

# LaTeX

PHSG SEM 3 AND 5

PAPER : SEC A1

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# PACKAGES

- THERE ARE SOME FUNCTIONS WHERE BASIC LATEX CANNOT PROCESS THE COMMANDS AS WE NEED.
- FOR EXAMPLE, IF WE WANT TO INCLUDE GRAPHICS OR COLOURED TEXT OR ANY OTHER SPECIAL TEXT STYLES YOU NEED TO ENHANCE THE CAPABILITIES OF LATEX.
- SUCH ENHANCEMENTS ARE CALLED PACKAGES.
- SOME PACKAGES COME WITH THE LATEX BASE DISTRIBUTION. OTHERS ARE PROVIDED SEPARATELY. MODERN LATEX DISTRIBUTIONS COME WITH A LARGE NUMBER OF PACKAGES PRE-INSTALLED.
- THE COMMAND TO USE A PACKAGE IS:

```
\usepackage[options]{package}
```

# PACKAGES (contd.)

- THE COMMAND TO USE A PACKAGE IS:

```
\usepackage[options]{package}
```

COMMAND, WHERE PACKAGE IS THE NAME OF THE PACKAGE AND OPTIONS IS A LIST OF KEYWORDS THAT APPLY THE SPECIAL FEATURES IN THE PACKAGE.

- FOR EXAMPLE, TO USE THE COLOR PACKAGE, WHICH LETS US TYPESET IN COLORS, THE SYNTAX TO BE USED IS:

```
\documentclass{article}
```

```
\usepackage{color}
```

```
\begin{document}
```

...

```
\end{document}
```

- WE CAN USE SEVERAL OPTIONS TO A PACKAGE, EACH SEPARATED BY A COMMA:

```
\usepackage[option1,option2,option3]{"package_name"}
```

# THE DOCUMENT ENVIRONMENT

- TOP MATTER
- ABSTRACT
- SECTIONING COMMANDS
- ORDINARY PARAGRAPHS
- TABLE OF CONTENTS
- BIBLIOGRAPHY



# TOP MATTER

- AT THE BEGINNING OF A DOCUMENT THERE WILL BE INFORMATION LIKE THE TITLE AND DATE, AND THE NAME, ADDRESS, EMAIL, ETC. OF THE AUTHORS.
- ALL OF THIS TYPE OF INFORMATION WITHIN LATEX IS COLLECTIVELY REFERRED TO AS TOP MATTER.
- EXAMPLE:

```
\documentclass[12pt,a4paper]{article}
\begin{document}
    \title{this is my first latex document}
    \author{andrew roberts}
    \date{September 19, 2023}
    \maketitle
\end{document}
```

# TOP MATTER

- IF YOU OMIT THE `\date` COMMAND, LATEX USES TODAY'S DATE BY DEFAULT.
- ALWAYS FINISH THE TOP MATTER WITH THE `\maketitle` COMMAND, WHICH TELLS LATEX THAT IT'S COMPLETE AND IT CAN TYPESET THE TITLE ACCORDING TO THE INFORMATION PROVIDED.
- IF `\maketitle` COMMAND IS OMITTED, THE TITLE WILL NEVER BE TYPESET.

This is my first LaTeX Document

Andrew Roberts

September 19, 2023

# TOP MATTER

- ANOTHER EXAMPLE:

```
\documentclass{article}

\begin{document}

    \title{How To Structure A LaTeX Document}

    \author{Sunetra Das\\
    Department of Physics,\\
    Maharaja Manindra Chandra College,\\
    20, Ramkanto Bose Street,\\
    Kolkata – 700003.\\}

    \date{\today}

    \maketitle

\end{document}
```

# OUTPUT

## How To Structure A L<sup>A</sup>T<sub>E</sub>X Document

Sunetra Das  
Department of Physics,  
Maharaja Manindra Chandra College,  
20, Ramkanto Bose Street,  
Kolkata – 700003.

September 18, 2023

# TOP MATTER

- THE DOUBLE BACKSLASH (\\\) IS THE LATEX COMMAND FOR FORCED LINEBREAKS.
- IF THERE ARE TWO AUTHORS SEPARATE THEM WITH THE \and COMMAND:

```
\documentclass{article}  
\begin{document}  
    \title{Our First Document}  
    \author{Jane Doe \and John Doe}  
    \date{ }  
    \maketitle
```

We have now added a *title*, *author* and *date* to our first LaTeX document!

```
\end{document}
```

# OUTPUT

## Our First Document

Jane Doe      John Doe

We have now added a title, author and date to our first LaTeX document!

- TO OMIT DATE, THE `/date{}` COMMAND WITHOUT ANY ARGUMENT OR SPACE AS ARGUMENT TO BE USED.

# ABSTRACT

- THIS COMMAND IS AVAILABLE FOR THE DOCUMENT CLASSES ARTICLE AND REPORT, BUT NOT BOOK.
- RESEARCH PAPERS HAVE AN ABSTRACT, SO THERE ARE PREDEFINED COMMANDS IN LATEX FOR THE ABSTRACT.
- THIS SHOULD APPEAR AFTER THE TOP MATTER, BUT BEFORE THE MAIN SECTIONS OF THE BODY.
- EXAMPLE:

```
\documentclass{article}
```

```
\begin{document}
```

```
  \begin{abstract}
```

*Your abstract to be written here...*

```
  \end{abstract}
```

```
\end{document}
```

# ABSTRACT

- BY DEFAULT, “ABSTRACT” IS THE TITLE FOR THE ABSTRACT.
- TO CHANGE IT INTO ANYTHING ELSE, e.g. “EXECUTIVE SUMMARY”, THE FOLLOWING LINE HAS TO BE ADDED BEFORE THE ABSTRACT ENVIRONMENT:

```
\renewcommand{\abstractname}{Executive Summary}
```

- EXAMPLE:

```
\documentclass{article}  
\begin{document}  
  \renewcommand{\abstractname}{Executive Summary}  
  \begin{abstract}  
    Your abstract to be written here...  
  \end{abstract}  
\end{document}
```

# OUTPUT

## Executive Summary

Your abstract to be written here...

## Abstract

Your abstract to be written here...