

# 1 Markdown to LaTeX Comprehensive Guide

## 1.1 Features at a Glance

- **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! 😊

## 1.2 Headings

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

markdown

## 2 Heading 1

### 2.1 Heading 2

#### 2.1.1 Heading 3

Heading 4

Heading 5

Heading 6

### 2.2 Text Formatting

#### 2.2.1 Bold

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

markdown

**bold text or bold text**

## 2.2.2 Italic

markdown

```
_italic text_ or _italic text_
```

*italic text* or *italic text*

## 2.2.3 Bold + Italic

markdown

```
**_bold and italic_* or **_bold and italic_*
```

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

## 2.2.4 Strikethrough

markdown

```
~~strikethrough text~~
```

~~strikethrough text~~

## 2.2.5 Highlight

markdown

```
==highlighted text==
```

highlighted text

## 2.2.6 Superscript

markdown

```
^superscript^ (e.g., x^2^)
```

superscript (e.g.,  $x^2$ )

## 2.2.7 Subscript

markdown

```
~subscript~ (e.g., H~2~0)
```

subscript (e.g.,  $H_2O$ )

## 2.2.8 Small Caps

markdown

```
:sc[Small Caps Text]
```

SMALL CAPS TEXT

### 2.2.9 Underline

markdown

```
:u[Underlined Text]
```

Underlined Text

## 2.3 Inline Code

markdown

```
`inline code`
```

inline code

## 2.4 Code Blocks

### 2.4.1 Fenced Code Block

markdown

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

python

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

### 2.4.2 Code Block Without Language

markdown

```
```
plain text code block
```
```

```
plain text code block
```

### 2.4.3 Terminal Block

markdown

```
```terminal
$ command
output result
```
```

text

```
$ command
output result
```

## 2.5 Links

markdown

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

link text

markdown

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

link text

## 2.6 Images

markdown

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



markdown

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

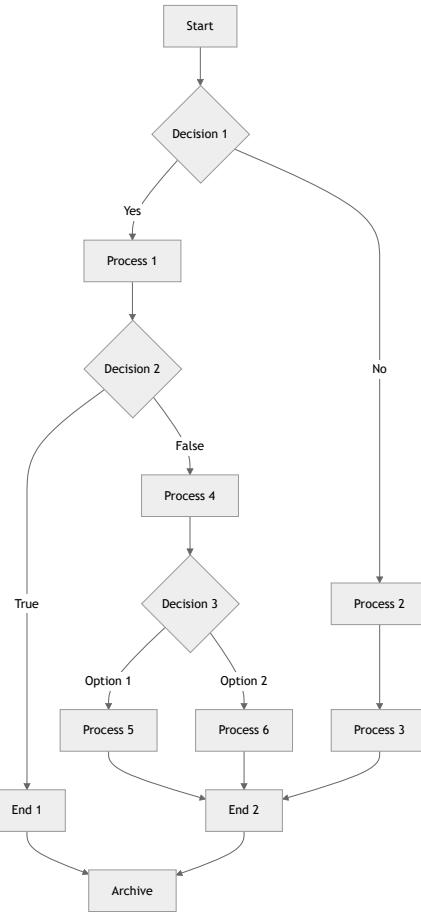
A large, handwritten signature in black ink, appearing to read "Abdulhos". The signature is written in a cursive style with varying line thicknesses.

Figure 1: title

## 2.7 Mermaid Diagrams

```
```mermaid
graph TD;
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;
```

```



## 2.8 Lists

### 2.8.1 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

### 2.8.2 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

### 2.8.3 Task Lists

markdown

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

- Completed task
- Incomplete task
- Partially completed task

## 2.9 Definition Lists

markdown

Term 1  
: Definition 1

Term 2  
: Definition 2a  
: Definition 2b

**Term 1**  
Definition 1

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

## 2.10 Tables

### 2.10.1 Pipe Tables

markdown

| Left | Center | Right | Default |
|------|--------|-------|---------|
| ---  | -----: | ----: | -----   |
| L1   | C1     | R1    | Default |
| L2   | C2     | R2    | Default |

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

## 2.11 Table with Captions

markdown

| Header 1 | Header 2 | Header 3 |
|----------|----------|----------|
| Cell 1   | Cell 2   | Cell 3   |
| Cell 4   | Cell 5   | Cell 6   |

: Sample Table with Caption

| Header 1 | Header 2 | Header 3 |
|----------|----------|----------|
| Cell 1   | Cell 2   | Cell 3   |
| Cell 4   | Cell 5   | Cell 6   |

Table 1: Sample Table with Caption

## 2.12 Horizontal Rule

markdown

---

markdown

---

markdown

---

## 2.13 Math Expressions

### 2.13.1 Inline Math

markdown

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

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

### 2.13.2 Display Math

markdown

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

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

## 2.14 Footnotes

### 2.14.1 Inline Footnote

markdown

Text with inline footnote<sup>[1]</sup> [This is the footnote content].

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

### 2.14.2 Reference Footnote

markdown

Text with reference footnote<sup>[^1]</sup>.

[^1]: This is the footnote content.

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

## 2.15 Keyboard Shortcuts

### 2.15.1 Single Key

markdown

[[Ctrl]]

 Ctrl

### 2.15.2 Key Combination with Plus

markdown

[[Ctrl] + [C]]

  Ctrl + C

## 2.16 Line Break

### 2.16.1 Using Two Spaces

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

---

[1] This is the footnote content

[2] This is the footnote content.

