
R Markdown notes

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R Markdown used different packages

- knitter : to generate markdown formatted document
- pandoc
- R markdown

Reasons to use R markdown

- can make full webpages with R markdown and can post in github.
- can prepare presentations
- can write manuscript

YAML headers

- html is web format
- we can change output format as html_document, pdf_document, word_document etc.
- using toc : true, we can generate table of contents that corresponds to our headers.
- toc_float : true, we generate different style of table of contents (looks like webpage and we can click on the contents to directly go to that particular page).
- to display the document in github, we need to create a markdown file that github can recognize. The output should be md_document format with option variant : gfm that means github favoring markdown. File will have extension .md .
- this option will give us markdown formatted document. It is an intermediate step where R markdown generates a markdown format and R reads it and converts it into different other formats such as pdf, word etc.

How to write R codes in R markdown

```
#R code example  
# This is R code example
```

```
library(knitr)
```

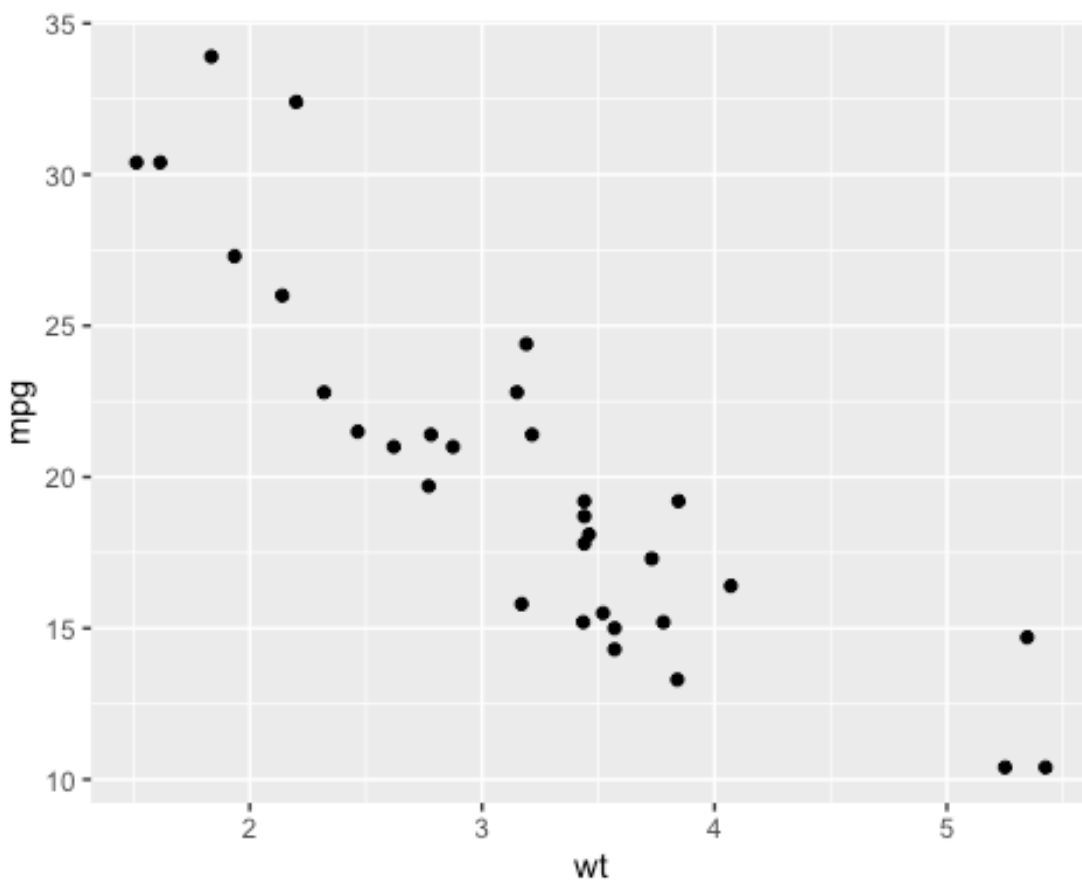
```
library(ggplot2)
library(markdown)
```

#It will not include code chunk but shows output

```
##      Length      Class      Mode
##      1 character character
```

