

# Warmup 1: Markdown Syntax

Stat 133, Spring 2021

## Introduction

The purpose of this assignment is to work with an R Markdown (`Rmd`) file and practice writing content using markdown syntax, and a bit of math equations with latex syntax. Because you will be using R markdown files, aka `Rmd` files, throughout the rest of the course, the sooner you get familiar with this syntax, the better.

## General Instructions

- Write your narrative and code in an `Rmd` (R markdown) file.
- Name this file as `warmup01-first-last.Rmd`, where `first` and `last` are your first and last names (e.g. `warmup01-gaston-sanchez.Rmd`).
- Submit your `Rmd` and `html` files to bCourses.

Here are some useful resources that you can look at to complete this assignment:

- Markdown tutorial by CommonMark: <http://commonmark.org/help/tutorial/>
- Another Markdown tutorial: <http://www.markdowntutorial.com/>
- RStudio has a very comprehensive R Markdown tutorial: <http://rmarkdown.rstudio.com/>
- Mastering Markdown: <https://guides.github.com/features/mastering-markdown/>
- Markdown reference: <http://commonmark.org/help/>
- Adam Pritchard's Markdown Cheatsheet: <https://github.com/adam-p/markdown-here/wiki/Markdown-Cheatsheet>
- RStudio cheat sheet: <https://www.rstudio.com/wp-content/uploads/2016/01/rstudio-IDE-cheatsheet.pdf>

## 1) Star Wars

Visit *Star Wars Wiki* (i.e. wookieepedia) (<https://starwars.wikia.com/>) and choose one of the characters (e.g. [Hype Fazon](#)).

Use **markdown syntax only** to write the following about your chosen character (do NOT use any other type of syntax: e.g. html)

- Use a heading for the name of the chosen character.
- Include a markdown hyperlink of the character: e.g. [https://starwars.fandom.com/wiki/Hype\\_Fazon](https://starwars.fandom.com/wiki/Hype_Fazon)
- Use an image hyperlink to include an image of the chosen character.
- Include one of the character's quote using a markdown blockquote.
- Use a markdown table with two columns to include things like species, gender, eye color, etc.

Here's an example of some of the requested markdown elements, based on the character Hype Fazon.



A famous quote by Fazon Hype:

“Believe the hype.”

Description	Value
Species	Rodian
Gender	Male
Eye Color	Blue
Skin Color	Green

## 2) Cooking Recipe

Visit *Smitten Kitchen* (<https://smittenkitchen.com>) and choose one recipe (e.g. [root vegetable gratin](#)).



The screenshot shows the Smitten Kitchen website. At the top is the 'sk' logo in a stylized blue font. Below it is a navigation bar with links: 'SURPRISE ME!', 'RECIPES', 'PARTY SNACKS', 'BOOKS', 'VIDEO', and 'MORE'. The main content area features a large image of a root vegetable gratin in a white oval dish. To the right of the image is a search bar and social media icons for Facebook, Twitter, Pinterest, Instagram, and RSS. Below these is a section for 'THE WEEKLY NEWSLETTER' with an email address input field and a 'SUBSCRIBE' button. At the bottom right, there is a 'POPULAR RIGHT NOW' section with four small images of various dishes.

- Use different headers (e.g. #, ##, ###) to denote the name of the chosen meal, the list of ingredients, the cooking steps, etc.
- Include a hyperlink of the recipe.
- Use an **unordered** list (of bullets) to list the ingredients.
- Use another unordered list to list any “special” kitchen tools that are needed.
- Write paragraphs to describe the steps of the recipe. Also, make sure to use markdown syntax to format text in italics, and bold when appropriate.
- Include an image to show the appearance of the meal.
- Include a footnote. See the markdown-cheatsheet (page 2) to learn how to insert footnotes.

*More instructions in the next page*

### 3) Euclidean Distance

Visit the wikipedia page for the Euclidean Distance:

[https://en.wikipedia.org/wiki/Euclidean\\_distance](https://en.wikipedia.org/wiki/Euclidean_distance)

Use markdown syntax, as well as latex syntax for math symbols, to replicate the text of the **Definition** (see screenshot below):

The screenshot shows the Wikipedia definition of Euclidean distance. Annotations with orange arrows point to specific parts of the text:

- An arrow points to the word "Definition" with the text "No need to include hyperlinks".
- An arrow points to the phrase "line segment" with the text "No need to include hyperlinks".
- An arrow points to the superscripted footnote "[1]" in "Pythagorean formula:[1]" with the text "No need to include footnotes".

**Definition** [ edit ]

The **Euclidean distance** between points **p** and **q** is the length of the **line segment** connecting them ( **$\overline{pq}$** ).

In **Cartesian coordinates**, if **p** = ( $p_1, p_2, \dots, p_n$ ) and **q** = ( $q_1, q_2, \dots, q_n$ ) are two points in **Euclidean  $n$ -space**, then the distance ( $d$ ) from **p** to **q**, or from **q** to **p** is given by the **Pythagorean formula**:<sup>[1]</sup>

$$\begin{aligned} d(\mathbf{p}, \mathbf{q}) &= d(\mathbf{q}, \mathbf{p}) = \sqrt{(q_1 - p_1)^2 + (q_2 - p_2)^2 + \dots + (q_n - p_n)^2} \\ &= \sqrt{\sum_{i=1}^n (q_i - p_i)^2}. \end{aligned} \tag{1}$$

The position of a point in a Euclidean  $n$ -space is a **Euclidean vector**. So, **p** and **q** may be represented as Euclidean vectors, starting from the origin of the space (initial point) with their tips (terminal points) ending at the two points. The **Euclidean norm**, or **Euclidean length**, or **magnitude** of a vector measures the length of the vector:<sup>[1]</sup>

$$\|\mathbf{p}\| = \sqrt{p_1^2 + p_2^2 + \dots + p_n^2} = \sqrt{\mathbf{p} \cdot \mathbf{p}},$$

where the last expression involves the **dot product**.

To write all the above equations you will have to use latex syntax. Here are a couple of resources about writing math symbols with Latex notation:

- [https://www.sharelatex.com/learn/Mathematical\\_expressions](https://www.sharelatex.com/learn/Mathematical_expressions)
- <https://en.wikibooks.org/wiki/LaTeX/Mathematics>

If you feel the euclidean distance is not enough, feel free to find other math equations and formulas to play with.