



CO3 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: Leslie 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





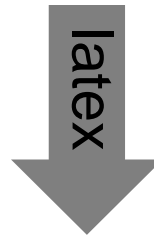
Why L^AT_EX?

- ▶ 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}
```

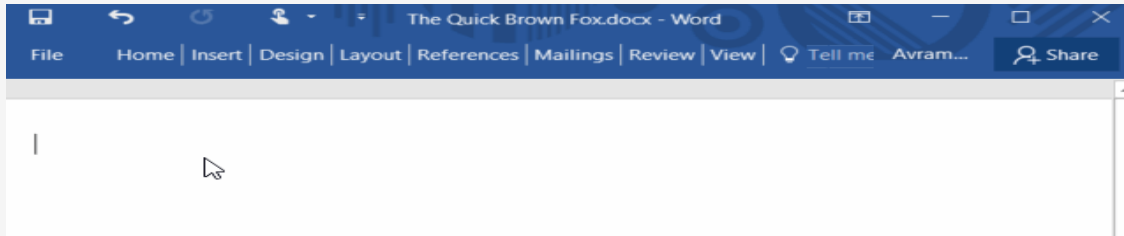


```
\begin{equation}
\alpha + \beta + 1
\end{equation}
```

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

Image license: [CC0](https://creativecommons.org/licenses/by/4.0/)

Report writing



- During the Engineering Design process, one needs to collect information at various stages and needs to prepare a report.
- Also at the end one needs 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, Kopergaon

2015-2017

Effective Methods for Capturing Cattle Rustlers

John Marston^{1,2,3} and Bonnie MacFarlane^{2,3}

¹ Universidad Nacional Autónoma de México, Mexico City, Mexico

² University of Texas at Austin, Texas, United States of America

³ LaTeXTemplates.com

February 27, 2017