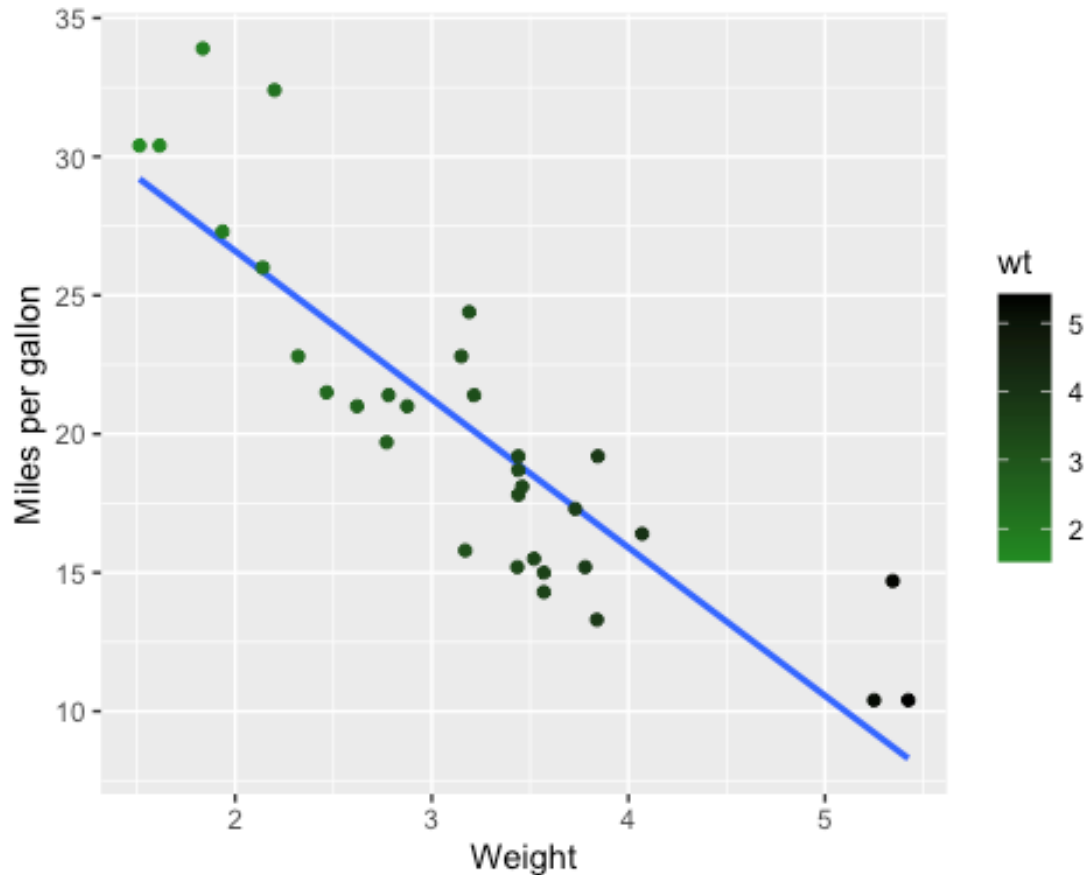
Include figures

```
data("mtcars")
ggplot(mtcars, aes(x = wt, y = mpg)) +
  geom_point()
```



```
data("mtcars")
ggplot(mtcars, aes(x = wt, y = mpg)) +
  geom_smooth(method = lm, se = FALSE) +
  geom_point(aes(color = wt)) +
  xlab("Weight") +
  ylab("Miles per gallon") +
  scale_colour_gradient(low = "forestgreen", high = "black")
```

```
## `geom_smooth()` using formula = 'y ~ x'
```



How to format results

- We can make different levels of headers and table of contents of recognize these headers. Subheaders can be added within these headers.

