

Markdown

UBCO Master of Data Science – DATA 541



Today's Class

Markdown for styled editing

GitHub Flavored Markdown to format text

Markdown and HTML syntax

GitHub's automatic Markdown rendering

What is Markdown?

Markdown is a plain text format for writing structured documents

A way to control the display of the document (e.g., bold or italic, adding images, and creating lists)

DATA 541: Scripting and reporting

Scripting engines for data science. Reporting tools. Automation.

Labs [↗](#)

	Lab topic	Lab Date	Due Date
1	Command Line and Scripting	2023-09-11	2023-09-18 23:59
2	Scripting amd Remote Login	2023-09-18	2023-09-25 23:59
3	Markdown, Version Control and Interactive Visualization	2023-09-25	2023-10-03 23:59

Quizzes [↗](#)

	Date and Time	Topic
1	2023-09-21 (9:30 a.m.)	Lecture 1 - 4 (CommandLine to Remote Login and Authentication)
2	2023-10-05 (9:30 a.m.)	Lecture 5 - 7 (Remote Login and Interactive Visualization)

Instructor [↗](#)

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TA [↗](#)

A.K.M. Amanat, PhD Student, Computer Science

What is Markdown?

Markdown is just regular text with a few non-alphabetic characters thrown in, like # or *.

Example: to denote a heading, you add a number sign before it (e.g., # Heading One).

Files with the .md or .markdown extension

```
## Labs

| | Lab topic | Lab Date | Due Date |
|-----|-----|-----|
| 1 | [Command Line and Scripting](labs/lab1) | 2023-09-11 | 2023-09-18 23:59 |
| 2 | [Scripting and Remote Login](labs/lab2) | 2023-09-18 | 2023-09-25 23:59 |
| 3 | [Markdown, Version Control and Interactive Visualization](labs/lab3) | 2023-09-25 | 2023-10-03 23:59 |

## Quizzes

| | Date and Time | Topic |
|-----|-----|
| 1 | 2023-09-21 (9:30 a.m.) | Lecture 1 - 4 (CommandLine to Remote Login and Authentication) |
| 2 | 2023-10-05 (9:30 a.m.) | Lecture 5 - 7 (Remote Login and Interactive Visualization) |

## Instructor
Dr. Mohammad (Khalad) Hasan, SCI 260, khalad.hasan@ubc.ca, 250-807-8077

## TA
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## Marking and Evaluation
| Item | Weighting |
|-----|-----|
| Labs | 45% |
| Quizzes | 55% |
```

Markdown and Markup

Markup consists of easily understood keywords or tags (e.g., <title>) that help format the overall view of a page and the data it contains.

```
<ul>
  <li>Item one</li>
  <li>Item two</li>
</ul>
```



```
• Item one
• Item two
```

Markdown is a lightweight markup language with plain text formatting syntax

```
* Item one
* Item two
```



```
• Item one
• Item two
```

Websites like Reddit, StackOverflow, and GitHub had millions of people using Markdown

Markdown Online Editors

There are several online Markdown editors that you can use to try writing in Markdown.

Examples:

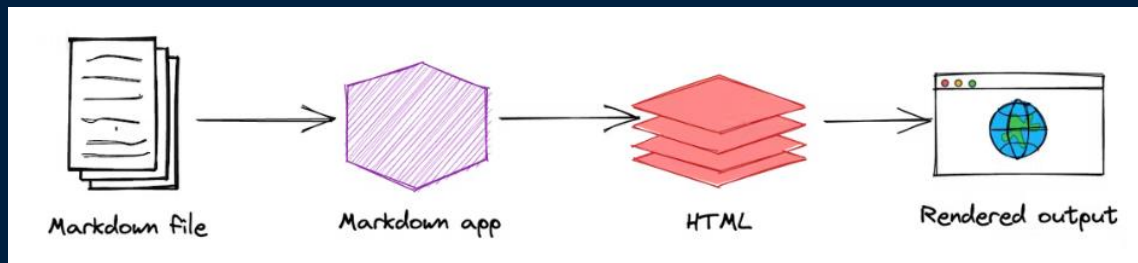
- Mac: iA Writer, Marked, MacDown
- Linux: ReText, Haroopad
- Windows: MarkdownPad
- Web: Dillinger (<https://dillinger.io/>), StackEdit (<https://stackedit.io/>)

How Does Markdown Work?

