- Tea
- Milk
- Biscuits

```
\begin{figure}
\includegraphics{gerbil}
\end{figure}
```

```
\begin{equation}
\alpha +\beta +1
\end{equation}
```

$$\alpha + \beta + 1 \quad (1)$$

Report writing



- During the Engineering Design process, one need to collect information at various stages and need to prepare a report.
- Also at the end one need to publish his/her work in form of a report.
- Which may be useful to communicate your work with others and for future developments.
- It should contain various materials relevant to the work you have undertaken in respect of your project.
- project report should be concise and effective.

A

Dissertation

ON

"A study of Agricultural Finance in India"

SUBMITTED TO

SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE

IN THE PARTIAL FULFILLMENT OF SEMESTER-IV for THE REQUIREMENT

OF

MASTER OF BUSINESS ADMINISTRATION (M.B.A.)

UNDER THE GUIDANCE OF

(Prof. V.M.Tidke)

-SUBMITTED BY-

(Labade Avinash Dilip)

Submitted to

Sanjivani College of Engineering Department of MBA, Kopargaon

2015-2017

Effective Methods for Capturing Cattle Rustlers

John Marston[1,2,3] and Bonnie MacFarlane[2,3]

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[3] ladiedbag@aol.com

February 27, 2017

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1 Section

This sentence requires citations (Hawthorn, Weber, and Scholten, 2001). This sentence requires multiple citations to imply that it is better supported (Wieman and Hollberg, 1991; Arnold et al., 1998). Finally, when conducting an appeal to authority, it can be useful to cite a reference in-text, much like Hawthorn, Weber, and Scholten, 2001 do quite a bit. Oh, and make sure to check out the bear in Figure 1.

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$$A = \begin{bmatrix} A_{21} & A_{21} \\ A_{21} & A_{22} \end{bmatrix} \tag{1}$$

