# LaTeX

Missing session lecture 3

TeX

- Initially developed by **Donald Knuth**

    – 1974 winner of the *Turing Award*

    – The author of...

        - *The Art of computer programming*

            – While writing the book...

            – Old typesetting system bothered him!!

            – Why he developed TeX

            – However...

                » The book hasn't finished yet...

                » And Knuth is 82 years old...

THE CLASSIC WORK
NEWLY UPDATED AND REVISED

The Art of
Computer
Programming
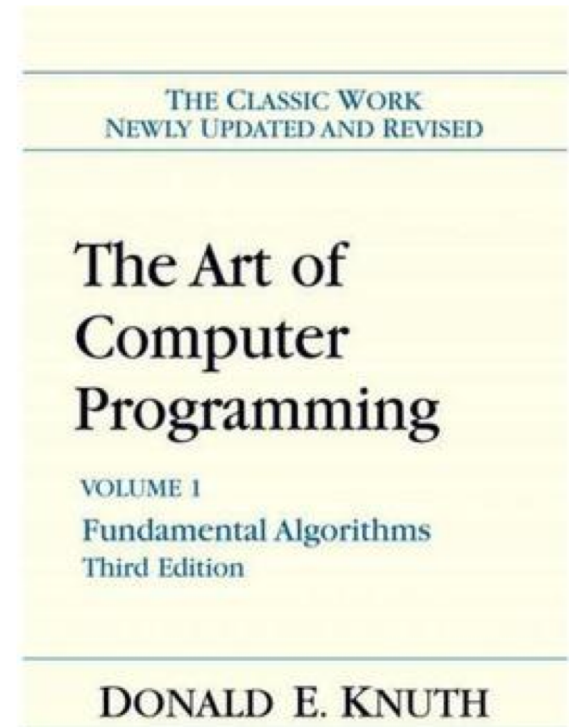
VOLUME 1

Fundamental Algorithms
Third Edition

DONALD E. KNUTH

TeX

- TeX is a system formatted for Knuth himself

- Complicated and hard to learn!!

- Therefore, people developed macro system to support TeX..

- ***LaTeX!!***

LaTeX

- Initially developed by **Lesile Lamport**

  – 2013 winner of Turing award

    - Due to his contribution at *Distribution system*

- Pronunciation??

  – Lesile Lamport wrote in the manual…

    - One of the hardest things about LaTeX is deciding how to pronounce it. This is also one of the few things I'm not going to tell you about LaTeX, since pronunciation is best determined by usage, not fiat. **TeX** is usually pronounced *teck*, making *lah*-**teck**, and *lay*-**teck** the logical choices; but language is not always logical, so *lay*-**tecks** is also possible.

LaTeX

- Now became…

  – The most famous system to write technical document!!

  – Widely used in Academia

    - for the communication / publication of scientific documents in many fields

  – Started as a writing tool for mathematicians and computer scientists

  – It is now widely used to write documents that include

    - complex math expressions

    - non-Latin scripts

    - Lots of references

    - Lots of figures

    - Complex figures / algorithms

LaTeX

- LaTeX vs. MS Word

LaTeX	MS Word
WYSIWYM (What you see is what you mean)	WYSIWYG (What you see is what you get)
Automated layout generation	Manually generates layout
Slow for simple, short docs	Fast for simple, short docs
Convenient for complex docs	Inconvenient for complex docs
Hard to learn	Easy to learn
Turing-complete	???
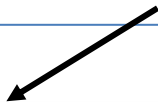
basix

Visit

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Documentation

A BASIC interpreter written in TeX.

An interpreter for the BASIC language is developed entirely in TeX. The interpreter presents techniques of scanning and parsing that are useful in many contexts where data are to be formatted by TeX, but contain no formatting directives.

The author is Andrew Greene. The package is Copyright © 1990 Andrew Marc Greene.

*License: **noinfo** Version dated: **1991-01-08** Catalogued: **2012-05-17***

LaTeX

- Why we should learn LaTeX?

  - (Maybe) you're studying science || engineering

    - You ~~might~~ should write technical doc someday

    - LaTeX will be the best system!!

  - It's fun!!

    - According to the research...

    - Novice Word users generates doc faster than expert LaTeX users

    - Although, LaTeX users *enjoys* using LaTeX!!

  - Generates beautiful document!!

LaTeX

- Why powerful??

  – Powerful math formula typesetting system

    - the LaTeX math formula system is now became the standard

      – MS Word, HWP, Markdown...

  – Easy / convenient citation system

    - can check / verify citation easily

    - BibTeX

  – Easy to generate / manage table, figure, enumeration...

LaTeX

- Example (from Wikipedia)

```latex
\documentclass{article}
\usepackage{amsmath}
\title{\LaTeX}

\begin{document}
    \maketitle
    \LaTeX{} is a document preparation system for the \TeX{} typesetting program. It
    offers programmable desktop publishing features and extensive facilities for aut
    omating most aspects of typesetting and desktop publishing, including numbering
    and cross-referencing, tables and figures, page layout, bibliographies, and much
    more. \LaTeX{} was originally written in 1984 by Leslie Lamport and has become t
    he dominant method for using \TeX; few people write in plain \TeX{} anymore. The
    current version is \LaTeXe.
    % This is a comment, not shown in final output.
    % The following shows typesetting power of LaTeX:
    \begin{align}
        E_0 &= mc^2 \\
        E &= \frac{mc^2}{\sqrt{1-\frac{v^2}{c^2}}}
    \end{align}
\end{document}
```

LaTeX

- ## Example (from Wikipedia)

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```

LATEX

LATEX is a document preparation system for the TEX typesetting program. It offers programmable desktop publishing features and extensive facilities for automating most aspects of typesetting and desktop publishing, including numbering and cross-referencing, tables and figures, page layout, bibliographies, and much more. LATEX was originally written in 1984 by Leslie Lamport and has become the dominant method for using TEX; few people write in plain TEX anymore. The current version is LATEX 2_ε.

$$E_0 = mc^2 \tag{1}$$

$$E = \frac{mc^2}{\sqrt{1-\frac{v^2}{c^2}}} \tag{2}$$

LaTeX

- Easiest way to learn LaTeX…

- Is to use it!!

- You'll now generate simple LaTeX document!!

- Sample: https://jeonhyun97.github.io/cpp_4_undergraduates/missing_session/lecture3/latex/doc.pdf

- Template: https://github.com/jeonhyun97/cpp_4_undergraduates/blob/master/missing_session/lecture3/latex/doc.tex

- Latex math symbol: https://jeonhyun97.github.io/cpp_4_undergraduates/missing_session/lecture3/latex/LaTex%20Math%20Symbols.pdf

- Document: https://www.overleaf.com/learn/latex/Creating_a_document_in_LaTeX

- Image: https://jeonhyun97.github.io/cpp_4_undergraduates/missing_session/lecture3/latex/fermat.jpg

- MISSON: DUPLICATE the Sample document!!

Thank you!!

contact: jeonhyun97@postech.ac.kr