














# Markdown Latex PDF Builder Comprehensive Guide

-  **Standard Markdown Support:** Headings, lists, tables, links, images, blockquotes, and more.
-  **Text Formatting:** Bold, italic, underline, strikethrough, highlight, superscript, subscript, small caps.
-  **Code Blocks:** Syntax highlighting, inline code, executable Python code with output/plots.
-  **Diagrams:** Mermaid diagrams for flowcharts and graphs.
-  **Task Lists:** Checkboxes for to-do and progress tracking.
-  **Footnotes:** Inline and reference footnotes.
-  **Math:** Inline and display math with LaTeX syntax.
-  **Definition Lists:** Term-definition pairs.
-  **Tables:** Pipe tables, captions, and alignment.
-  **Alerts & Containers:** Note, tip, important, warning, caution, box, and alignment containers.
-  **Custom Extensions:** Center/right alignment, keyboard shortcuts, line breaks, and more.
-  **Metadata & Variables:** JSON metadata, document variables, and title page templates.
-  **Emoji Support:** Use emojis anywhere in your markdown for expressive documents! 😊

## Basic and Advanced Syntax

### Headings

```
# Heading 1
## Heading 2
### Heading 3
#### Heading 4
##### Heading 5
##### Heading 6
```

## Heading 1

### Heading 2

#### Heading 3

#### Heading 4

#### Heading 5

#### Heading 6

## Text Formatting

### Bold

**\*\*bold text\*\*** or **\_\_bold text\_\_**

markdown

**bold text** or **bold text**

### Italic

*\*italic text\** or *\_italic text\_*

markdown

*italic text* or *italic text*

### Bold + Italic

***\*\_bold and italic\_\**** or ***\_\_\*bold and italic\*\_\_***

markdown

***bold and italic*** or ***bold and italic***

### Strikethrough

~~~~strikethrough text~~~~

markdown

~~strikethrough text~~

### Highlight

==highlighted text==

markdown

highlighted text

### Superscript

<sup>^superscript^</sup> (e.g., x<sup>2</sup>)

markdown

<sup>superscript</sup> (e.g., x<sup>2</sup>)

### Subscript

<sub>~subscript~</sub> (e.g., H<sub>2</sub>O)

markdown

<sub>subscript</sub> (e.g., H<sub>2</sub>O)

## Small Caps

```
^^Small Caps Text^^
```

markdown

SMALL CAPS TEXT

## Underline

```
--Underlined Text--
```

markdown

Underlined Text

## Inline Code

```
`inline code`
```

markdown

inline code

## Code Blocks

### Code Block Without Language

```
```\nplain text code block\n```
```

markdown

```
plain text code block
```

### Code Block With Language

#### Example 1

```
```python\ndef hello():\n    print("Hello, World!")\n```
```

markdown

```
def hello():\n    print("Hello, World!")
```

python

## Example 2

```
```console
$ command
output result
```
```

markdown

```
$ command
output result
```

console

### NOTE

For highlighting specific lines in code blocks or making them executable, refer to the **Executable Code Blocks** section below.

## Links

### Basic Link

```
[link text](https://example.com?query=1&value=2)
```

markdown

[link text](https://example.com?query=1&value=2)

### Link with Title

```
[link text](https://example.com "title")
```

markdown

[link text](https://example.com)

## Images

### Basic Image

```
![alt text](image.jpg)
```

markdown



Image with Title

```
![[alt text](image.jpg "title")
```

markdown



Figure 1: title

## Image from URL

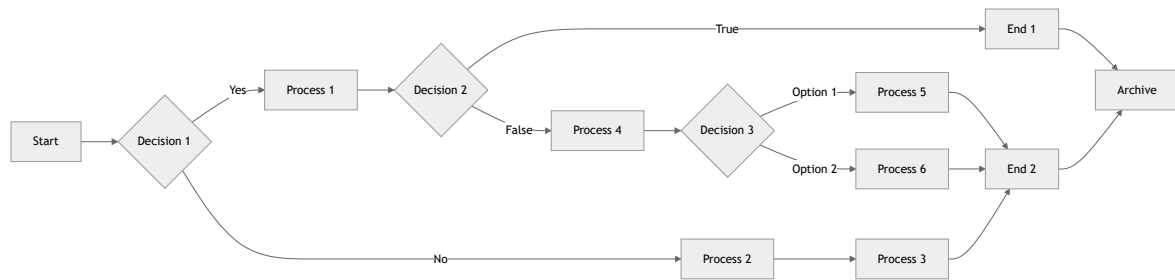
```
markdown
![alt
↩ text](https://github.com/abdxdev/markdown-latex-pdf-builder/blob/main/test/image.j
```



## Mermaid Diagrams