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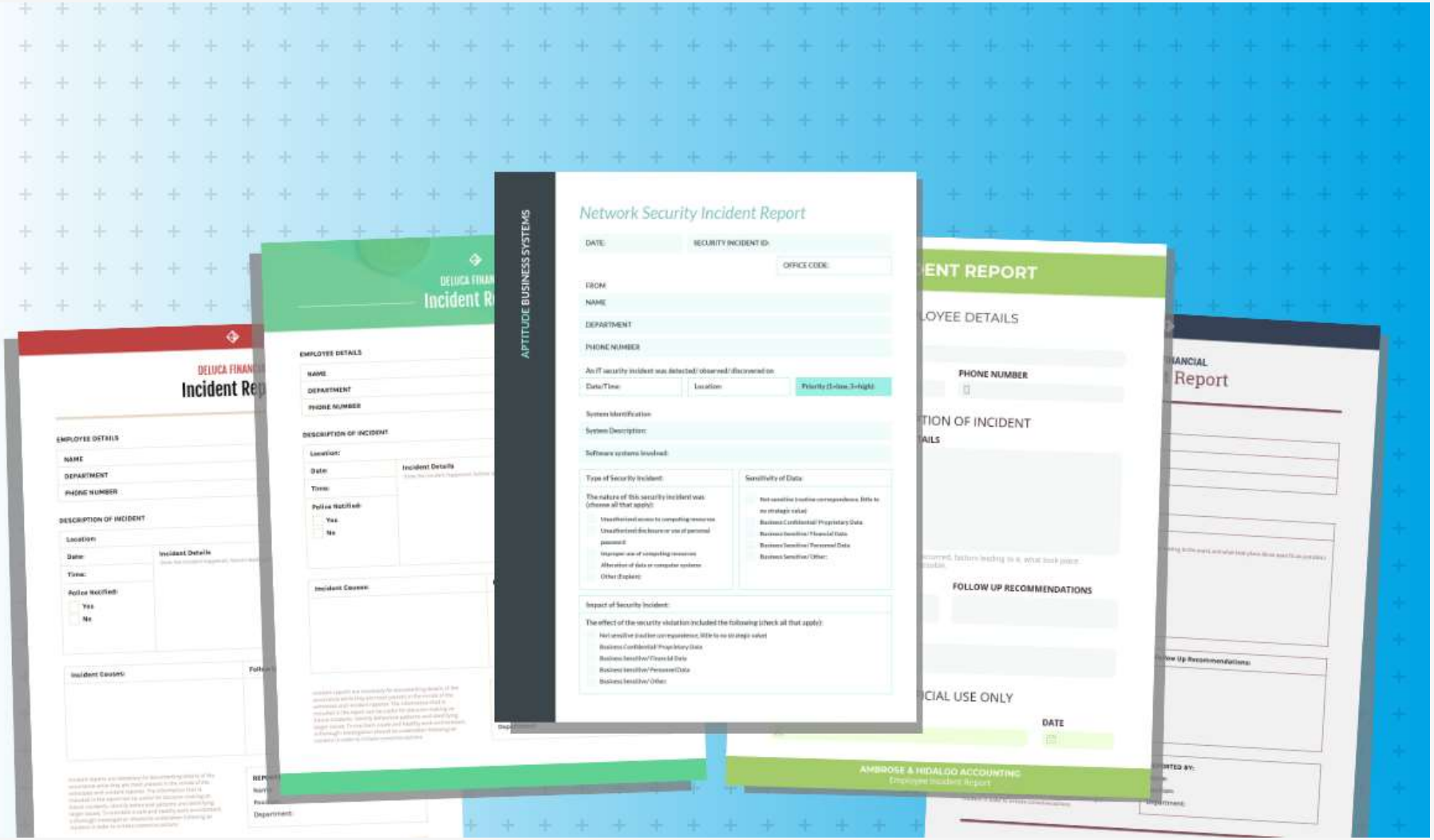
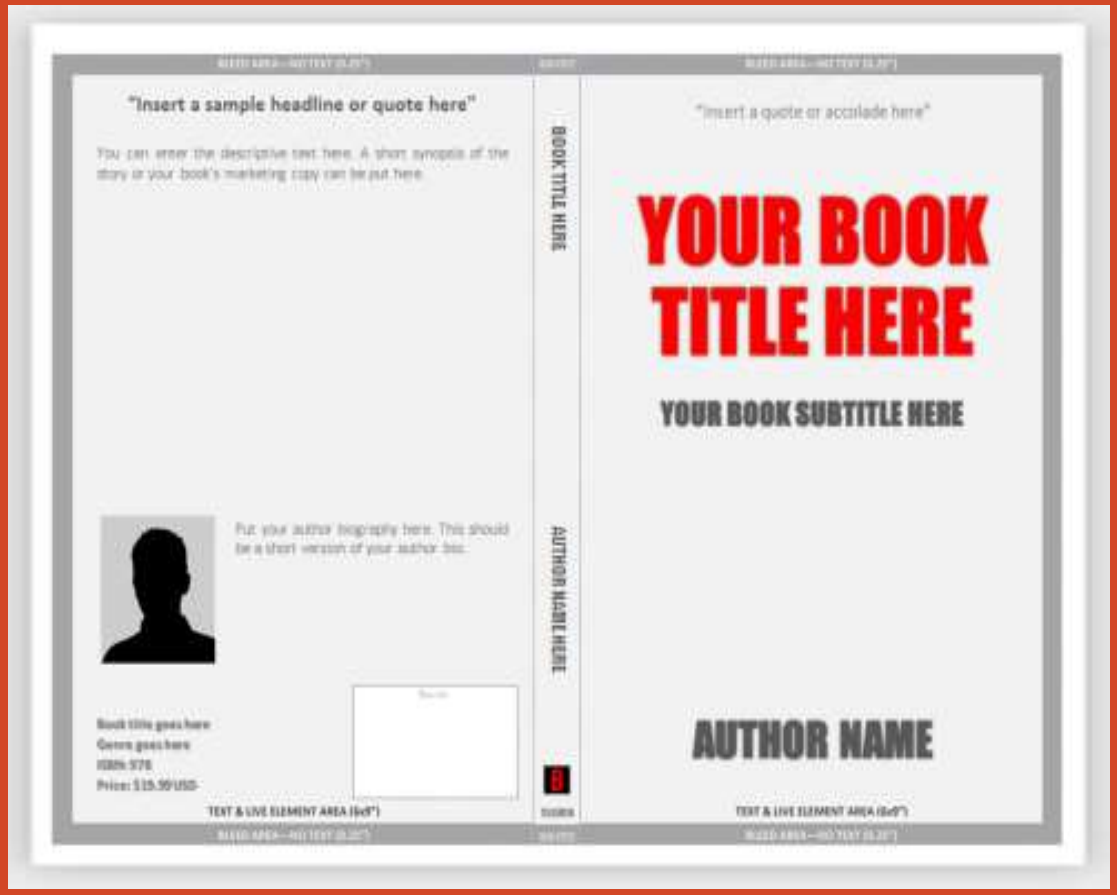