First level header

sub header

Second level header

Third level header

this text is italics

this text is bold

#For making lists

- first item
- second item

- first subitem

#OR

1. first item
2. second item

To add links

[Link to my github](#)

Images

! shrek ggplot

Formatted tables

```
kable(mtcars, digits = 3, format = "markdown")
```

	mp							v	a	gea	car
	g	cyl	disp	hp	drat	wt	qsec	s	m	r	b
Mazda RX4	21.0	6	160.0	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160.0	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258.0	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360.0	175	3.15	3.440	17.02	0	0	3	2
Valiant	18.1	6	225.0	105	2.76	3.460	20.22	1	0	3	1
Duster 360	14.3	8	360.0	245	3.21	3.570	15.84	0	0	3	4
Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1	0	4	2
Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1	0	4	2
Merc 280	19.2	6	167.6	123	3.92	3.440	18.30	1	0	4	4

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Merc 280C	17.8	6	167.6	123	3.92	3.440	18.90	1	0	4	4
Merc 450SE	16.4	8	275.8	180	3.07	4.070	17.40	0	0	3	3
Merc 450SL	17.3	8	275.8	180	3.07	3.730	17.60	0	0	3	3
Merc 450SLC	15.2	8	275.8	180	3.07	3.780	18.00	0	0	3	3
Cadillac Fleetwood	10.4	8	472.0	205	2.93	5.250	17.98	0	0	3	4
Lincoln Continental	10.4	8	460.0	215	3.00	5.424	17.82	0	0	3	4
Chrysler Imperial	14.7	8	440.0	230	3.23	5.345	17.42	0	0	3	4
Fiat 128	32.4	4	78.7	66	4.08	2.200	19.47	1	1	4	1
Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1	4	2
Toyota Corolla	33.9	4	71.1	65	4.22	1.835	19.90	1	1	4	1
Toyota Corona	21.5	4	120.1	97	3.70	2.465	20.01	1	0	3	1
Dodge Challenger	15.5	8	318.0	150	2.76	3.520	16.87	0	0	3	2
AMC Javelin	15.2	8	304.0	150	3.15	3.435	17.30	0	0	3	2
Camaro Z28	13.3	8	350.0	245	3.73	3.840	15.41	0	0	3	4
Pontiac Firebird	19.2	8	400.0	175	3.08	3.845	17.05	0	0	3	2
Fiat X1-9	27.3	4	79.0	66	4.08	1.935	18.90	1	1	4	1
Porsche 914-2	26.0	4	120.3	91	4.43	2.140	16.70	0	1	5	2
Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.90	1	1	5	2
Ford Pantera L	15.	8	351.0	26	4.2	3.170	14.50	0	1	5	4

	mpg	cyl	disp	hp	drat	wt	qsec	v	a	gear	carb
	g							s	m	r	b
	8			4	2						
Ferrari Dino	19.7	6	145.0	175	3.62	2.770	15.50	0	1	5	6
Maserati Bora	15.0	8	301.0	335	3.54	3.570	14.60	0	1	5	8
Volvo 142E	21.4	4	121.0	109	4.11	2.780	18.60	1	1	4	2

Links to analysis

- [Data visualization 1](#)
- [Data visualization 2](#)

In our readme, we want to create a link so that anyone can go to the markdown file in github. We can push all the files to github.

File tree

```
fs::dir_tree()

## .
## └─ 533452a.pdf
## └─ Advanced Visualization
##     └─ Advanced Visualization.Rmd
##     └─ Advanced-Visualization.pdf
##     └─ BacterialAlpha.csv
##     └─ CodingChallenge1.R
##     └─ Coding_Notes_DataVisualization2.Rmd
##     └─ Coding_Notes_DataVisualization2.pdf
##     └─ Data Visualization 1.Rproj
##     └─ Data_visualization.R
##     └─ MycotoxinData.csv
##     └─ README.md
##     └─ diff_abund.csv
## └─ Avoiding research misconduct_Mamata KC.docx
## └─ Baker,2016 Summary_Mamata KC.docx
## └─ Coding Challenge 1
##     └─ Bull_richness.csv
##     └─ Coding Challenge 1.Rproj
##     └─ CodingChallenge1.R
##     └─ CodingChallenge1.Rmd
##     └─ CodingChallenge1.docx
##     └─ CodingChallenge1.pdf
##     └─ CodingPractice1_Mamata.docx
##     └─ README.md
```

```

## |— Data Visualization 1
## |   |— CodingChallenge1.R
## |   |— CodingChallenge2_IntroDataVis.docx
## |   |— Coding_Notes_Data_Visualization1.Rmd
## |   |— Coding_Notes_Data_Visualization1.pdf
## |   |— Data Visualization 1.Rproj
## |   |— Data_Visualization1.Rmd
## |   |— Data_Visualization1_Mamata_KC.pdf
## |   |— Data_visualization.R
## |   |— MycotoxinData.csv
## |   |— README.md
## |   |— Untitled.R
## |— Data Visualization 2
## |   |— BacterialAlpha.csv
## |   |— Coding_Notes_DataVisualization2.Rmd
## |   |— Coding_Notes_DataVisualization2.pdf
## |   |— diff_abund.csv
## |— Data management strategies.docx
## |— GithubAccountLink.docx
## |— ProjectProposal_Mamata.docx
## |— R Markdown notes.Rmd
## |— R-Markdown-notes.Rmd
## |— R-Markdown-notes.html
## |— R-Markdown-notes.log
## |— R-Markdown-notes.tex
## |— R-Markdown-notes_files
## |   |— figure-docx
## |       |— include figures-1.png
## |       |— unnamed-chunk-2-1.png
## |— RStudioWithGitIntegrated_Mamata.png
## |— Xylella.jpg
## |— githubaccount_mamata.png
## |— password.rtf
## |— ~$dingChallenge2_IntroDataVis.docx