Markdown applications use something called a Markdown processor to take the Markdown-formatted text and output it to HTML format.

All the applications convert Markdown-formatted text (e.g., `.md` or `.markdown`) to HTML

It can be displayed in web browsers



Markdown Basic Question

Question: How many of the following statements are **TRUE**?

- 1) Markdown uses non-alphabetic characters to structure documents
- 2) Markup commonly uses tags to format a web page
- 3) Markdown is a lightweight markup language
- 4) A Markdown processor converts a .md file to an HTML file

A) 0 **B) 1** **C) 2** **D) 3** **E) 4**

Headings

To create a heading, add number signs (#) in front of a word or phrase. The number of number signs you use should correspond to the heading level.

- Put a space between the number signs and the heading name.

Markdown	HTML	Rendered Output
# Heading 1	<h1>Heading 1</h1>	Heading 1
## Heading 2	<h2>Heading 2</h2>	Heading 2
### Heading 3	<h3>Heading 3</h3>	Heading 3
#### Heading 4	<h4>Heading 4</h4>	Heading 4
##### Heading 5	<h5>Heading 5</h5>	Heading 5
##### Heading 6	<h6>Heading 6</h6>	Heading 6

Headings

Alternatively, on the line below the text, add any number of = (equal) characters for heading level 1 or – (hyphen) characters for heading level 2.

Markdown	HTML	Rendered Output
Heading level 1 =====	<code><h1>Heading level 1</h1></code>	Heading level 1
Heading level 2 -----	<code><h2>Heading level 2</h2></code>	Heading level 2

Paragraphs

To create paragraphs, use a blank line to separate one or more lines of text.

Note that you should not indent paragraphs with spaces or tabs.

Markdown	HTML	Rendered Output
Dear Math, please grow up and solve your own problems.	<code><p>Dear Math, please grow up and solve your own problems. </p></code>	Dear Math, please grow up and solve your own problems.
I'm tired of solving them for you.	<code><p>I'm tired of solving them for you.</p></code>	I'm tired of solving them for you.

Line Breaks

To create a line break (
), end a line with two or more spaces, and then type return.

Markdown	HTML	Rendered Output
Dear Math, please grow up and solve your own problems. I'm tired of solving them for you.	<p>Dear Math, please grow up and solve your own problems. I'm tired of solving them for you.</p>	Dear Math, please grow up and solve your own problems. I'm tired of solving them for you.

Bold Text

To bold text, add two asterisks or underscores before and after a word or phrase



To bold the middle of a word for emphasis, add two asterisks without spaces around the letters

Markdown	HTML	Rendered Output
I'm tired of **solving** them for you.	I'm tired of solving them for you.	I'm tired of solving them for you.
I'm tired of __solving__ them for you.	I'm tired of solving them for you.	I'm tired of solving them for you.
I'm tired of **solving** them for you.	I'm tired ofsolvingthem for you.	I'm tired of solving them for you.

Bold Best Practices

Markdown applications don't agree on how to handle underscores in the middle of a word.

For compatibility, use asterisks to bold the middle of a word for emphasis.

 Do this	 Don't do this
<code>Love**is**bold</code>	<code>Love__is__bold</code>

Italic

To italicize text, add one asterisk or underscore before and after a word or phrase.



To italicize the middle of a word for emphasis, add one asterisk without spaces around the letters.

Markdown	HTML	Rendered Output
I'm tired of <code>*solving*</code> them for you.	I'm tired of <code>solving</code> them for you.	I'm tired of <i>solving</i> them for you.
I'm tired of <code>_solving_</code> them for you.	I'm tired of <code>solving</code> them for you.	I'm tired of <i>solving</i> them for you.
I'm tired of <code>*solving*them</code> for you.	I'm tired of <code>solvingthem</code> for you.	I'm tired of <i>solving</i> them for you.

Italic Best Practices

Markdown applications don't agree on how to handle underscores in the middle of a word.

For compatibility, use asterisks to italicize the middle of a word for emphasis.

 Do this	 Don't do this
A*cat*meow	A_cat_meow

Basic Syntax Question

Question: What is the output of the following code?

```
***I need a coffee***
```

- A) **I need a coffee_**
- B) **_I need a coffee_**
- C) *I need a coffee*
- D) *I need a coffee*
- E) None of the above

Bold and Italic

To emphasize text with bold and italics at the same time, add three asterisks or underscores before and after a word or phrase.