APTITUDE BUSINESS SYSTEMS
Network Security Incident Report
DATE:
SECURITY INCIDENT ID:
OFFICE CODE:
FROM
NAME
DEPARTMENT
PHONE NUMBER
Date/Time:
Location:
EMPLOYEE DETAILS
DESCRIPTION OF INCIDENT
Incident Details
Incident Causes:
PHONE NUMBER
FOLLOW UP RECOMMENDATIONS
DATE
AMBROSE & HIDALGO ACCOUNTING


"Insert a sample headline or quote here"
You can enter the descriptive text here. A short synopsis of the story or your book's marketing copy can be put here.
Put your author biography here. This should be a short version of your author bio.
Book title goes here
Genre goes here
ISBN: 978
Price: $19.99 USD
TEXT & LIVE ELEMENT AREA (6x9")
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AUTHOR NAME
TEXT & LIVE ELEMENT AREA (6x9")

Attitude adjustment

- Use commands to describe ‘what it is’, not ‘how it looks’.
- Focus on your content.
- Let LaTeX do its job.

Getting Started

- A minimal LaTeX document:

```
\documentclass{article}
\begin{document}
Hello World! % your content goes here...
\end{document}
```

- Commands start with a *backslash* \
- Every document starts with a \documentclass command.
- The *argument* in curly braces { } tells LaTeX what kind of document we are creating: an article.
- A percent sign % starts a *comment* — LaTeX will ignore the rest of the line.

What are the softwares for programming or writing the .tex codes?

- Windows

MiKTeX, TeXmaker, WinEdt, LyX and so on

- Linux like Ubuntu:

TeX-Live, Kile, LyX and so on

What is basic differences between TeX and LaTeX?

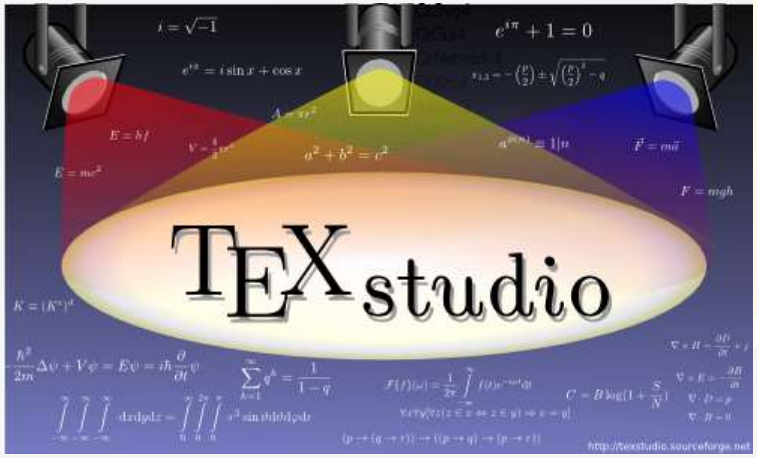
- Tex can recognize only .ps files or images
- LaTeX can recognize .jpg files or images
- BibTeX is used for Bibilography i.e., giving references
- Recently some ways have been discovered to overcome this limitation