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

markdown

Line 1  
Line 2

### 2.16.2 Using Backslash

```
Line 1\
Line 2
```

markdown

Line 1  
Line 2

### 2.16.3 Using HTML <br> Tag

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

markdown

Line 1  
Line 2

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

markdown

Line 1  
Line 2

### 2.16.4 Using Empty Line (Paragraph Break)

```
Line 1
```

```
Line 2
```

markdown

Line 1  
Line 2

## 2.17 Blockquotes

### 2.17.1 Basic Blockquote

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

markdown

This is a blockquote.

### 2.17.2 Multi-line Blockquote

markdown

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

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

### 2.17.3 Nested Blockquotes

markdown

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

Level 1  
| Level 2  
| | Level 3

## 2.18 Container Alerts

### 2.18.1 Note Alert

markdown

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

**NOTE**

This is a note alert with blue styling.

### 2.18.2 Tip Alert

markdown

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

**TIP**

This is a tip alert with green styling.

### 2.18.3 Important Alert

markdown

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

#### IMPORTANT

This is an important alert with purple styling.

### 2.18.4 Warning Alert

markdown

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

#### WARNING

This is a warning alert with yellow/orange styling.

### 2.18.5 Caution Alert

markdown

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

#### CAUTION

This is a caution alert with red styling.

## 2.19 Text Alignment Containers

### 2.19.1 Center Alignment

markdown

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

This text is centered

### 2.19.2 Right Alignment

markdown

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

Right-aligned text

## 2.20 Box Container

### 2.20.1 Basic Box

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

Text in a bordered box

## 2.21 Executable Python Code Blocks

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

### 2.21.1 Prerequisites

For Python code execution to work, you need Python installed on your system. To generate plots with matplotlib, install the required packages:

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

### 2.21.2 Available Properties

- **.execute** - Execute the code block (required)
- **.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

### 2.21.3 Examples 1

```
```python {.execute}
print("Hello, World!")
````
```

Hello, World!

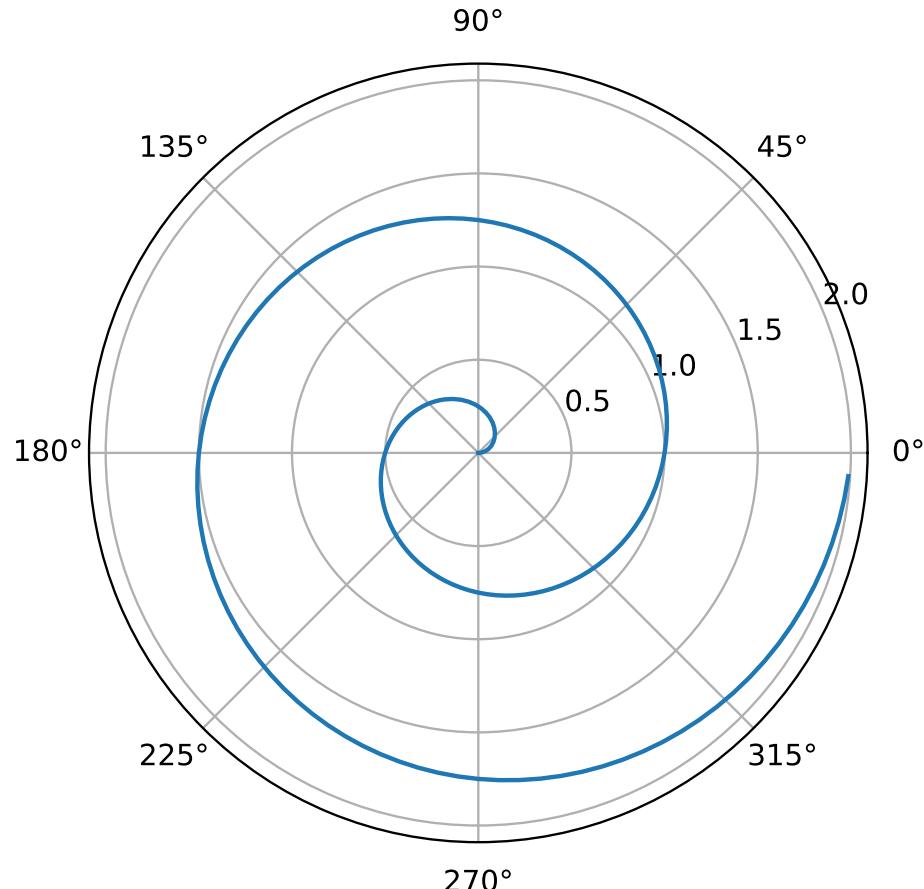
### 2.21.4 Examples 2

```
```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()
```

markdown



## 2.22 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"
    }
  ],
  "titleTemplate": 1,
  "enableContentPage": false,
```

json

```

"enablePageCredits": false,
"moveFootnotesToEnd": false,
"enableThat'sAllPage": false,
"tocDepth": 3,
"variables": {}
}

```

json

### 2.22.1 Title Template Modes

The `titleTemplate` setting controls how the title page is displayed:

- **0** : No title (disabled)
- **1** : Full university title page with logo (default) - 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

### 2.22.2 JSON Variables

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