

Design and Analysis of Algorithms

CS255

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Outline

- What is LaTeX?

What is LaTeX?

- LaTeX is a markup language which can be used to specify how to typeset a document.
- It is used to prepare papers containing mathematical notation for publication.
- Most papers in theoretical computer science are written in LaTeX.

Sample Document

```
\documentclass[12pt]{article}
% create some commands of my own with people's names with accents
\newcommand{\Hastad}{H{\aa}stad}
\newcommand{\Pudlak}{Pudl{\a}k}
% define the title
\author{C. Pollett}
\title{Simple Document}
\begin{document}
% generates the title
\maketitle
\section{This is a section title}
Here is the first paragraph to be typeset by \LaTeX{}
```

Notice if I skip a line it starts a new paragraph. Backslash is used to escape special characters

like the dollar sign `\$`. A backslash is also used to begin a `\LaTeX{}` command.

For instance: one could write a greek letter `\alpha`. Notice we explicit left and right quotes. Double quotes are made using pairs of single quote `''`. The dollar

sign is used to start an inline math string. For example,

`$(a_i)^{2^2}$`. Simple displayed equations can be written by enclosing the equation in `\$`. For example,

`$$\sum_{i=1}^n 2^i.$$`

Notice braces are used to enclose inputs to a `\LaTeX{}` command. Here's an example of using user defined commands:

```
\Hastad, \Pudlak.
```

```
\section{My second Section}
```

```
\ldots{} as Razborov~\cite{razborov95a} said.
```

```
\begin{thebibliography}{25}
```

```
\bibitem{razborov95a}
```

A.A. Razborov.

```
\newblock Lower bounds for propositional proofs and independence results in
bounded arithmetic.
```

```
\newblock In {\em Proceedings of 20th International Symposium on the
Mathematical Foundations of Computer Science}, page 105. Springer-Verlag,
1995.
```

```
\end{thebibliography}
```

```
\end{document}
```

How to get/compile LaTeX

- Links to obtaining LaTeX can be obtained off the class page.
- There are also various GUI front ends which can be used to create a LaTeX file. WinEdt (Windows), TeXShop (for Mac).
- From the command line one can compile a latex document using a command like:
 - `latex document.tex` (produces a dvi file)
 - `pdflatex document.tex` (produces a pdf file)
- This assumes you have set up the paths to these commands.
- Once compiled you can view the file with a program like yap for dvi files or with acrobat for pdf files.