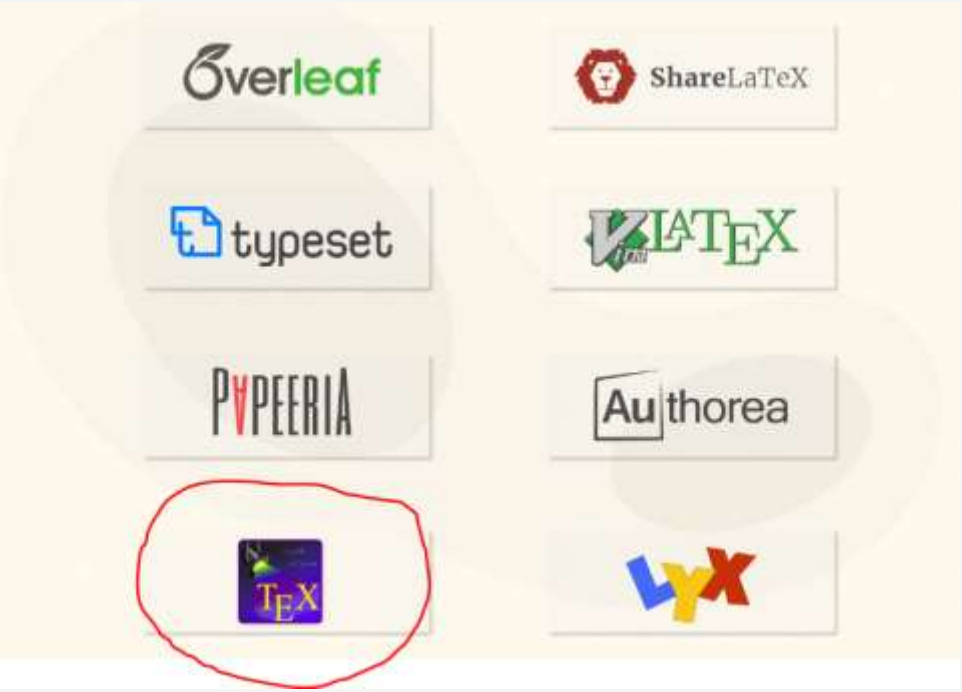
Few Instructions

- Lets start the main hands on practice
- First all need to install TeX back end software: MiKTeX
- Second all need to install TeX Front end GUI software: TeX studio

Common LaTeX Editors used

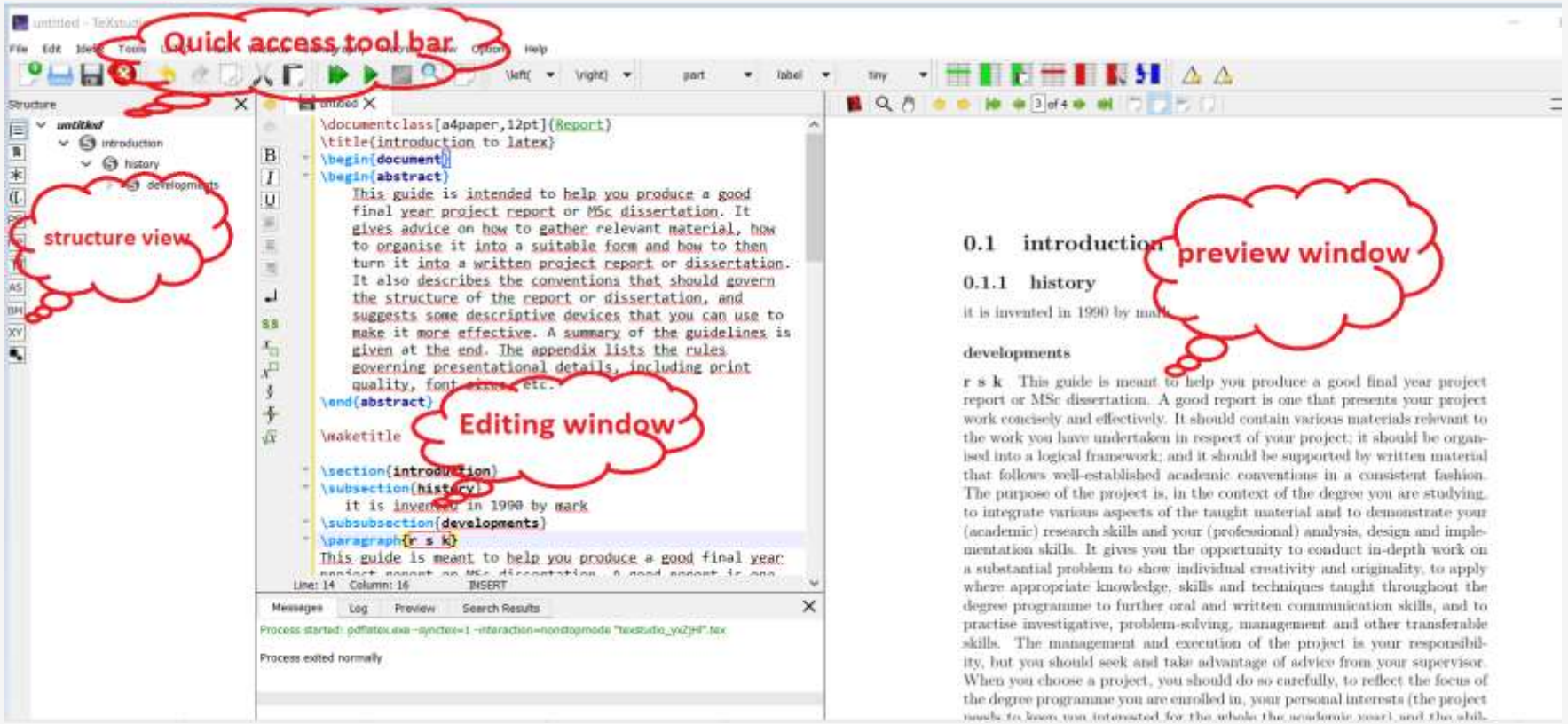
- In our course we are going to use Texstudio as LaTeX Editor with background support from Miktex software.