Markdown	HTML	Rendered Output
I'm in desperate need of a ***6 month vacation***, twice a year.	I'm in desperate need of a 6 month vacation twice a year.	I'm in desperate need of a <i>6 month vacation</i> , twice a year.
I'm in desperate need of a ___6 month vacation___, twice a year.	I'm in desperate need of a 6 month vacation twice a year.	I'm in desperate need of a <i>6 month vacation</i> , twice a year.
I'm in desperate need of a **_6 month vacation_**, twice a year.	I'm in desperate need of a 6 month vacation twice a year.	I'm in desperate need of a <i>6 month vacation</i> , twice a year.

Bold and Italic Best Practices

Markdown applications don't agree on how to handle underscores in the middle of a word.

For compatibility, use asterisks to bold and italicize the middle of a word for emphasis.

✓ Do this

This is really***very***important text.

✗ Don't do this

This is really__very__important text.

Ordered Lists

To create an ordered list, add items with numbers followed by periods.

- Note that the numbers don't have to be in numerical order, but the list should start with the number one.
- To nest line items in an ordered list, indent the items four spaces or one tab.

Markdown	HTML	Rendered Output
1. First 3. Second	<pre> First Second </pre>	1. First 2. Second
1. First 10. Second 2. Indented item 3. Indented item	<pre> First item Second item Indented item Indented item </pre>	1. First item 2. Second item 2. Indented item 3. Indented item

Unordered Lists

To create an unordered list, add dashes (-), asterisks (*), or plus signs (+) in front of line items. Indent items to create a nested list.

- To nest line items in an unordered list, indent the items four spaces or one tab.

Markdown	HTML	Rendered Output
<ul style="list-style-type: none"> * First * Second * Third 	<pre> First Second Third </pre>	<ul style="list-style-type: none"> • First • Second • Third
<ul style="list-style-type: none"> - First - Second <ul style="list-style-type: none"> - Indented 1 - Indented 2 - Third 	<pre> First Second /li> Indented 1 Indented 2 Third item </pre>	<ul style="list-style-type: none"> • First item • Second item <ul style="list-style-type: none"> ○ Indented 1 ○ Indented 2 • Third item

Adding Elements in Lists

To add another element in a list while preserving the continuity of the list, indent the element four spaces or one tab.

Markdown	HTML	Rendered Output
<ul style="list-style-type: none"> * First * Second <ul style="list-style-type: none"> A short paragraph * Third 	<pre> <p>First</p> <p>Second</p> <p> A short paragraph </p> <p>Third</p> </pre>	<ul style="list-style-type: none"> • First • Second <ul style="list-style-type: none"> A short paragraph • Third

List Question

Question: What is the output of the following code?

```
1. One
  - Two
    - Three
    Four
  - Five
```

1. One

- Two
 - Three
 - Four

A) ▪ Five

1. One

- Two
 - Three
 - Four

B) ▪ Five

1. One

- Two
 - Three
 - Four

C) ◦ Five

1. One

- Two
 - Three
 - Four

D) Five

1. One

- Two
 - Three
 - Four

E) ◦ Five

Try it: Formatting with Markdown

Question: Use <https://dillinger.io/> to complete the following tasks:

- a) Create the list (see the screenshot) with Markdown
- b) Make the word "Links" italic.
- c) Make the words "Span Elements" and "Block Elements" bold

1. Span Elements

- Links
- Images

2. Block Elements

- Headings
- Lists

Code

To denote a word or phrase as code, enclose it in tick marks (`).

Markdown	HTML	Rendered Output
At the command prompt, type `cmd`.	At the command prompt, type <code><code>cmd</code>.</code>	At the command prompt, type <code>cmd</code> .

Escaping Backticks

If the word or phrase you want to denote as code includes one or more backticks, you can escape it by enclosing the word or phrase in double backticks (``).

Markdown	HTML	Rendered Output
<code>``Use `code` in your Markdown file.``</code>	<code><code>Use `code` in your Markdown file.</code></code>	Use <code>code</code> in your Markdown file.

Code Blocks

Blocks of code are either fenced by lines with three back-ticks ```, or are indented with four spaces.