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1 Section

This sentence requires citation (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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$$A = \begin{bmatrix} A_{11} & A_{21} \\ A_{21} & A_{22} \end{bmatrix} \quad (1)$$

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DELUCA FINANCIAL Incident Report

EMPLOYEE DETAILS

NAME: _____
DEPARTMENT: _____
PHONE NUMBER: _____

DESCRIPTION OF INCIDENT

Location: _____
Date: _____
Time: _____
Police Notified: ☐ Yes ☐ No

Incident Details
(How the incident happened, devices involved, etc.)

Incident Cause: _____

REPORT BY:
Name: _____
Position: _____
Department: _____

APTITUDE BUSINESS SYSTEMS

Network Security Incident Report

DATE: _____ SECURITY INCIDENT ID: _____ OFFICE CODE: _____

FROM: _____
NAME: _____
DEPARTMENT: _____
PHONE NUMBER: _____

An IT security incident was detected/observed/discovered on:
Data/Time: _____ Location: _____ Priority (1=low, 5=high): _____

System Identification
System Description: _____
Software systems involved: _____

Type of Security Incident:

The nature of this security incident was (choose all that apply):

- Unauthorized access to computing resources
- Unauthorized disclosure or use of personal information
- Improper use of computing resources
- Alteration of data or computer systems
- Other (Specify): _____

Sensitivity of Data:

Not sensitive (routine correspondence, little to no strategic value)

Business Confidential/Proprietary Data

Business Sensitive/Financial Data

Business Sensitive/Personnel Data

Business Sensitive/Other: _____

Impact of Security Incident:

The effect of the security violation included the following (check all that apply):

- Not sensitive (routine correspondence, little to no strategic value)
- Business Confidential/Proprietary Data
- Business Sensitive/Financial Data
- Business Sensitive/Personnel Data
- Business Sensitive/Other: _____

Incident Report

EMPLOYEE DETAILS