MiKTeX software installation

Latex (Texstudio) interface



Session 2

Topics to be covered

- Installation of Latex - Miktex and TexStudio
- Introduction to Document class
- Types of Document class
- Basic Text Formatting - Paragraphs, Sections, Sub-sections, Formatting text (Bold, Italics, etc.), Lists
- Mathematical Equations
- Figures and Tables
- Bibliography and References

Lets do hands on practice
Start
TeX Studio

Document Class

- \documentclass[option1, option2, etc.]{article}

The three most commonly used standard document-classes in LaTeX include: article, report and book. A number of global options allows customization of certain elements of the document by the author. Different document-classes might have different default settings.

Optional Parameters for DC

- Font size (10pt, 11pt, 12pt)
- Paper size and format (a4paper, letterpaper, etc.)
- Multiple columns (onecolumn, twocolumn)
- Titlepage behavior (notitlepage, titlepage)

Font Size

- LaTeX knows three standard font sizes:

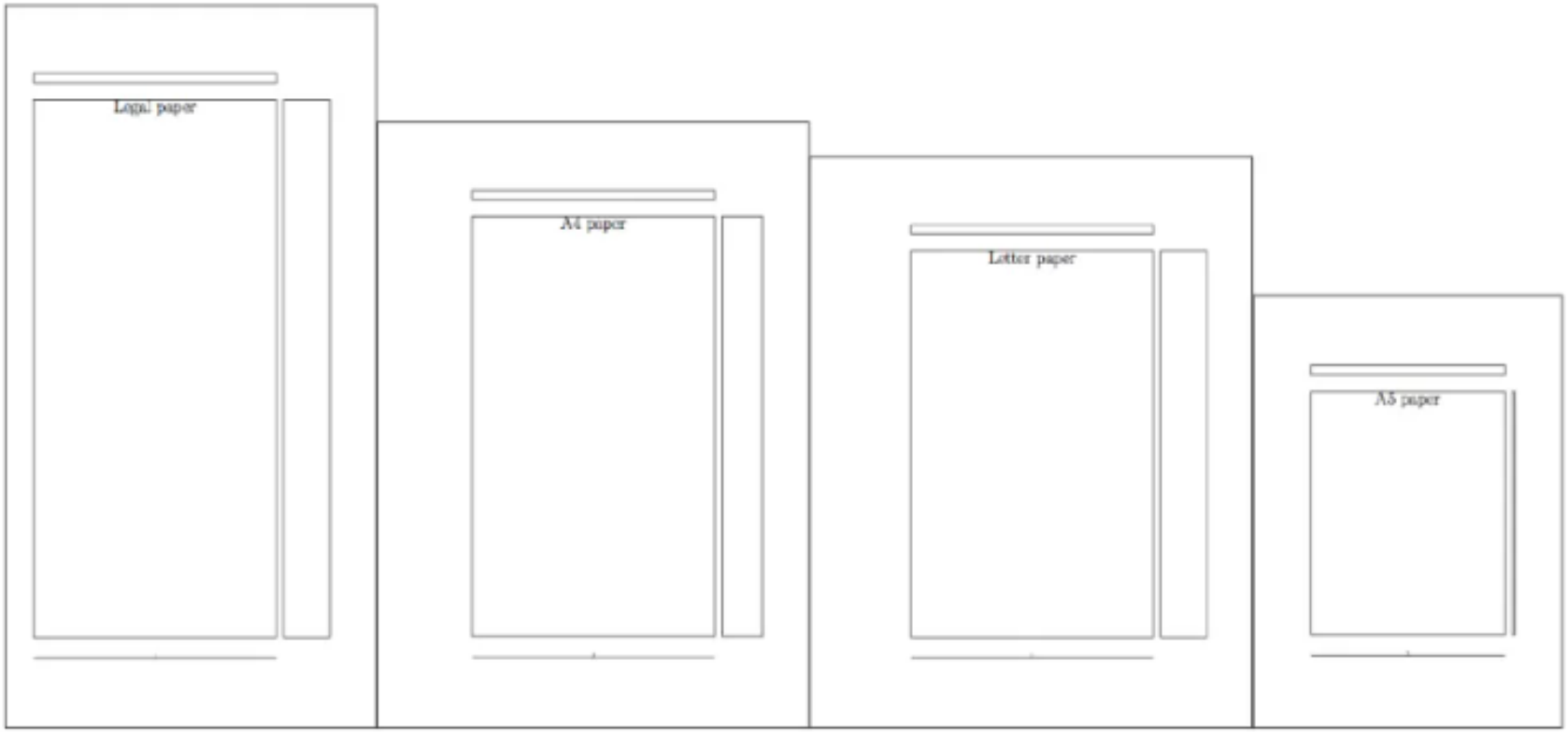
- 10pt (default)
- 11pt
- 12pt

```latex
\documentclass[12pt]{article}
\usepackage{blindtext}
\begin{document}
\blindtext
\end{document}
```

