

**NAME**

piechart – Generate LaTeX code for typesetting a pie chart.

**SYNOPSIS**

`${HOME}/bin/exe/piechart 1=pie 9=pie.tex`

**DESCRIPTION**

The program uses GETFIL to attach an input file, according to a command-line assignment if one is present (such as `1=pie` in the prototype) or by prompting for and reading the name. The input file is expected to consist of lines up to 80 characters long having the format shown below.

```
0.304  270  340  category A
0.203   80  300  category B
0.198   80  140  category C
0.125  210   70  category D
0.075  320  100  category E
0.056  380  160  category F
0.039  400  210  category G
```

Each line tells the quantity of the pie (day, budget, etc) that is accounted for by the category (activity, expenditure, etc) in the description, and gives the coordinates `x,y` in LaTeX points where the category label should be printed on the chart. In this example the quantities are fractions that add to 1, but they can be numbers in any convenient unit (hours, dollars, etc) and add to any convenient total (8 hours, 10000 dollars, etc). Each category label can be up to 30 characters long.

If a wedge is narrow or oriented vertically it might not be possible for a 30-character category label to fit entirely within it. In that case the LaTeX source code that is output by the program could be edited by hand to print the label at an appropriate angle within the wedge, but the program does not do this automatically because the diagram is usually easier to read if the labels are horizontal and long ones simply extend beyond the circle.

The program reads the input file and stores the chart descriptors it finds there. Next it uses GETFIL to attach an output file, according to a command-line assignment if one is present (such as `9=pie.tex` in the prototype) or by prompting for and reading the name. If the name of the input file is no more than 20 characters long, the program suggests the output file have that name with `.tex` appended.

Then the program generates in the output file a complete LaTeX program, using the `picture` environment to draw a circle 470 points in diameter, radial lines to divide the circle into wedges of the appropriate angles, and category labels placed at the specified coordinates. The output file can be compiled using `/usr/bin/latex` or `${HOME}/bin/ltx` to produce a `.dvi` file and from it a `.ps` or `.pdf` file for display or printing. The output file can also be edited to extract the picture for inclusion in the LaTeX source code of a larger document.

**UNITS and FILES**

- 0 prompts and error messages
- 1 input data
- 5 keyboard responses to prompts
- 9 output LaTeX source

## **DIAGNOSTICS**

These are the possible return codes.

- 0 all went well
- 1 too much data
- 2 bad data

## **AUTHOR**

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