PHONE NUMBER: _____

DESCRIPTION OF INCIDENT

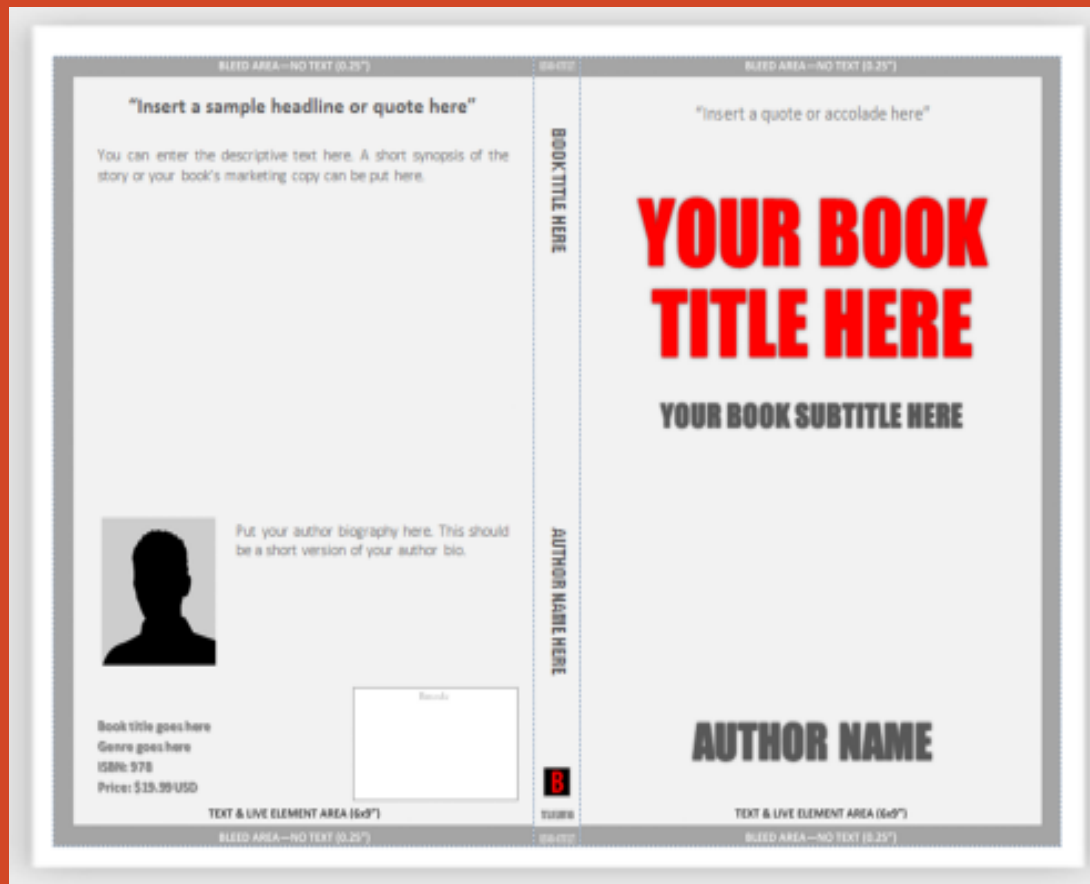
DETAILS

Incident Cause: _____

REPORT BY:
Name: _____
Position: _____
Department: _____

Thursday, December 9, 2021

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Attitude adjustment

- ▶ Use commands to describe 'what it is', not 'how it looks'.
- ▶ Focus on your content.
- ▶ Let $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ do its job.



Getting Started

- ▶ A minimal L^AT_EX 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 L^AT_EX what kind of document we are creating: an article.
- ▶ A percent sign % starts a *comment* — L^AT_EX 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 Bibliography i.e., giving references
- Recently some ways have been discovered to overcome this limitation

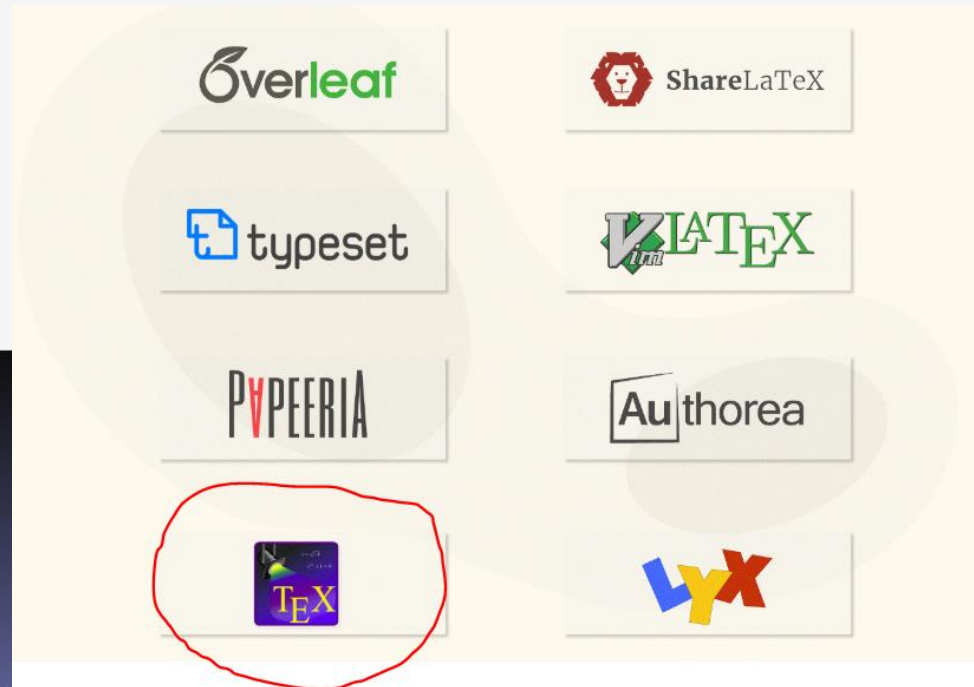
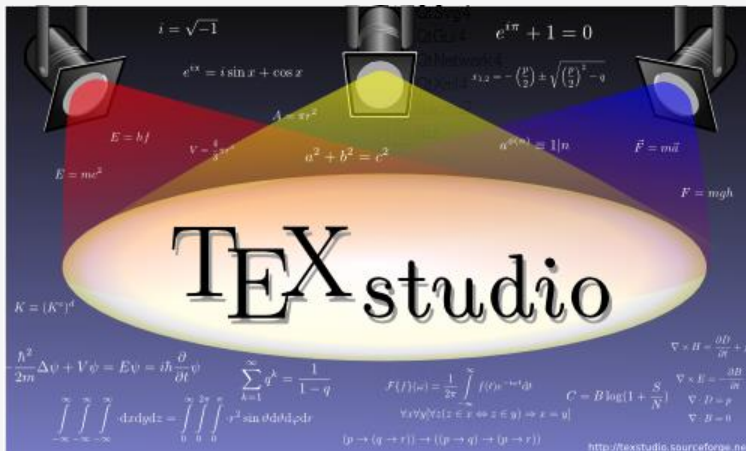


Few Instructions

- 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

