introduction

T_FX& METAFONT were developed by Dr. Donald E. Knuth and were Open Source since 1980. It is a typesetting application but an own programming language with over 300 commands as well. Everything is handled as a block. It supports multiple diacritics, dialects, etc. and was finished 1990 with version 3.14. Bugs haven't been found for a long time. It's OS & device independent and uses the .tex format, which is a DVI (Device-Independent) format. It has to be programmed for own use but there exist countless packages.

One of those packages is LATEX, originally developed by Leslie Lamport. It's a macropackage, tying up T_FXcommands to custom markup commands. Additionally, it gives a default for formatting and layout. It has become the standard for scientific publications, also due to its functionality and remarkable line- and pagebreak algorithm. It's current version is 2^e , 3 has been in development since 1989

essentials

\documentclass[options]{styles} left align math fleqn left align math num legno article no \part or \chapter (one) IEEE standard **IEEEtran** minimal min formatting slides presentation

\usepackage[options]{package}

structure

Between documentclass and document is Preamble, documentwide commands come there.

structure macros end at begin of new

level	macro
-1	<pre>\part{name}</pre>
0	\chapter{name}
1	\section{name}
2	\subsection{name}
3	\subsubsection{name}
4	<pre>\paragraph{name}</pre>
5	\subparagraph{name}

structure environments use common block syntax		\end{titlepage}		//	
<pre>\begin{document} \end{document}</pre>	All printed cont	tent \1	istoftables	les section types table envs figure envs	\newline justifi d \cep‡erin \raggedle
<pre>\begin{abstract} \end{abstract}</pre>	Short synopsis (special layout)	has content	can be omitted from	ro name	\raggedrig _cente
<pre>\begin{quote} \end{quote}</pre>	Special layout quotes			inside document can	\: ~ n
{ }	custom block	\secti	<i>be provide</i> [on[table name]		\smallski \medskip
Page style defines footer & \thispagestyle{empty} plain	y} no header n} same but p	age num-	formatti	ng	\bigskip n \newpage
headin	header (de	t maybe	text style \textbf{text} \textit{text}	e bold cursive	\clearpag \vfill
on class) \thispagestyle{myheadings} setup of ow		wn h & f	<pre>\texttt{text} \textsc{text}</pre>	typewriter SMALL CAPITALS	color!op
Additional structure manipulation commands exist. First 4 go into Preamble.			<pre>\textrm{text} \textsf{text}</pre>	roman font serif font	\noindent
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	lepth for section no pering lepth of sections ir		ed to be placed insid \Huge \huge	ie blocks/envs.	<pre>\noindent\makeb \linewidth]{\ru \nonemuidth]{0</pre>
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\pagemark p	eset counter to n prints pagenumber orce add structure		\Large \large \normalsi	ze	<pre>\verb arg \begin{verbatim} \end{verbatim}</pre>
<pre>\addcontentsline{toc}t {subsection}{name} r</pre>	able. Place in doc ones place in table	defi-	\small \footnotes \tiny	ize	\end{verbactiii}
titlepage			scale	e}{text}	

titlepage

Content to the title can be provided through: \title{string} \date{date} \author{author \and author2 \thanks{text}}

\maketitle

A custom titlepage can be generated as well, though everything needs to be done by hand then

\begin{titlepage}

special characters Most special characters can be escaped.

\textbackslash \^ \dq \textbar \textless < \textgreater \LaTeX **LATEX** \TeX $T_{E}X$

justificațion & spacew par					
\centering _{same}	centers block				
\raggedleft	rights block				
\raggedright	lefts block				
<pre>\begin{center}</pre>	new centered block				
١,	0.16667em space				
\:	default space				
~	newline-safe def				
\hspace{n}	n horizontal space				
\smallskip	small vert space				
\medskip					
\bigskip					
\vspace{n}	n vertical space				
\newpage	Ends column				
\clearpage	Ends page				
\vfill	Justifies content				
	vertically around				
misc					
\color{color!opacity}	removes indent				
\noindent					
	on line				
\parindent	sets indent for				
{n}	whole docu-				
	ment				
\rule{width}{thicknes	ss} horizontal line				
<pre>\noindent\makebox[</pre>	document span-				
\linewidth]{	ning line				
\paperwidth}{0.4pt}}	ming mile				
\work ara	inline macro dis-				
\verb arg	play				
<pre>\begin{verbatim}</pre>	multiline macro				

display

newline

linebreak, no par

\newline same

11010	
<pre>\begin{enumerate} \item entry 1 \item entry 2 \end{enumerate}</pre>	 entry 1 entry 2
<pre>\begin{itemize} \item entry 1 \item entry 2 \end{itemize}</pre>	• entry 1 • entry 2
<pre>\begin{description} \item [name1] entry 1 \item [name2] entry 2 \end{description}</pre>	name1 entry name2 entry

lists

Can be used as horizontal list. Needs tasks and exsheets package.

\begin{question} question \begin{tasks}(columns) \task task 1 \task task 2 \end{tasks} \end{question

Übung 1.

task question?

a) answer 1

b) answer 2

Lists of same type can be nested as well. They'll have different stylization.

\begin{enumerate} \item entry 1 \begin{itemize} \item entry 1.1 \item entry 1.2 \end{itemize} \item entry 2 \end{enumerate}

- 1. entry 1
 - entry 1.1
 - entry 1.2
- 2. entry 2

floats

graphics

figure

tables

mathematics

environments

functions

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