Based on slides by Andreas Klappenecker
Tripitaka Koreana

Palman Daejanggyeong ("Eighty-Thousand Tripitaka")

South Korean collection of Buddhist scriptures

Carved onto 81,258 wooden printing blocks in the 13th century

The world’s most comprehensive and oldest intact version of Buddhist canon in Hanja script, with no known errors or errata in the 52,382,960 characters
Haeinsa - UNESCO World Heritage Site
Gutenberg

- Johannes Gutenberg
- Introduced **movable** metal type to Europe (in around 1439)
- Invented the printing press
- Started a revolution in printing in Europe
Gutenberg Bible

Gutenberg demonstrated his printing technology by printing a complete bible.

The Gutenberg bible was produced at a significantly lower cost than hand copying.

Still, cost: about 3 years salary of a clerk per bible.

1978: Copy sold for $2.2million
... Genes.

... et cetera. Terra autem erat inanis et vacua; et terrae erat super facies abisit et spiritus de ierea et super aquas. Dixit deus, Fiat lux, et fuit lux.

Et vidit deus lucem et sol est bonum; et dividit lucem de solibus et terrae erat super sacrificium. Dixit deus, Fiat firmamentum in medio aquarum et dividet aquis ab aquis. Dixit deus, Fiat firmamentum divisi; et terrae erat sub firmamento ab his que erant super firmamentum; et faciam est terra. Praebuit deus firmamentum eis; et terrae erat et super terrae erat divinito. Dixit vero deus, Congregetur aquae que sub relo hemat in locum unius et apparet arida. Dixit et faciam est terra. Praebuit deus aridam terram et congregaverunt aquae apellavit Maria. Et vidit deus quae esset bonum, et ait, Hemina terea herba et fructum et semen et ligni et pomi sice faciam et lucem super terram et faciam est terra. Praebuit deus et procut terrae et dixit deus, Terra est.
Fast Forward to 1974

Academic books often a mix of handwritten symbols (e.g. formulas) and typeset symbols.

Note the arrows...
Fast Forward to 2011

(Homework Submission)

The scan is a faithful reproduction of the submission! It remains a mystery how the TA was able to read it.
2 Features

Both \TeX and \LaTeX allow for accents, and excel at typesetting mathematical equations, in-line or displayed on a line by itself. For instance, an article on quadratics may need

\[ ax^2 + bx + c = 0 \implies x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}, \]

or an article on complex analysis may include \( e^{i\theta} = \cos \theta + i\sin \theta \).
Knuth

Don Knuth illustrates the mathematical typesetting with TeX by writing the bible of computer programming:

Four volumes published so far:
1984: LaTeX

- In 1984, Leslie Lamport writes the markup language LaTeX that makes TeX particularly easy to use.

- Key feature: The document is organized according to its structure (e.g. Title, Chapter, Sections, etc.)

- The language is easy to learn

- Available on virtually all computing platforms
LaTeX

- Computer programmers will feel right at home: The document is produced by a program.
- The language can be customized with macros
- Typesetting of formulas is easy: Once you understand the main features, most formulas are quickly written in LaTeX
- Much faster than any formula editor
Structure of a LaTeX Document

\documentclass{article}
% macro definitions
\begin{document}
% text comes here
\end{document}

Comments begin with %

Commands start with \
LaTeX Example

\documentclass[12pt]{article}
\usepackage{amsmath}
\title{LaTeX}
\date{}
\begin{document}
\maketitle
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 LaTeXe.

% This is a comment; it will not be shown in the final output.
% The following shows a little of the typesetting power of LaTeX:
\begin{align}
E &= mc^2 \\
m &= \frac{m_0}{\sqrt{1-\frac{v^2}{c^2}}} 
\end{align}
\end{document}
Emphasizing Text

This is a \textbf{bold} text \\ 
This is a \textit{text} in italics \\ 
This is a \textsl{slanted} text

This is a bold text
This is a text in italics
This is a slanted text
Inline Mathematics

You can write a text and within the text you can have inline mathematical formulas, such as $\sqrt{x^2+1}$, that are simply enclosed in single dollar signs.

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Displayed Mathematics

Important equations can be set in double dollar signs, for example
$$ y = \sqrt{x^2+1}, $$
and will be displayed as a centered equation.

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$$ y = \sqrt{x^2 + 1}, $$
and will be displayed as a centered equation.
Numbering Equations

A numbered equation
\begin{equation}\label{eqn}
z^2 = x^2 + y^2.\end{equation}
It follows from equation (\ref{eqn}) that ...

A numbered equation
\[ z^2 = x^2 + y^2. \] (1)
It follows from equation (??) that ...
Suppose you have written a LaTeX document, say homework.tex

Compiling the document, typesetting, and creating a pdf file:
pdflatex homework.tex

View your document homework.pdf with some pdf viewer (e.g., ghostview homework.pdf, preview homework.pdf, ...)

Compiling LaTeX Documents
LaTeX Distributions

- Windows: MikTeX
- Mac: MacTeX
- Unix: Tex Live

Further information: [http://www.ctan.org/](http://www.ctan.org/)

Already installed on linux.cse.tamu.edu
Our problem sets will be assigned using a LaTeX file, say hw1.tex

The file will typically contain 10 problems

You add the solutions, your name, and all the resources that you have used.

Submit your homework solution to ecampus: hw1.tex and hw1.pdf (BOTH!!!)

Submit a hardcopy version of your hw1.pdf in class (no need to print out hw1.tex).