Markdown	HTML	Rendered Output
<pre> ``` <html> <head> <title>Test</title> </head> ``` </pre>	<pre> <pre> <code>&lt;html&gt;&lt;head&gt; &lt;title&gt; Test&lt;/title&gt; &lt;/head&gt; </code> </pre> </pre>	<pre> <html> <head> <title>Test</title> </head> </pre>

Links

To create a link, enclose the link text in brackets and then follow it immediately with the URL in parentheses.

Markdown	HTML	Rendered Output
<code>[Google](http://www.google.com)</code>	<code>Google</code>	Google

You can optionally add a title for a link. This will appear as a tooltip when the user hovers over the link.

Markdown	HTML	Rendered Output
<code>[Google](http://www.google.com "Google Website")</code>	<code>Google</code>	Google  <div>Google Website</div>

Links - Reference-style

[Click here to visit Mozilla][mozilla]

[Click here to visit UBCO][1]

Click here to visit [Google]

[mozilla]: <https://www.mozilla.org>

[1]: <https://ok.ubc.ca/> "UBCO"

[Google]: <https://www.google.com/>

Output:

[Click here to visit Mozilla](#)

[Click here to visit UBCO](#)

Click here to visit [Google](#)

Email Address

To quickly turn an email address into a link, enclose it in angle brackets.

Markdown	HTML	Rendered Output
<code><email@example.com></code>	<code>email@example.com</code>	email@example.com

Try it: Table with Markdown

Question :

- a) Create a markdown table as shown in the screenshot
- b) Add the following links for the websites.
 - UBC Vancouver: <http://www.ubc.ca>
 - UBC Okanagan: <http://www.ok.ubc.ca>
- c) Add the following email addresses for the corresponding contacts:
 - UBC Vancouver: contact@ubc.ca
 - UBC Okanagan: contact@ok.ubc.ca

University	Website	Email
UBC Vancouver	Click here	contact@ubc.ca
UBC Okanagan	Click here	contact@ok.ubc.ca

Images

To add an image, add an exclamation mark (!), followed by alt text in brackets, and the path or URL to the image asset in parentheses. You can optionally add a title after the URL in the parentheses.

```
![UBC Okanagan] (/images/ubco.jpg "UBCO")
```

In HTML:

```

```

To add a link to an image, enclose the Markdown for the image in brackets, and then add the link in parentheses.

```
![UBC Okanagan] (/images/ubco.jpg "UBCO") (https:// ok.ubc.ca/)
```

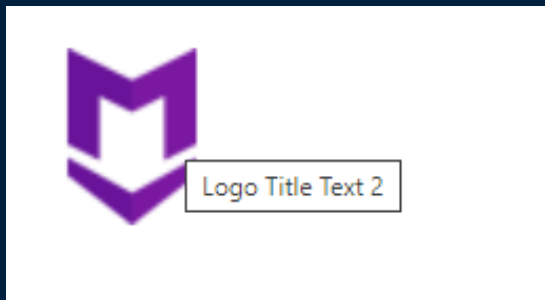

Images

Reference-style:

```
![alt text][logo]
```

```
[logo]: https://github.com/adam-p/markdown-  
here/raw/master/src/common/images/icon48.png "Logo Title Text 2"
```

Output:



Tables

To add a table, use three or more hyphens (---) to create each column's header, and use pipes (|) to separate each column. You can optionally add pipes on either end of the table.

Name | University

--- | ---

Adam | UBCO

David | UBCV

Name	University
Adam	UBCO
David	UBCV

Tables: HTML Code

```
<table>
  <tbody>
    <tr>
      <td><strong>Name</strong></td>
      <td><strong>University</strong></td>
    </tr>
    <tr>
      <td>Adam</td>
      <td>UBCO</td>
    </tr>
    <tr>
      <td>David</td>
      <td>UBCV</td>
    </tr>
  </tbody>
</table>
```

Name	University
Adam	UBCO
David	UBCV

Alignment

You can align text in the columns to the left, right, or center by adding a colon (:) to the left, right, or on both side of the hyphens within the header row.

Name | Student ID | University

:--- | :---: |---:

Adam | 101 | UBCO

David | 302 | UBCV

Name	Student ID	University
Adam	101	UBCO
David	302	UBCV

Horizontal Rules

To create a horizontal rule, use three or more asterisks (***) , dashes (---), or underscores (___) on a line.

