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Create Charts and Graphics with Mermaid

Quick Draw

Mermaid promises seamless integration into existing workflows by generating charts and graphics with a Markdown-style syntax. By Thorsten Scherf

Mermaid [1] is JavaScript-based open source software that uses a Markdown-style syntax to generate charts and graphics. Instead of positioning every single arrow, box, and connection with the mouse, you write the entire structure of your graphical output as code. The recommended approach uses a version control system such as Git to manage the code that describes a chart or graphic alongside your other project files. To change the resulting output, you simply edit your Mermaid code, ensuring that the changes remain traceable at all times, thanks to the version control system.

Diagram Types

Mermaid supports a wide range of graphical output types, generating simple flowcharts, UML sequence diagrams, state diagrams, entity-relationship models, and even complex Gantt charts with ease: Just specify the diagram type you want to use in the header of your code. Note that the code syntax can differ depending on the graphical output type you choose. For example, for a simple pie chart, just defining the corresponding key/value pairs is fine, but a bar chart requires additional information, such as the names of the *x* and *y* axes. The documentation [2] provides a comprehensive description of each chart or graphic type and its corresponding syntax.

Even though Mermaid is primarily text-based, you do have the option to preview or edit your chart or graphic visually. Various what-you-see-is-what-you-get (WYSIWYG) tools are available for this purpose. Mermaid itself offers a live editor with a real-time preview as you enter your code so that you can make any required adjustments directly. Plugins also enable integration with external tools and services. For example, you can insert Mermaid code into a Confluence document, where you render the diagram directly, and then integrate the results into the same document. This extension is available on the Atlassian Marketplace [3].

The Mermaid plugin page [4] has a complete overview of the available integrations. Some of the tools and services listed there even support Mermaid natively (e.g., GitHub and GitLab). If you enter the code block

```
```mermaid
graph LR;
  A-->B;
  A-->C;
  B-->D;
  C-->D;
```
```

into a GitHub file, GitHub renders the block accordingly and generates a flowchart directly within the file.

Subscriptions

The Mermaid live editor [5] is an excellent way to familiarize yourself

with the software. You can enter code, see the results immediately, and identify and fix potential errors – even with AI assistance, if needed. The live editor is available to users through various subscription plans that differ in terms of the scope of services offered and, naturally, pricing.
The free Basic plan lets you use the editor without restrictions, but you can only save three works on the platform.

Quick Results with the Live Editor

The following example shows a simple Mermaid code snippet for the live editor that generates a chart and saves the results on the platform. Doing so means you can access the chart again later and make any adjustments you need. This example demonstrates how to create a pie chart for the five most popular programming languages from the numbers on the PYPL Index [6]. The results of the Mermaid code (in the `pie.mmd` file)

```
pie title Top 5 Programming Languages
  "Python" : 27.89
  "C/C++": 16.17
  "Java": 11.74
  "R" : 7.0
  "JavaScript": 5.24
```

is shown online [7]. After creating the diagram in the live editor, you can also share it with other people as a link.

Local Mermaid

Of course, you also have the option to generate diagrams locally with the `mermaid-cli` [8] tool, which is installed as a Node.js package:

```
npm install -g @mermaid-js/mermaid-cli
```

You can then use the command

```
mmdc -i pie.mmd -o pie.png
```

on your local computer to generate the corresponding chart (Figure 1) from the previous Mermaid code. If you prefer not to work with Node.js packages, you can run the software in a container. The following command uses the matching container image along with the Podman container engine:

```
podman run ➥
  --userns keep-id ➥
  --user ${UID} ➥
  --rm ➥
  -v ~/data:/data:z ghcr.io/mermaid-js/➥
       mermaid-cli/mermaid-cli ➥
  -i pie.mmd ➥
  -o pie.png
```

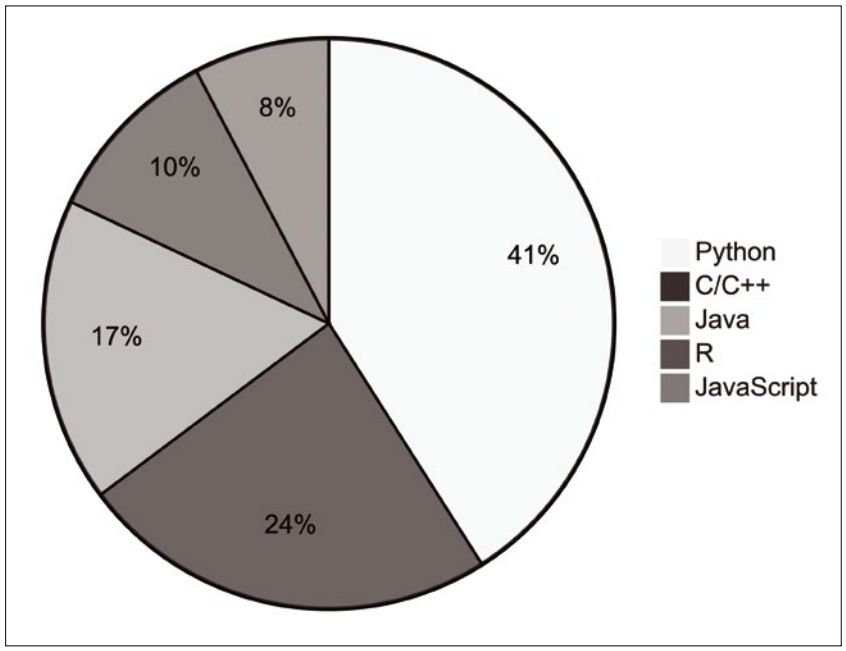


Figure 1: A pie chart generated with Mermaid showing the top five programming languages.

On Linux, Canonical's Snap system can install Mermaid Snaps [9] on a system. Snaps are available for all major Linux distributions. Although macOS users can find a Mermaid version with the HomeBrew package manager, that package is extremely outdated and is no longer actively updated by the HomeBrew team. Installing this package is not recommended, and macOS users are advised to use one of the other installation methods instead.

Conclusion

Mermaid is a handy tool for creating various types of charts and graphics. The use of text to describe a diagram means you can easily make adjustments and manage versions. Thanks to its integration capabilities with other software (e.g., Confluence, Jira, or GitHub), Mermaid meshes seamlessly with existing workflows. ■

Info

[1] Mermaid: [https://mermaid.js.org]
[2] Documentation: [https://mermaid.js.org/intro/]
[3] Confluence plugin: [https://marketplace.atlassian.com/apps/1224722/mermaid-for-confluence]
[4] Community extensions: [https://mermaid.js.org/ecosystem/integrations-community.html]
[5] Live editor: [https://mermaid.live/]
[6] PYPL index: [https://pypl.github.io/PYPL.html]
[7] Sample diagram: [https://mermaid.ai/view/7576532a-c340-4db0-a496-f66b9ae23d06]
[8] mermaid-cli: [https://github.com/mermaid-js/mermaid-cli]
[9] Mermaid Snaps: [https://snapcraft.io/mermaid-cli]

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