The **datenumber.sty** package v0.03

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Abstract

This package provides commands to convert a date into a number. Turned around a date can be calculated also by a number. Additionally there are commands for incrementing and decrementing a date. Leap years and the Gregorian calendar reform are considered.

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1 Start year

The start of the counting is determined with `\setstartyear{year}` (standard 1800). The first day of the start year gets the number 1. The value of `startyear` must be greater 0. It may not be larger than the year of a date to be calculated. If the difference of date and `startyear` is large, the calculation can last for a long time. The correct setting of the weekdays is guaranteed only if the value of `startyear` is 1800, 1900 or 2000.

2 Counters

There are five counters defined

`datenumber`: number of the day

`dateyear`: year

`datemonth`: month

*The initial date was 2001/08/06 (version 0.02). That version corrects a small error in datenumberfrench.ldf and in datenumbersspanish.ldf.*
dateday: day

datedayname: weekday: 1–7 (Monday–Sunday)

3 Macros

3.1 Macros which operate with defined counters

All counters specified above are updated by these macros. \texttt{\textbackslash datedayname} and \texttt{\textbackslash datemonthname} are also updated.

\texttt{\textbackslash setdatenumber\{year\\}\{month\\}\{day\}}: Sets the counter \texttt{datenumber} to a value, which corresponds to the date.

\texttt{\textbackslash setdatebynumber\{number\}}: Sets the counters \texttt{dateyear}, \texttt{datemonth}, and \texttt{dateday} to values, which corresponds to the number.

\texttt{\textbackslash nextdate}: Sets the counters \texttt{dateyear}, \texttt{datemonth}, and \texttt{dateday} to the next date.

\texttt{\textbackslash prevdate}: Sets the counters \texttt{dateyear}, \texttt{datemonth}, and \texttt{dateday} to the previous date.

\texttt{\textbackslash set\{year\\}\{month\\}\{day\}}: Sets the counters \texttt{dateyear}, \texttt{datemonth}, and \texttt{dateday} to \texttt{year}, \texttt{month}, and \texttt{day}.

\texttt{\textbackslash setdatetoday}: Sets the counters \texttt{dateyear}, \texttt{datemonth}, and \texttt{dateday} to the current date.

\texttt{\textbackslash datemonthname}: typesets the month (see section 3.3).

\texttt{\textbackslash datedayname}: typesets the weekday (see section 3.4).

\texttt{\textbackslash datedate}: typesets the date, corresponding to the counters \texttt{dateyear}, \texttt{datemonth}, \texttt{dateday}.

3.2 Macros which operate with your own counters

Only the counters you specified are updated by these macros. \texttt{\textbackslash datedayname} and \texttt{\textbackslash datemonthname} are not updated.

\texttt{\textbackslash setmydatenumber\{numbercount\}\{year\\}\{month\\}\{day\}}: Sets the counter \texttt{numbercount} to a value, which corresponds to the date.

\texttt{\textbackslash setmydatebynumber\{number\}\{yearcount\\}\{monthcount\\}\{daycount\}}: Sets the counters \texttt{yearcount}, \texttt{monthcount}, and \texttt{daycount} to values, which corresponds to the number.

\texttt{\textbackslash mynextdate\{yearcount\\}\{monthcount\\}\{daycount\}}: Sets the counters \texttt{yearcount}, \texttt{monthcount}, and \texttt{daycount} to the next date.

\texttt{\textbackslash mynextdate\{yearcount\\}\{monthcount\\}\{daycount\}}: Sets the counters \texttt{yearcount}, \texttt{monthcount}, and \texttt{daycount} to the previous date.

3.3 Month

The command \texttt{\textbackslash datemonthname} typesets the month. It is updated by macros described in section 3.1. You can do this by your own saying \texttt{\textbackslash setmonthname\{number\}}.

3.4 Weekday

To typeset the weekday say \texttt{\textbackslash datedayname}. This command is updated by macros described in section 3.1. You can do this by your own saying \texttt{\textbackslash setmonthname\{number\}} (1 for Monday and 7 for Sunday). You can also write \texttt{\textbackslash setdaynamebynumber\{number\}}, were \texttt{number} is the number of a date. If \texttt{startyear} is set to 1800, 1900 or 2000 the calculation of the weekday will work.
4 Language

The language options \texttt{english}, USenglish (standard), french, spanish, german, and ngerman are supported. Say \texttt{\dateselectlanguage{language}} to select a language. For other languages: Create a file datenumbermylanguage.ldf. Copy the text from datenumberdummy.ldf. Replace every "dummy" with "mylanguage" and change the months and weekdays. Say \texttt{\usepackage{datenumber} \input{datenumbermylanguage.ldf}} in your document.

5 Examples

\begin{verbatim}
\setdate{2002}{1}{1}%
\thedatenumber

Result: 73780

\setdatetoday
\setdatebynumber\thedatenumber% In 10 days is \datedate

Result: In 10 days is February 6, 2022

\newcommand{\daydifftoday}[3]{%
  \setmydatenumber{dateone}{\the\year}{\the\month}{\the\day}%
  \setmydatenumber{datetwo}{#1}{#2}{#3}%
  \addtocounter{datetwo}{-\thedateone}%
  \thedatetwo
}

\daydifftoday{\the\year}{12}{25}

Result: There is still 332 days to Christmas.
\end{verbatim}
\newcommand{\sd}{\% 
\ifcase\thedatedayname \or 
 Mon\or Tue\or Wed\or Thu\or 
 Fri\or Sat\or Sun\fi 
}\%

\newcommand{\pnext}{\% 
\thedateyear/% 
\ifnum\value{datemonth}<10 0\fi 
\thedatemonth/% 
\ifnum\value{dateday}<10 0\fi 
\thedateday\% 
\nextdate 
}

\setdate{2001}{9}{29}\%
\begin{tabular}{lll}
\sd & \pnext & Abc \\
\sd & \pnext & Def \\
\sd & \pnext & Ghi \\
\sd & \pnext & Jkl \\
\end{tabular} 
Result: 
Sat 2001/09/29 Abc 
Sun 2001/09/30 Def 
Mon 2001/10/01 Ghi 
Tue 2001/10/02 Jkl 

6 Other

• leap year test

The \the\year is 
\ifleapyear{\the\year} a \else no \fi leap year. 
Result: The 2022 is no leap year.

• date test

The 29.2.1900 is 
\ifvaliddate{1900}{2}{29} a \else no \fi valid date. 
Result: The 29.2.1900 is no valid date.¹

¹There are programs, which have another opinion about that. Search for "Gregorian calendar" in order to get more information about leap years and October 5, 1582