

# L<sup>A</sup>T<sub>E</sub>X

## A Bar Chart in L<sup>A</sup>T<sub>E</sub>X

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Frequently, a bar chart type of presentation of results is very handy. However, if this requires outside assistance, then it may become a time-consuming operation. In the following, a simple scheme is presented, which allows one to make up such a chart in a very short time. The `picture` environment in L<sup>A</sup>T<sub>E</sub>X is used. The procedure was developed originally as a result of keeping track of expenses related to computing costs. Due to the simplicity of the program, modifications for other applications are easy to make.

The essence of the procedure is the `m` macro, which, for each month, writes out the text for identification, then draws the various representations of the data. The macro uses four parameters the last 3 of which are  $x$ -coordinates in a L<sup>A</sup>T<sub>E</sub>X `picture` environment. See the chart on the following page for an example. The parameters are:

- #1 This is the text for identification which could be the name of the month, or any number. This field is put to the left of the bars in a box, flush right. As can be seen from the example for July, font changing commands are possible.
- #2 This number is depicted by a solid bar #2 units wide 2 mm high.
- #3 This number is the coordinate of the right end of a line centered vertically on the solid bar above.
- #4 This number is the coordinate of the right end of an open box of height 2 mm.

All values of parameters 2-4 are horizontal displacements from the origin of the enclosing `picture` environment. Thus, a value of 25 for parameter #2 will produce a bar 25 mm long.

If a remark is needed at some position, this can be done easily: the offset in the example is 100 mm.

### Brief Description

Counters `yo` and `yl` are assigned and initialised to fix the positions of the starting boxes and horizontal line drawn by `m`. The unit length is also set to 1 mm. The macro `m` draws the required boxes then decreases the counters by 10 mm, i.e. gets ready for the next bar. It must be noted here that, because of this reset in the macro, if a remark is required for an entry, then it must be done *before* the bar is

drawn. The date, to be placed at the bottom of the diagram, can be done easily as shown.

The final part of the program is to display some explanation in a **Legend** box. Most of the steps are self evident. The placement of the **Legend** box depends on the data presented. The values -55 and -128 are obtained by trial and error.

Following is a complete listing of the input.

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```

\documentstyle{article}

\setlength{\textwidth}{39pc}
\setlength{\textheight}{54pc}

\newcounter{dr}      \pagestyle{empty}
\newcounter{yo}      \setcounter{yo}{140}
\newcounter{yl}      \setcounter{yl}{141}
\setlength{\unitlength}{1mm}

\def\m#1#2#3#4{%
  \put(-5,{\arabic{yl}})}%
                                {\makebox(0,0)[r]{#1}}
  \put(0,{\arabic{yo}}){\framebox({#4},2){}}
  \put(0,{\arabic{yl}}){\line(1,0){#3}}
  \put({#3},{\arabic{yo}}){\line(0,1){2.1}}
  \linethickness{2.1mm}
  \put(0,{\arabic{yl}}){\line(1,0){#2}}
  \thinlines
  \addtocounter{yo}{-10}
  \addtocounter{yl}{-10}
}

\begin{document}

\begin{center}
\begin{picture}(130,180)
\put(0,165){\makebox(0,0)[l]%
             {\huge\bf Computing costs}}
\put(0,150){\makebox(0,0){0}}
\multiput(10,150)(10,0){10}{\addtocounter
  {dr}{1000}\makebox(0,0){\arabic{dr}}}
\put(0,148){\line(1,0){100}}
\multiput(0,148)(10,0){11}{\line(0,-1){1}}
\m{Jan}{8.7}{10.8}{11.4}
\m{Feb}{23.1}{24.8}{27}
\put(100,{\arabic{yl}}){\makebox(0,0)[l]%
                        {\em geoid}}
\m{3}{72.8}{78.7}{81.4}
\m{April}{52.5}{60}{66.9}
\put(100,{\arabic{yl}}){\makebox(0,0)[l]%
                        {\em Super '88}}
\m{May}{20.3}{0}{0}
\put(100,{\arabic{yl}}){\makebox(0,0)[l]%

```

```

                {\em Chapman Conf.}}
\m{Jun}{2.8}{2.8}{11.1}
\m{\em July}{19.5}{31.1}{31.1}
\addtocounter{yo}{-20}
\put(0,{\arabic{yo}}){\makebox(0,0)%
                {\today}}

\begin{picture}(50,15)(-55,-128)
  \put(3,7){\makebox(0,0){Legend :}}
  \put(13,6){\framebox(30,2){}}
  \put(13,7){\line(1,0){22}}
  \put(35,6){\line(0,1){2}}
  {\footnotesize
  \put(13,11){\makebox(0,0)[l]{compute}}
  \put(31,4){\makebox(0,0){disc-space}}
  \put(43,11){\makebox(0,0)[r]{other}}}
\end{picture}
\end{center}
\vfill\eject
\end{document}

```

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## Computing costs

