LATEX 기본사용법

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INTRODUCTION

- *LaTeX* is a family of programs designed to produce publication-quality typeset documents.
- Strong in mathematical symbol
- Tex in 1978 by Donald Knuth
- *LaTex*, a variant of Tex by Leslie Lamport

REQUIRED COMPONENTS OF A DOCUMENT

- \documentclass{}
  - article, report, book, letter, beamer
  - beginning of the document
  - *Preamble*: space between \documentclass{} and \begin{document}
  - Required information in {}
  - Optional information in []
    - ex) \documentclass[11pt]{article}
- \begin{document}
  - The body of the document must occur between \begin{document} and \end{document}
- \end{document}

EXAMPLE

```
\documentclass{article}
\begin{document}
This is my \emph{first} document I have ever written in \LaTeX. I typed it on \today.
\end{document}
```

SIMPLE TYPESETTING

- Words must be separated by *spaces* (does not matter how many)
- The end of a paragraph is specified by a *blank line* in the input.
- Space
  - ~
  - ex. You can make sp~~~aces intentionally.
- Line breaking
  - \\
- Quotes
  - ex. Difference in right and left quotes in ‘single qootes’ and “double quotes”.

SIMPLE TYPESETTING

- Dashes
  - A single dash character in the input – produces a hyphen, two dashes, a longer dash, and three dashes --- the longest dash in the output
  - Ex. X-rays are discussed in pages 221--225 of Volume 3---the volume on electromagnetic waves

- Bold, italics and underlining
  - ex. Some of the \textbf{greatest} discoveries in \underline{science} were made by \textbf{\textit{accident}}.
  - ex. \textbf{Some of the greatest \emph{discoveries} in science were made by accident.}
- %, notation-out

TEXT POSITIONING

```
\begin{center}
 The Ulsan University\\[.75cm]
Certificate
\end{center}
\noindent This is to certify that you has undergone a course at this institute
and is qualified to be a \TeX nician.
```

SYMBOLS

α	\alpha	θ	\theta	o	o	τ	\tau
β	\beta	ϑ	\vartheta	π	\pi	υ	\upsilon
γ	\gamma	γ	\gamma	ϖ	\varpi	ϕ	\phi
δ	\delta	κ	\kappa	ρ	\rho	φ	\varphi
ϵ	\epsilon	λ	\lambda	ϱ	\varrho	χ	\chi
ε	\varepsilon	μ	\mu	σ	\sigma	ψ	\psi
ζ	\zeta	ν	\nu	ς	\varsigma	ω	\omega
η	\eta	ξ	\xi				
Γ	\Gamma	Λ	\Lambda	Σ	\Sigma	Ψ	\Psi
Δ	\Delta	Ξ	\Xi	Υ	\Upsilon	Ω	\Omega
Θ	\Theta	Π	\Pi	Φ	\Phi		

- And many others

BASIC EQUATIONS

- Line mode
  - \(\), $ $ or \begin{math} \end{math}
- Display mode
  - \[\], $$ $$, \begin{displaymath} \end{displaymath} or \begin{equation} \end{equation}
  - ex. The well known Pythagorean theorem \(x^2 + y^2 = z^2\) was proved to be invalid for other exponents. Meaning the next equation has no integer solutions: \[x^n + y^n = z^n \]
  - ex. In physics, the mass-energy equivalence is stated by the equation $E=mc^2$, discovered in 1905 by Albert Einstein.
  - ex. The mass-energy equivalence is described by the famous equation $$E=mc^2$$ discovered in 1905 by Albert Einstein. In natural units (c = 1), the formula expresses the identity \begin{equation} E=m \end{equation}

SECTIONS

- One of the most important ways of creating structure in document is to split it into logical sections.
  - \section{sectiontitle}
    - Numbers the sections
  - \section*{sectiontitle}
    - Does not number the sections
- Table of Contents
  - \tableofcontents
    - After \begin{document} command
    - Need to run *LaTeX* twice

CROSS-REFERENCES

- \label{name}
  - To label the point to that point
- \ref{name}
  - Will be replaced by the number of the section containing the corresponding \label command.
- Need to run *LaTex* twice to generate these references

CREATING A TITLE PAGE

- In the preamble of the document
  - \title{yourtitle}
  - \author{yourname}
  - \date{yourdate}
- \maketitle
  - Generate title heading
  - Immediately after the \begin{document}

PAGE NUMBERING AND HEADINGS

- \pagestyle
  - Controls page numbering and headings
  - Always is placed in preamble
  - \pagestyle{plain}
    - Puts the page number at the center of the bottom of the page, and provides no headings (default).
  - \pagestyle{empty}
    - Provides neither page numbers nor headings.
  - \pagestyle{headings}
    - Provide numbers and headings from any \section's that are used.