Paper size and format

- Different regions of the world use different standard physical paper sizes. Available are:
- a4paper (default)
- Letter paper (default in some distributions)
- a5paper
- b5paper
- Executive paper
- Legal paper

```
1  \documentclass[a4paper]{article}
2  \usepackage{showframe}
3  \begin{document}
4  \begin{center}{\Huge A4 paper}\end{center}
5  \end{document}
```


Legal paper
A4 paper
Letter paper
A5 paper

Multi Columns

- One column (default)
- Two column

By default, text is typeset in a single column (one column). LaTeX provides an easy way to switch to two columns through the document-class option two column.

1 Two-column document

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Titlepage behavior

- notitlepage (default for article)
- titlepage (default for report and book)

The option titlepage ends the page after \maketitle and restarts on the next page. In article, the content starts right after \maketitle. The titlepage option is quivalent to:

Program:

```
\title{This is my title}
\maketitle
```

Example:

This is an article

February 7, 2013

Abstract

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.

Example

```
\documentclass{article}
\usepackage{blindtext}
\title{This is an article}
\begin{document}
\maketitle
\begin{abstract}
\blindtext
\end{abstract}
\end{document}
```

Session 03

How to add pictures

- The following packages are used

1. Package: graphic (To add images)
2. Package: caption (To add captions to image)
3. Package: refstyle (To add references)

How to insert pictures

- To insert an image in Latex we use package called “Graphicx”

```
\begin{figure}[h]
\centering
\includegraphics[width=1cm, Height=1cm]{myimage}
\caption{Here is my image}
\label{image-myimage}
\end{figure}
```

Code to add images

- \begin{figure}

  …

  …

  …

  \end{figure}

. To give path to image:
\includegraphics[option1,option2]{imagename.imageformat}

How to insert a table

```
\begin{table}[h]
\centering
    \begin{tabular}{|l|c|r|}
        \hline
        Apple & Ball & sdd \\
        Cat & Dog & jjj \\
        Ele & Fig & ffg\\
        \hline
    \end{tabular}
\caption{Sample Table}
\label{sampletable}
\end{table}
\end{document}
```

How to add headers and footers

```
\usepackage{fancyhdr}
\pagestyle{fancy}
\fancyhead{me and you}
\fancyfoot{footer}
\lhead{This is my header}
\rhead{This is my right}
\lfoot{This is my footer}
\rfoot{This is my right footer}$%
```

DEFAULT PAGE STYLES IN LATEX

1. empty	No header, No footer
2. plain	No header, footer has page numbers in the centre
3. headings	No footer, header contains name of chapter and section
4. myheadings	No footer, header contains chapter name and user-suplied info

HOWEVER,

1. You can redefine these styles
2. Quickly modify by using Latex output variables.
3. Use other styles provided by a package. e.g., "fancy" style provided by "fancyhdr"

COMMANDS FOR PAGE ATTRIBUTES

\pagestyle{plain} or empty, headings, myheadings, fancy — FOR WHOLE DOCUMENT

\thispagestyle{empty} Determines headers/footers of current page — FOR ANY PARTICULAR PAGE

\pagenumbering{arabic} or roman, Roman, alph, Alph

\thepage Inserts the current page number

\pagebreak Forces a Page Break

\nopagebreak

\clearpage ends a page, and puts pending tables and figures on separate float pages with no text.

Page Numbering

CODE:

\pagenumbering{alph or Alph or Arabic or roman or Roman}

1. arabic : arabic numerals.
2. roman : lowercase roman numerals.
3. Roman : uppercase roman numerals.
4. alph : lowercase letters.
5. Alph : uppercase letters.

Thank you