

# ▸ An introduction to LaTeX

Professional skills and  
group Study



# Why LaTeX?

- Use to write your reports (Professional skills and group study, second-year project, Final year project etc.)
- Scientists created it for scientists
  - a large community - guides and forums
  - packages and templates available
- It makes documents of high typographical quality
  - I especially scientific

# Benefit of Latex

- QUALITY: THE OUTPUT IS FAR MORE PROFESSIONAL THAN WITH ANY OTHER WORD
- PROCESSOR
- VERSATILITY: L<sup>A</sup>T<sub>E</sub>X HAS A WIDE SELECTION OF PACKAGES TO EXTEND ITS
- POTENTIAL
  - B<sup>I</sup>B<sub>T</sub>E<sub>X</sub>, A<sub>M</sub>S<sub>M</sub>A<sub>T</sub>H, G<sub>R</sub>A<sub>P</sub>H<sub>I</sub>C<sub>X</sub>, T<sub>I</sub>K<sub>Z</sub>
- SEPARATION OF CONTENT AND STYLE: L<sup>A</sup>T<sub>E</sub>X USES A DOCUMENT STYLE,
- HENCE YOU DO NOT NEED TO APPLY FORMATTING
- SCALABILITY: YOU CAN SPLIT UP LARGE DOCUMENTS INTO SMALLER ONES
- STABILITY: IT DOES NOT CRASH AND THERE IS NO RISK OF YOU LOOSING THE
- ORIGINAL TEXT



# How does it work

- You write the document in plain text with special commands
- You can process the text and commands to obtain a beautifully formatted document.



And much  
more

## Formal letters

02150 Espco

**Welcome to XYZ Programme**

Dear Teemu,

This is the first paragraph of this sample letter. To learn some more, do visit <http://www.donain.com>.<sup>1</sup>

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Duis non lectus  
 est. Ut hendrerit imperdiet massa at rutrum. Etiam ligula nibh, rutrum  
 sed fermentum dapibus, eleifend eget massa. Proin viverra, justo quis  
 auctor viverra, mi eros tristique justo, quis trincidunt libero lectus id tortor.  
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 feugiat eget non leo. Nam sit amet velit diam, at trincidunt lectus. Aliquam  
 erat volutpat. Sed blandit, nibh eget trincidunt aliquam, diam enim tristique  
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<sup>17</sup>Etiam utrices tempus nixi, a portitor nial malesuada conuelli. Cum socia natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Cras nec nulla ac tellus rubrum condimentum. Nullam placerat, dolor a utrices blandit, neque elit tringia arcu, a dignipsum ipsum urna non magna. Cras sed tellus lorem. Nunc rursus leo, mattis ac malesuada id, adipiscing ac massa. Integer id lorem arcu.

## Presentations

## Résumé/CV

# Outcomes

At the end of the 2 weeks, you should be able to know how to do:

- Headings
- Cross references
- Bibliography
- Next list
- Figure
- Tables
- Equations and Maths formulas
- Theorem and Lemma Environment



# Install latex

Download software.

- <https://www.latex-project.org/get/>

LaTeX online

- <https://www.overleaf.com/>
- <https://latexbase.com/>
- *Please do not use the university email when you use Overleaf if you want to use it. It does not comply with GDPR University regulations.*



# 1<sup>st</sup> Latex document

- Start the document with `\documentclass` – type of document.
- Content between `\begin{document}` and `\end{document}`

```
\documentclass[]{article}  
\begin{document}  
This is my first document  
\end{document}
```



This is my first document

# Latex Special characters

- *Latex uses the following characters as commands*
- *% percent sign*
- *# hash (pound / sharp) sign*
- *& ampersand*
- *\$ dollar sign*
- To write these characters as the text `\$ \%; \& \#!`



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# INSTRUCTIONS

Go to your BLACKBOARD >> Professional Skills and Group Study  
>> Content >> Week3-Latex

1. Download the all-les.zip folder
2. save the content in a new folder LATEX on your computer.



# Example1: simple document

- Go to week 3/Latex in class exercise/

Instructions:

- Save 1first.tex as my1first.tex. Open 1first-r.pdf. Write over my1first to make output my1first.pdf similar to 1first-r.pdf

# Example1: first-r.pdf looks like:

## Intro

This is all about me. Me-me-me. *Me.* **me.** mini-me.

## 1 How I spent last summer

### 1.1 June

Exams, examinations, more exams, examinations.  
Then more exams. (Note: new paragraph.)

### 1.2 July

Hot or not.

## 2 How summer ended

It became less hot.



## Exercise 2:

- Save 2second.tex as my2second.tex.
- Open 2second-r.pdf.
- Write over my2second.tex to make the output my2second.dvi/pdf as in (similar to) 2second-r.pdf ('reverse engineering')
- Use labels! Not 'manually' numbers for sections;
- Use \cite commands, not simply type [1],[2]. Build.

## Exercise 3: Mathematical formulae

- Open 3third.tex.
- Read about formulae. Build and view the result
- Save3third.tex as my3third.tex.
- Open3third-r.pdf.
- Reverse-write an input file by writing over my3third.



## Exercise 4: environments

- Open 4fourth.tex.
- Build and view the result.
- Save 4fourth.tex. as my4fourth.tex.
- Open 4fourth-r.pdf
- Reverse-write an input file by writing over my4fourth.

## Exercise 5: tables

- Open 5fifth.tex.
- Build and view the result.
- Save 5fifth.tex as my5fifth.tex
- Open 5fifth-r.pdf
- Reverse-write an input file by writing over my5fifth.

## Exercise 6: lists

- Open 6sixth.tex.
- Build and view the result.
- Save 6sixth.tex as my6sixth.tex
- Open **6sixth-r.pdf**
- Reverse-write an input file by writing over my6sixth.
- Use environments, not ‘manual’ numbers!



## Exercise 7: figures

- Open 7seventh.tex.
- Build and view the result.
- Save 7seventh.tex as my7seventh.tex.
- Open **7seven-r.pdf**.
- Reverse-write an input file by writing over my7seventh.

# Document Structure

- Start the document with `\documentclass` – type of document.
- Metadata `\title` or `\author` and package in the preamble.
- Content between `\begin{document}` and `\end{document}`
- `\maketitle` command creates the title.
- `\section` created the numbered sections.