```
```mermaid
graph LR;
  A[Start] --> B{Decision 1};
  B -- Yes --> C[Process 1];
  B -- No --> D[Process 2];
  C --> E{Decision 2};
  D --> F[Process 3];
  E -- True --> G[End 1];
  E -- False --> H[Process 4];
  H --> I{Decision 3};
  I -- Option 1 --> J[Process 5];
  I -- Option 2 --> K[Process 6];
  J --> L[End 2];
  K --> L;
  F --> L;
  G --> M[Archive];
  L --> M;
```
```

markdown



## Lists

### Unordered List

- Item 1
- Item 2
  - Nested item 2.1
  - Nested item 2.2
- Item 3

- Item 1
- Item 2
  - Nested item 2.1
  - Nested item 2.2
- Item 3

### Ordered List

1. First item
2. Second item
  1. Nested item 2.1
  2. Nested item 2.2
3. Third item

1. First item
2. Second item
  1. Nested item 2.1
  2. Nested item 2.2
3. Third item

### Task Lists

- [x] Completed task
- [ ] Incomplete task
- [/] Partially completed task

- ☒ Completed task
- ☐ Incomplete task
- ☒ Partially completed task



## Definition Lists

markdown

```
Term 1
: Definition 1

Term 2
: Definition 2a
: Definition 2b
```

**Term 1**  
Definition 1

**Term 2**  
Definition 2a  
Definition 2b

## Tables

### Table without Caption

markdown

```
| Left | Center | Right | Default |
| :--- | :-----: | -----: | ----- |
| L1   | C1      | R1      | Default |
| L2   | C2      | R2      | Default |
| L3   | C3      | R3      | Default |
```

| Left | Center | Right | Default |
|------|--------|-------|---------|
| L1   | C1     | R1    | Default |
| L2   | C2     | R2    | Default |
| L3   | C3     | R3    | Default |

### Table with Captions

markdown

```
| Header 1 | Header 2 | Header 3 |
| :----- | :----- | :----- |
| Cell 1   | Cell 2   | Cell 3   |
| Cell 4   | Cell 5   | Cell 6   |
| Cell 7   | Cell 8   | Cell 9   |

: Sample Table with Caption
```

| Header 1 | Header 2 | Header 3 |
|----------|----------|----------|
| Cell 1   | Cell 2   | Cell 3   |
| Cell 4   | Cell 5   | Cell 6   |
| Cell 7   | Cell 8   | Cell 9   |

Table 1: Sample Table with Caption

## Horizontal Rule

\*\*\*

markdown

---

markdown

---

markdown

## Math Expressions

### Inline Math

This is inline math:  $E = mc^2$

markdown

This is inline math:  $E = mc^2$

### Display Math

$$\int_0^\infty e^{-x^2} dx = \frac{\sqrt{\pi}}{2}$$

markdown

$$\int_0^\infty e^{-x^2} dx = \frac{\sqrt{\pi}}{2}$$

## Footnotes

### Inline Footnote

Text with inline footnote<sup>[This is the footnote content]</sup>.

markdown

Text with inline footnote<sup>[1]</sup> .

<sup>[1]</sup> This is the footnote content

## Reference Footnote

```
Text with reference footnote[^1].  
[^1]: This is the footnote content.
```

Text with reference footnote<sup>[2]</sup> .

## Keyboard Shortcuts

### Single Key

```
[[Ctrl]]
```

Ctrl

### Key Combination with Plus

```
[[Ctrl] + [C]]
```

Ctrl + C

## Line Break

### Using Two Spaces

Put two spaces at the end of a line 1 to create a line break.

