Simplenodes

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1 Introduction

Creating tikz figures may be fun but after a while it becomes repetitive and you find yourself implementing the same repetitive patterns over and over again. This has a few negative effects on your daily productivity;

- bad coding style by copy-pasting old solutions,
- un-maintainable code,
- repeating yourself over and over again,
- inconsistent styles in a single document and over multiple documents.

This package tries to solve these issues by providing two simple commands;

- one command to create simple nodes,
- one command to link these nodes. Some simple styling options can be changed upon loading the package.

2 Usage

After including the package via the command

\usepackage{simplenodes}

all package commands are available.
2.1 Creating a node

Four different nodes are supported at the moment;

<table>
<thead>
<tr>
<th>Command</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>\simplenode{name}{Normal}</td>
<td>Normal</td>
</tr>
<tr>
<td>\examplenode{name}{Example}</td>
<td>Example</td>
</tr>
<tr>
<td>\warnnode{name}{Warning}</td>
<td>Warning</td>
</tr>
<tr>
<td>\alertnode{name}{Alert}</td>
<td>Alert</td>
</tr>
</tbody>
</table>

The first parameter is the name used to link two nodes together. The third parameter is the text displayed inside the node.

2.2 Linking nodes

Linking nodes is done via the command \link{name1}{name2}, where the name is defined upon creating the node.

2.3 Positioning nodes

The intended use of this package is to position the nodes using the tabular environment. Nodes can be placed in cells of tables to create an easy and even layout. This usage is demonstrated in the examples. The usage of this package is not restricted to this usecase.

3 Package options

A few packaged options are provided by using

\usepackage[name1=value1,name2=value2,...]{simplenodes}

The name, default value and description is provided in the following table
<table>
<thead>
<tr>
<th>Name</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>align</td>
<td>center</td>
<td>Specifies the alignment of the text in the nodes.</td>
</tr>
<tr>
<td>width</td>
<td>25mm</td>
<td>The width of the nodes.</td>
</tr>
<tr>
<td>minheight</td>
<td>7mm</td>
<td>The minimum width of the nodes.</td>
</tr>
<tr>
<td>innersep</td>
<td>2pt</td>
<td>The inner separation between the text and the node.</td>
</tr>
<tr>
<td>outersep</td>
<td>0pt</td>
<td>The outer separation between the nodes.</td>
</tr>
<tr>
<td>thickness</td>
<td>0.4pt</td>
<td>The line thickness of the nodes and links.</td>
</tr>
</tbody>
</table>

4 Examples

4.1 Hello world

```
\begin{tabular}{ll}
\simplenode{hello}{hello} & \simplenode{world}{world}\\
\end{tabular}
\link{hello}{world}
```

4.2 More color

```
\begin{tabular}{llll}
\simplenode{1}{simple} & \examplenode{2}{example} & \warnnode{3}{warn} & \alertnode{4}{alert}\\
\end{tabular}
\link{1}{2}  \link{2}{3}  \link{3}{4}
```
4.3 Order of the arrows and double arrows

```
\begin{tabular}{lll}
\simplenode{1}{node 1} & \examplenode{2}{node 2} & \warnnode{3}{node 3} \\
\end{tabular}
```

4.4 Overly complex

```
\begin{tabular}{lllll}
\simplenode{11}{Simple node} & & & & \simplenode{13}{Simple node} \\
\& & & & \\
\examplenode{21}{Example node} & & \alertnode{22}{Alert node} & & \simplenode{23}{Simple node} \\
\& & & & \\
\warnnode{31}{Warn node} & & & & \simplenode{33}{Simple node} \\
\& & & & \\
\end{tabular}
```

```
\link{22}{23} \link{22}{21} \link{22}{33}
```
5 Implementation

\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{simplenodes}[2022/03/31 A package that provides simple nodes in four colors.]
\RequirePackage{kvoptions}
\DeclareStringOption[25mm]{width}
\DeclareStringOption[7mm]{minheight}
\DeclareStringOption[center]{align}
\DeclareStringOption[2pt]{innersep}
\DeclareStringOption[0pt]{outersep}
\DeclareStringOption[0.4pt]{thickness}
\ProcessKeyvalOptions*

\RequirePackage{kvoptions}
\RequirePackage{tikz}
\RequirePackage{color}
\usetikzlibrary{math}

% Coordinate manipulations

\newcommand{\gettikzxy}[3]{}
\tikz@scan@one@point\pgfutil@firstofone#1\relax
edef#2{\the\pgf@x}\%
edef#3{\the\pgf@y}\%
}

% Define the main color
\definecolor{InvisibleRed}{rgb}{0.97, 0.92, 0.92}
\definecolor{InvisibleGreen}{rgb}{0.92, 0.97, 0.92}
\definecolor{InvisibleBlue}{rgb}{0.92, 0.92, 0.97}
\definecolor{InvisibleYellow}{rgb}{1.0, 1.0, 0.88}
\definecolor{MediumRed}{rgb}{0.925, 0.345, 0.345}
\definecolor{MediumGreen}{rgb}{0.37, 0.7, 0.66}
\definecolor{MediumBlue}{rgb}{0.015, 0.315, 0.45}
\definecolor{MediumYellow}{rgb}{1.0, 0.75, 0.0}

% Define the node
\newcommand\mynode[2]{
\tikz[remember picture,baseline]
\node[}
draw=#1,fill=#2, rectangle, line width = \textwidth, align=\textwidth, text width=\textwidth, inner sep=\textwidth, outer sep=\textwidth, minimum height=\textwidth,]
}

% Define the line
\newcommand\myline[2]{
  \draw[->, line width = \textwidth]
  (#1) to (#2);
}

\newcommand\link[2]{
  \begin{tikzpicture}[remember picture, overlay, >=stealth, shift={(0,0)}]
    \gettikzxy(#1){\ax}{\ay}
    \gettikzxy(#2){\bx}{\by}
    \tikzmath{
      if \ax == \bx then {
        if \ay < \by then {
          {\myline#1.north}{#2.south};
        };
        if \ay > \by then {
          {\myline#1.south}{#2.north};
        };
      };
      if \ax < \bx then {
        {\myline#1.east}{#2.west};
      };
      if \ax > \bx then {
        {\myline#1.west}{#2.east};
      };
    }
  \end{tikzpicture}
}
6  Read me

# simplenodes – Version 2022/03/31

simplenodes is a TeX macro package for generating simple node base flow graphs or diagrams, build upon the Ti*k*Z package. The package provides two basic commands, one to generate a node and one command to create links between them. The positioning of the nodes is not handled by the package itself but is preferably done in the tabular environment.

In total, 4 simple node types are defined, loosely based on the nomenclature and color patterns of the popular java script bootstrap (https://getbootstrap.com/).

See the file `simplenodes.pdf` for more information on the possibilities and best use case of this package. See the file `LICENSE` for license details.

## Development

This package is currently maintained by Bob Vergauwen, (bob@vergauwen.me). Please go to the official repository at https://github.com/user9856749/simplenodes to submit bug reports, request new features, etc.
7 Licence

Licenses for the simplenode package
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