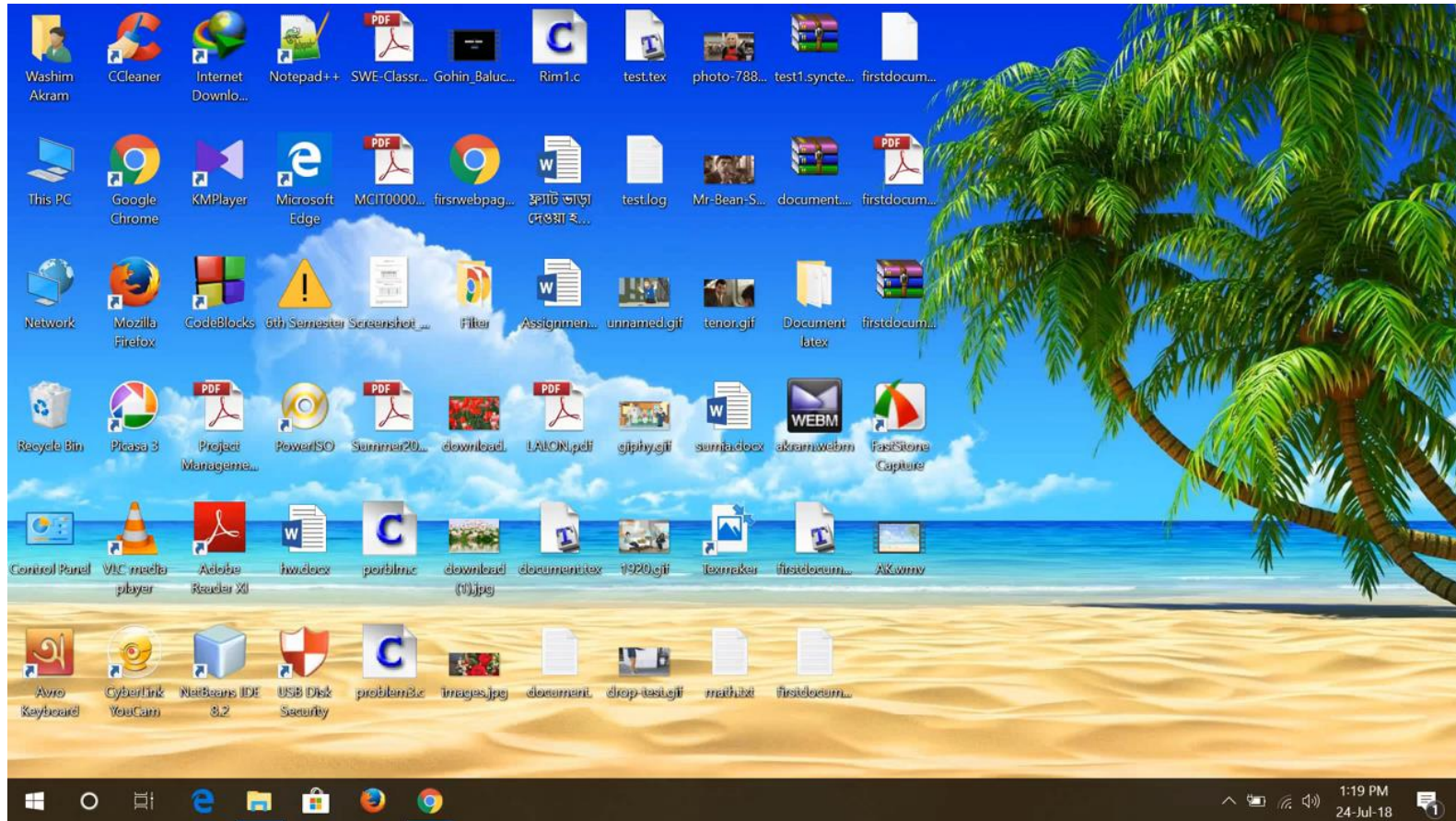
Common LaTeX Editors used

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





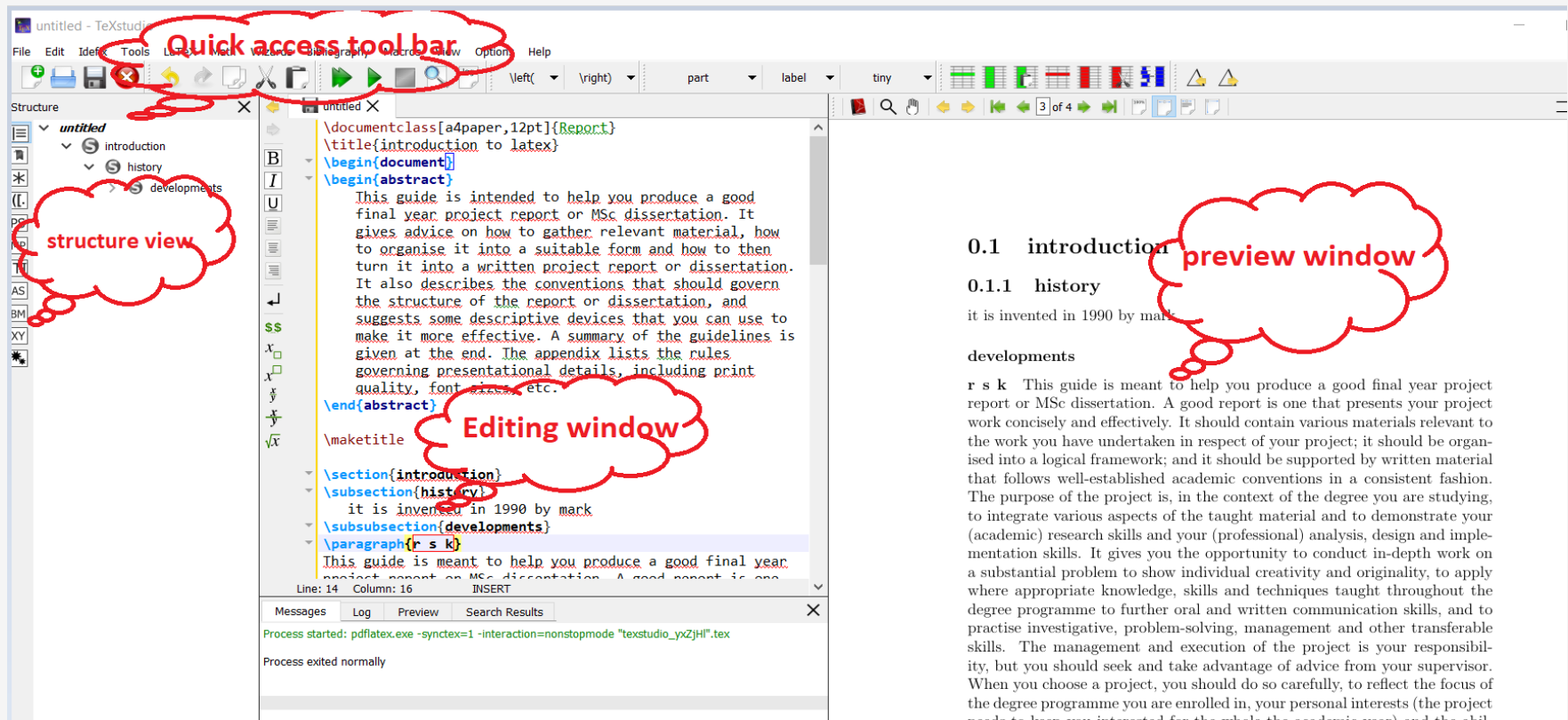
MiKTeX software installation



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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

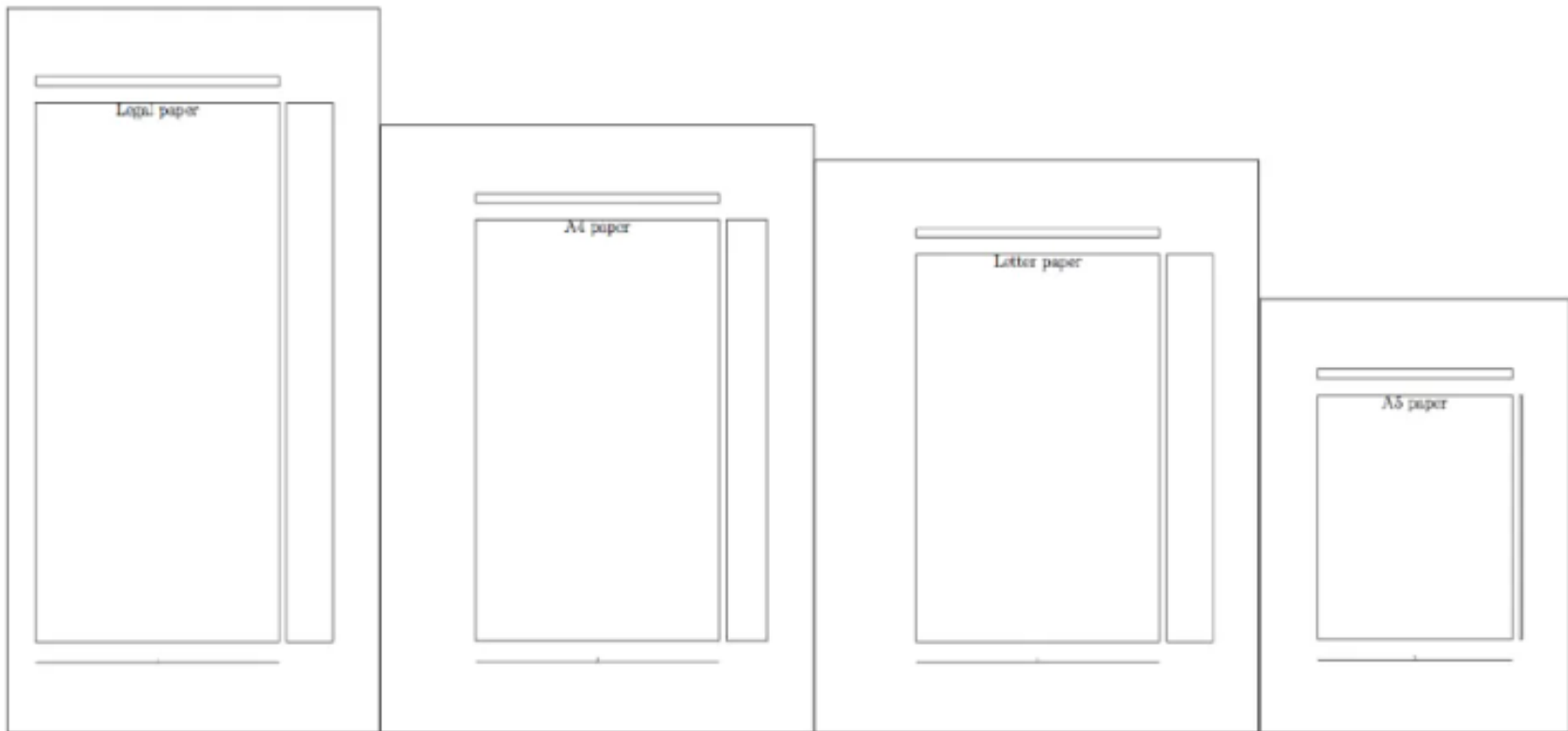
```
1 \documentclass[12pt]{article}
2 \usepackage{blindtext}
3 \begin{document}
4 \blindtext
5 \end{document}
```



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}
```





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

Lorem ipsum dolor sit amet, consectetur 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, consectetur adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam

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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 equivalent to:

Program:

`\title{This is my title}`

`\maketitle`

Example:

This is an article

February 7, 2013

Abstract

Lorem ipsum dolor sit amet, consectetur 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, consectetur 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

```
1 \documentclass{article}
2 \usepackage{blindtext}
3 \title{This is an article}
4 \begin{document}
5 \maketitle
6 \begin{abstract}
7 \blindtext
8 \end{abstract}
9 \end{document}
```



Session 03

Thursday, December 9,
2021

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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)



Code to add images

- `\begin{figure}`

...

...

...

`\end{figure}`

- To give path to image:

`\includegraphics[option1,option2]{imagename.imageformat}`



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}
```

How to insert a table

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

```
\begin{table}[h]
\centering
\begin{tabular}{|l|c|r|}
\hline
Apple & Ball & sdd \\
Cat & Dog & ijj \\
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-supplied 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