```
Line 1<space><space>  
Line 2
```

Line 1  
Line 2

### Using Backslash

```
Line 1\  
Line 2
```

Line 1  
Line 2

---

<sup>[2]</sup> This is the footnote content.

## Using HTML `<br>` Tag

```
Line 1<br>
Line 2
```

Line 1  
Line 2

```
Line 1<br/>
Line 2
```

Line 1  
Line 2

## Using Empty Line (Paragraph Break)

```
Line 1
Line 2
```

Line 1  
Line 2

## Blockquotes

### Basic Blockquote

```
> This is a blockquote.
```

This is a blockquote.

### Multi-line Blockquote

```
> This is a blockquote.
> It can span multiple lines.
>
> And multiple paragraphs.
```

This is a blockquote. It can span multiple lines.  
And multiple paragraphs.

## Nested Blockquotes

```
> Level 1
>
> > Level 2
> >
> > > Level 3
```

markdown

Level 1

Level 2

Level 3

## Container Alerts

### Note Alert

```
::: note
This is a note alert with blue styling.
:::
```

markdown

#### NOTE

This is a note alert with blue styling.

### Tip Alert

```
::: tip
This is a tip alert with green styling.
:::
```

markdown

#### TIP

This is a tip alert with green styling.

### Important Alert

```
::: important
This is an important alert with purple styling.
:::
```

markdown

**IMPORTANT**

This is an important alert with purple styling.

**Warning Alert**

markdown

```
::: warning
This is a warning alert with yellow/orange styling.
:::
```

**WARNING**

This is a warning alert with yellow/orange styling.

**Caution Alert**

markdown

```
::: caution
This is a caution alert with red styling.
:::
```

**CAUTION**

This is a caution alert with red styling.

**Text Alignment Containers****Center Alignment**

markdown

```
::: center
This text is centered
:::
```

This text is centered

**Right Alignment**

markdown

```
::: right
Right-aligned text
:::
```

Right-aligned text

## Box Container

### Basic Box

```
::: box
Text in a bordered box
:::
```

Text in a bordered box

## Executable Code Blocks

The converter supports executing code blocks in various languages directly within your markdown and including their output or generated plots in the final PDF.

### Supported Languages

- `python` (with persistent state across blocks - like Jupyter notebooks!)
- `javascript`
- `powershell`
- `bash`

### Properties

- `.execute` : Execute the code block
- `.show-code` : Display the source code in the output
- `.show-output` : Display execution output/plot (default)
- `.hide-code` : Explicitly hide the source code (default)
- `.hide-output` : Hide execution output/plot
- `.cache` : Cache the execution output (default)
- `.no-cache` : Do not use cache and force re-execution
- `.highlightlines` : Highlight specific lines in the code block

### Example 1: Python with Output

```
```python {.execute .show-code .highlightlines=2,4-6}
print("Line 1")
print("Line 2")
print("Line 3")
print("Line 4")
print("Line 5")
print("Line 6")
```
```

```
print("Line 1")
print("Line 2")
print("Line 3")
print("Line 4")
print("Line 5")
```

python

```
print("Line 6")
```

output

```
Line 1  
Line 2  
Line 3  
Line 4  
Line 5  
Line 6
```

## Example 2: JavaScript Execution

markdown

```
```javascript {.execute .show-code}  
const a = 5;  
const b = 10;  
console.log(`The sum of ${a} and ${b} is ${a + b}.`);  
```
```

javascript

```
const a = 5;  
const b = 10;  
console.log(`The sum of ${a} and ${b} is ${a + b}.`);
```

output

The sum of 5 and 10 is 15.

## Example 3: Python Plotting

### NOTE

The following example generates a polar plot using matplotlib. Install the required packages if you haven't already.

powershell

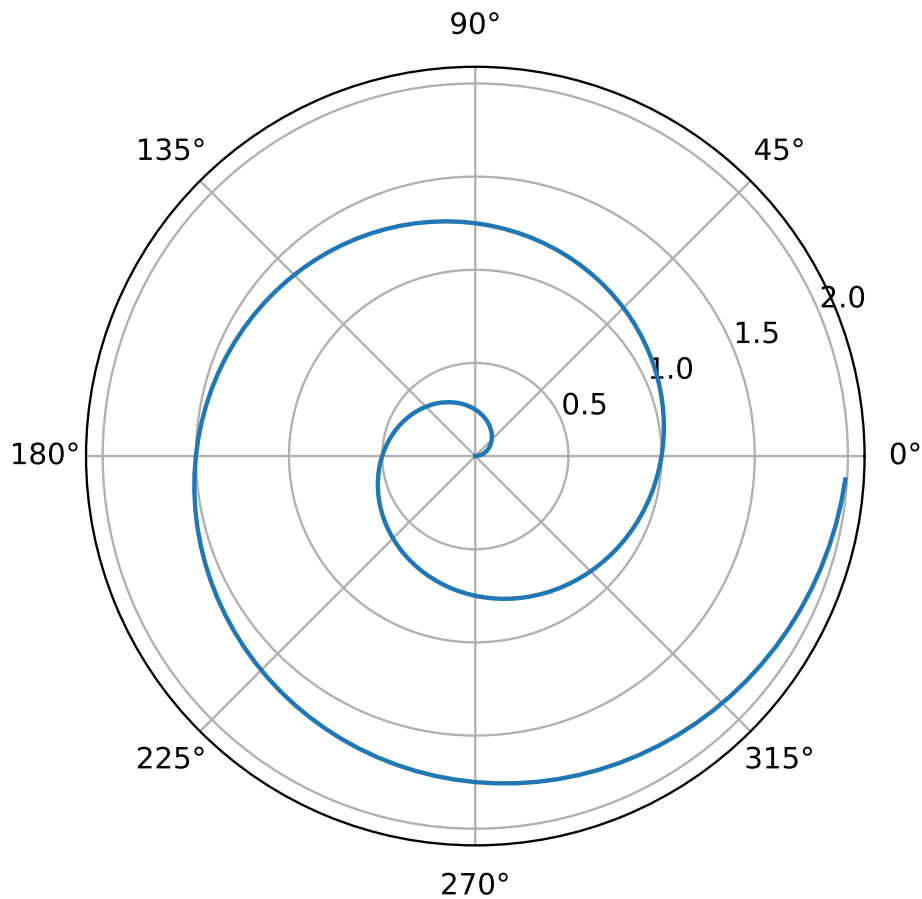
```
python -m pip install matplotlib numpy
```

markdown

