Introduction to DATA607 CUNY SPS

R Markdown from R Studio - Intro

R Markdown provides an authoring framework for data science. You can use a single R Markdown file to both

- save and execute code *generate high quality reports that can be shared with an audience

R Markdown documents are fully reproducible and support dozens of static and dynamic output formats. This 1-minute video provides a quick tour of what's possible with R Markdown:

Installation

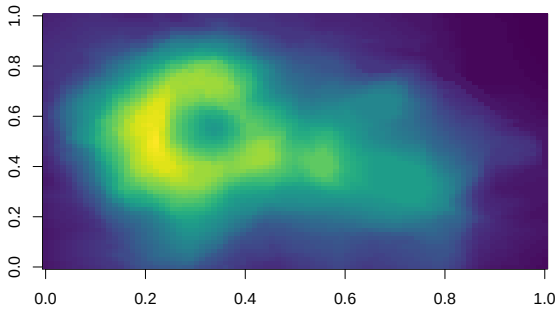
Like the rest of R, R Markdown is free and open source. You can install the R Markdown package from CRAN with:

```
install.packages("rmarkdown")
```

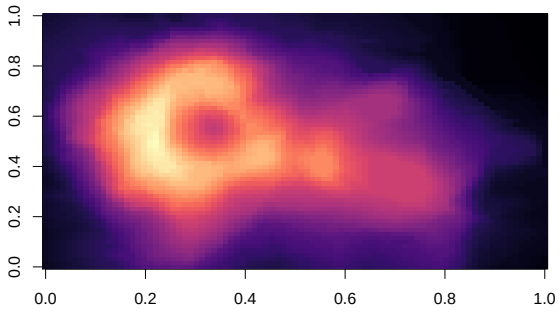
R Markdown Cheatsheet R Markdown Reference Guide

Viridis colors

Code below demonstrates to color palettes in the viridis package. Each plot displays a contour map of the Maunga Whau volcano in Auckland, New Zealand.



Magma colors




```
colorFunc <- "heat.colors"
# colorFunc <- "terrain.colors"
# colorFunc <- "topo.colors"
# colorFunc <- "cm.colors"
# colorFunc <- "rainbow"
```

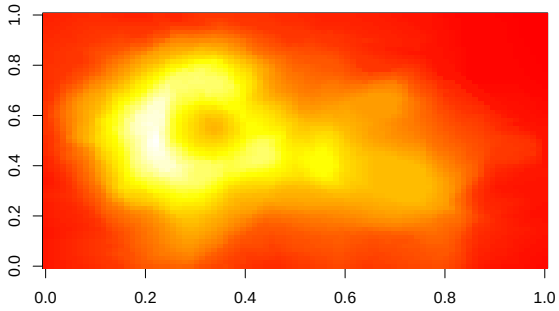


Figure 1: Heat color example

Simple Demo languages

Bash

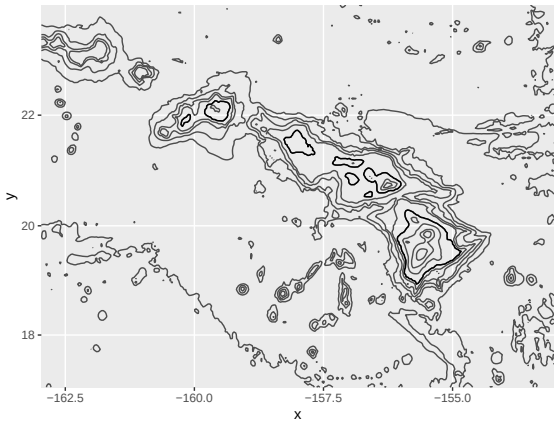
```
ls *.Rmd
```

Python

```
x = 'hello, python world!'
print(x.split(' '))
```

marmap

```
data(list = params$data)
autoplot(get(params$data))
```



Tables

Below packages are for tables

- xtable
- stargazer
- pander
- tables
- ascii
- etc.

It is also very easy to make tables with knitr's `kable` function:

Note the use of the results='asis' chunk option. This is required to ensure that the raw table output isn't processed further by knitr.

Table 1: A knitr kable.

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21.0	6	160	110	3.90	2.620	16.46	0	1	4	4
Mazda RX4 Wag	21.0	6	160	110	3.90	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.320	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	110	3.08	3.215	19.44	1	0	3	1
Hornet Sportabout	18.7	8	360	175	3.15	3.440	17.02	0	0	3	2

Markdown Basics

You can use Pandoc's Markdown to make:

A level-one header

Headers

A level-two header

ATX-style level-two header

ATX-style level-three header

A level-one header with a link and *emphasis*

I like several of their flavors of ice cream: #22, for example, and #5.

Header Attributes

{#identifier .class .class key=value key=value}

Level-one header

My header

My other header

Level-one unnumbered header

Level-one unnumbered header

Dogs?–in *my* house?

Lists

Bullet Lists

- one
- two
- three
- one
- two
- three
- here is my first list item.
- and my second.
- here is my first list item.
- and my second.

The four-space rule

- First paragraph.
  Continued.
- Second paragraph. With a code block, which must be indented eight spaces:
  { code }
- fruits
  - apples
    - macintosh
    - red delicious
  - pears
  - peaches

- vegetables
  - broccoli
  - chard
- A lazy, lazy, list item.
- Another one; this looks bad but is legal.

  Second paragraph of second list item.

Ordered Lists

1. one
2. two
3. three

and this one:

5. one
6. two
7. three

fancy_lists

1. one
2. two

Extension: startnum

9) Ninth
10) Tenth
11) Eleventh
    i. subone
    ii. subtwo
    iii. subthree

(2) Two
(3) Three

1. Four

- Five

Default Marker

1. one
2. two
3. three

Term 1

: Definition 1

Term 2 with *inline markup* Definition 2

```
{ some code, part of Definition 2 }
```

Third paragraph of definition 2.

Links

Automatic Links

http://google.com sam@green.eggs.ham

Inline links

This is an inline link, and here's one with a title.

Emails need the prefix mailto

Write me!

Reference Links

Test label 1

Test label 2

Test label 3

With angle brackets

With title

Using link labels

Here is my link

Internal link

See the Introduction.

- Block quotes
- Latex Equations
- Horizontal rules
- Tables
- Footnotes
- Bibliographies and Citations
- Slide breaks

- Italicized text
- Bold text
- Superscripts
- Subscripts
- Strikethrough text