Markdown	HTML	Rendered Output
First Line ***	First Line <hr/>	First Line <hr/>
Second Line	Second Line	Second Line

Escape Characters

To display an escape character that would otherwise be used to format text in a document, add a backslash (\) in front of the character.

Markdown	HTML	Rendered Output
We need to add * in the code	<div>&quot; → "</div> <div>&amp; → &</div> <div>&lt; → <</div> <div>&gt; → ></div>	We need to add * in the code

Characters You Can Escape

You can use a backslash to escape the following characters.

Character	Name	Character	Name
\	backslash	< >	angle brackets
`	backtick	()	parentheses
*	asterisk	#	pound sign
_	underscore	+	plus sign
{ }	curly braces	-	minus sign (hyphen)
[]	brackets	.	dot
	pipe	!	exclamation mark

Strikethrough

To strikethrough words, use two tilde symbols (~~) before and after the words

Markdown	HTML	Rendered Output
I ~~don't~~ need a strikethrough	I don't need a strikethrough	I don't need a strikethrough

Task Lists

To create a task list, add brackets with a space ([]) in front of task list items. To select a checkbox, add an x in between the brackets ([x]).

Markdown	HTML	Rendered Output
[x] DATA541 Lab 1	<input type="checkbox" checked>Data541 Lab 1 	<input checked="" type="checkbox"/> DATA541 Lab 1
[] DATA 541 Lab 2	<input type="checkbox"> Data541 Lab 2 	<input type="checkbox"/> DATA 541 Lab 2
[x] DATA 531 Lab 2	<input type="checkbox" checked> Data531 Lab 2 	<input checked="" type="checkbox"/> DATA 531 Lab 2

Blockquotes

To create a blockquote, add a > in front of a paragraph.

For multiple paragraphs, add a > on the blank lines between the paragraphs.

```
>Data is changing how we work, how we live and how we think about the world.  
>
```

```
>Data science is widely recognized as one of the fastest growing career fields in  
Canada and the world.
```

Data is changing how we work, how we live and how we think about the world.

Data science is widely recognized as one of the fastest growing career fields in Canada and the world.

Footnotes

Add notes and references without cluttering the body of a document

A superscript number with a link appears

Here's a simple footnote,¹ and here's a longer one.²

Readers can click the link to jump to the content of the footnote

- To create a footnote, add a caret and an identifier inside brackets ([^1]).
- Identifiers can be numbers or words, but they can't contain spaces or tabs.

<p>Check footnote for UBC Okanagan [^ubco] and UBC Vancouver [^ubcv] websites</p> <p>[^ubco]: https://ok.ubc.ca</p> <p>[^ubcv]: https://www.ubc.ca/</p>	<p>Check footnote for UBC Okanagan ^[1] and UBC Vancouver ^[2] websites</p> <hr/> <p>1. https://ok.ubc.ca ↵</p> <p>2. https://www.ubc.ca/ ↵</p>
---	---

URL Linking

Many Markdown processors automatically turn URLs into links.

Markdown	Rendered Output
<code>http://www.google.com</code>	http://www.google.com

If you don't want a URL to be automatically linked, you can remove the link by denoting the URL as code with backticks.

Markdown	Rendered Output
<code>`http://www.google.com`</code>	<code>http://www.google.com</code>

Highlight

This isn't common, but some Markdown processors allow you to highlight text.

To highlight words, use two equal signs (==) before and after the words.

```
I need to highlight these ==very important words==.
```

The rendered output looks like this:

I need to highlight these **very important words**.

Subscript and Superscript

To create a subscript, use one tilde symbol (~) before and after the characters.

Example: H~2~O

The rendered output looks like this: H₂O

To create a superscript, use one caret symbol (^) before and after the characters.

Example: X^2^

The rendered output looks like this: X²

Webpage

GitHub Pages documentation:

<https://docs.github.com/en/pages>

Creating a GitHub Pages site:

<https://pages.github.com/>

<https://docs.github.com/en/pages/getting-started-with-github-pages/creating-a-github-pages-site>

About GitHub Pages and Jekyll

<https://docs.github.com/en/pages/setting-up-a-github-pages-site-with-jekyll/about-github-pages-and-jekyll>

Objectives

- Understand Markdown basics
- Use Markdown syntax to format text
 - Heading, Paragraph, Emphasis
 - Sorted and Unsorted list
 - Image and link
 - Table
- Exposure to corresponding HTML syntax



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