```
```python {.execute}  
import numpy as np  
import matplotlib.pyplot as plt  
  
r = np.arange(0, 2, 0.01)  
theta = 2 * np.pi * r  
fig, ax = plt.subplots(  
    subplot_kw = {'projection': 'polar'}  
)
```



```
ax.plot(theta, r)
ax.set_rticks([0.5, 1, 1.5, 2])
ax.grid(True)
plt.show()
```



## Document Metadata (JSON)

Document metadata is configured in a separate JSON file:

```
{
  "title": "Document Title",
  "subtitle": "Course Name",
  "submittedto": "Professor Name",
  "university": "University Name",
  "department": "Department Name",
  "date": "January 1, 2024",
  "submittedby": [
    {
      "name": "Student Name",
      "roll": "Registration Number"
    }
  ]
}
```

```

    }
  ],
  "variables": {},
  "titleTemplate": 0,
  "enableContentPage": false,
  "tocDepth": 3,
  "enablePageCredits": false,
  "moveFootnotesToEnd": false,
  "footnotesAsComments": false,
  "enableThatsAllPage": false,
  "headingNumbering": true
}

```

## Settings

- `title` : Document title
- `subtitle` : Document subtitle
- `submittedto` : Name of the person to whom the document is submitted
- `university` : Name of the university or institution
- `department` : Name of the department
- `date` : Date of submission
- `submittedby` : List of submitters with their names and registration numbers
- `variables` : Define custom variables to use throughout the document. See below
- `titleTemplate` : Controls the style of the title page. Options include:
  - `0` : No title (disabled) - Default
  - `1` : Full university title page with logo - Good for assignments and reports
  - `2` : Title header above content - Good for notes
  - `3` : Title on separate page - Good for when the contents are enabled
- `enableContentPage` : Set to `true` to include a table of contents page
- `tocDepth` : Set the depth of the table of contents (1-6)
- `enablePageCredits` : Set to `true` to include credits
- `moveFootnotesToEnd` : Set to `true` to move all footnotes to the end of the document
- `footnotesAsComments` : Set to `true` to render footnotes as comments
- `enableThatsAllPage` : Set to `true` to include a "That's All" page at the end of the document
- `headingNumbering` : Set to `true` to enable automatic numbering of headings

## variables Usage

You can define variables in the JSON metadata file and use them throughout your markdown document. Variables are defined under the `"variables"` key and referenced using `{{variable_name}}` syntax.

Example JSON with variables:

```

{
  "variables": {
    "author": "abd",
    "version": "1.2.3",
    "course": "CS 101",
    "semester": "Fall 2025",
    "university_full": "University of Engineering and Technology"
  }
}

```

```
}
```

json

```
This report was written by {{author}} for {{course}} during  
↪ {{semester}}.
```

```
Software version: {{version}}
```

```
Institution: {{university_full}}
```

markdown

This report was written by abd for CS 101 during Fall 2025.

Software version: 1.2.3

Institution: University of Engineering and Technology