```

Following I have included one of my folder related to class so it is not organized

- After copying and pasting the tree, it should turn red.
- Provide explicit information of all the files in readme documents as some examples below.

```

|— 533452a.pdf
|— Advanced Visualization
|   |— Advanced Visualization.Rmd
|   |— Advanced-Visualization.pdf
|   |— BacterialAlpha.csv
|   |— CodingChallenge1.R
|   |— Coding_Notes_DataVisualization2.Rmd
|   |— Coding_Notes_DataVisualization2.pdf
|   |— Data Visualization 1.Rproj

```

```

|   |   | Data_visualization.R
|   |   | MycotoxinData.csv
|   |   | README.md
|   |   | diff_abund.csv
|   | Avoiding research misconduct_Mamata KC.docx
|   | Baker,2016 Summary_Mamata KC.docx
|   | Coding Challenge 1
|   |   | Bull_richness.csv
|   |   | Coding Challenge 1.Rproj
|   |   | CodingChallenge1.R
|   |   | CodingChallenge1.Rmd
|   |   | CodingChallenge1.docx
|   |   | CodingChallenge1.pdf
|   |   | CodingPractice1_Mamata.docx
|   |   | README.md # this is my readme file
|   | Data Visualization 1 #This includes all the files from data
visualization 1 course
|   |   | CodingChallenge1.R
|   |   | CodingChallenge2_IntroDataVis.docx
|   |   | Coding_Notes_Data_Visualization1.Rmd
|   |   | Coding_Notes_Data_Visualization1.pdf #This is coding notes for data
visualization 1
|   |   | Data Visualization 1.Rproj
|   |   | Data_Visualization1.Rmd
|   |   | Data_Visualization1_Mamata_KC.pdf #this is coding challenge for data
visualization 1
|   |   | Data_visualization.R
|   |   | MycotoxinData.csv #This is the data used for coding challenge `
|   |   | README.md
|   |   | Untitled.R
|   | Data Visualization2 #This includes all the files from data
visualization 2 course
|   |   | BacterialAlpha.csv
|   |   | Coding_Notes_DataVisualization2.Rmd
|   |   | Coding_Notes_DataVisualization2.pdf
|   |   | diff_abund.csv
|   | Data management strategies.docx
|   | GithubAccountLink.docx
|   | ProjectProposal_Mamata.docx #This is my project proposal
|   | R Markdown notes.Rmd
|   | R-Markdown-notes.html
|   | RStudioWithGitIntegrated_Mamata.png
|   | Xylella.jpg
|   | githubaccount_mamata.png
|   | password.rtf
|   | ~$dingChallenge2_IntroDataVis.docx # this is coding challenge 2 notes

```

This is helpful because it will always trail back.

Account on Zenodo

- works better with Git Hub.
- GitHub and zenodo accounts should be linked.
- we need to find our repository and flip the switch for repositories in the zenodo account.
- we need to go to github > repository > Create a new release > create a tag name (might be version name) > release title (eg creating zenodo) > write a description > publish. It will create a zip source code.
- sync github repositories in zenodo.
- Now badge is received (might take some time). Click on that badge, it gives markdown link. Copy the link and paste in README giving header name as DOI and push it to github. It will provide badge in README file in github.