



Center for Evaluation
and Development

Making a Presentation in R Using c4ed theme: Xaringan

Center for Evaluation and Development(C4ED) Using c4ed theme

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Outlines

- General introduction to R markdown 
- Making presentation slide using xaringan template 
- Create presentation using C4ED template 







Packages for making presentation in R

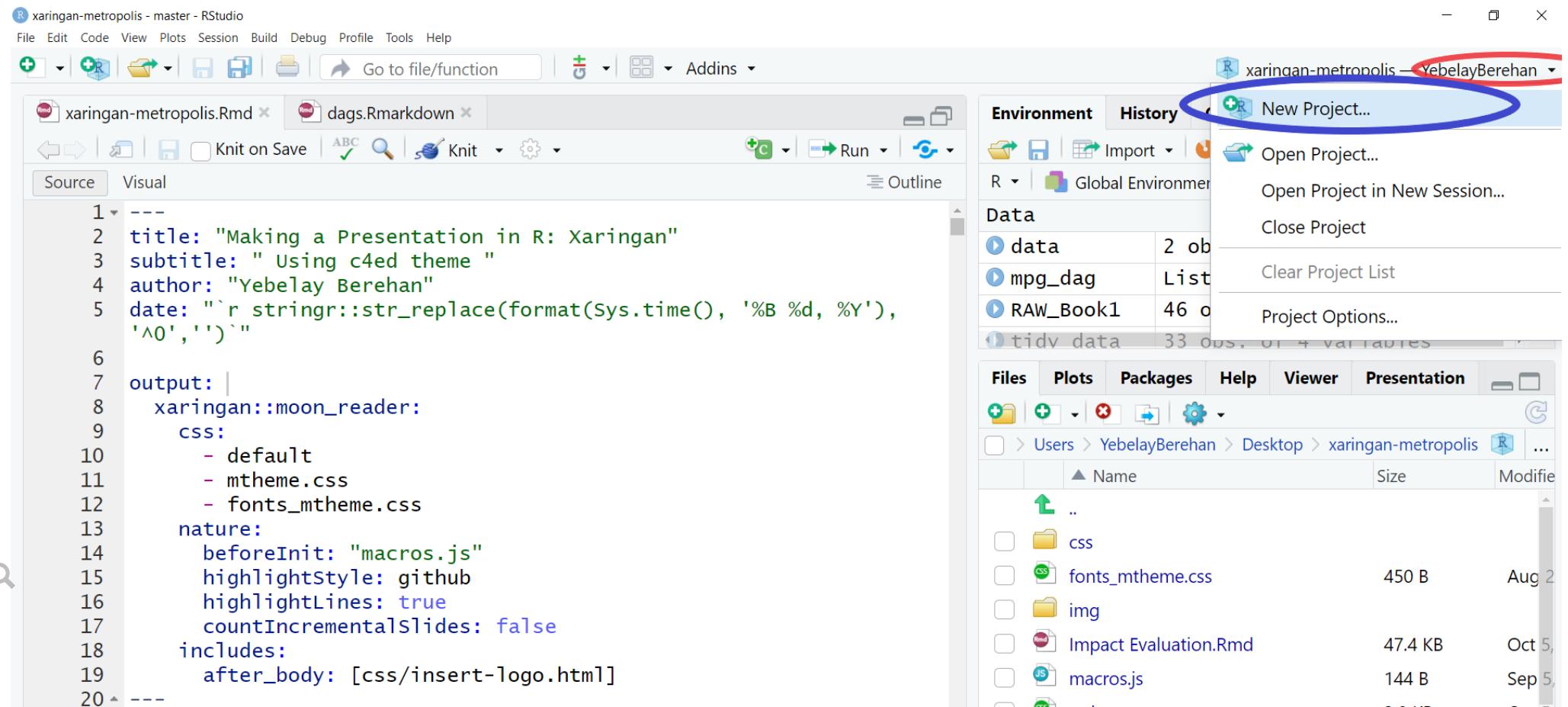
1. **rmarkdown**: Creates dynamic reports and documents by blending code and text.
2. **knitr**: Embeds and executes R code within R Markdown, generating tables and plots.
3. **tinytex**: Simplifies LaTeX package management for high-quality documents.
4. **xaringan**: Builds interactive web-based presentations using R Markdown.
5. **xaringanthemer**: Customizes themes and styles for Xaringan presentations.
6. **xaringanExtra**: Enhances Xaringan presentations with features like slide notes and transitions.

```
packs <- c(rmarkdown, knitr, tinytex, xaringan, xaringanExtra,  
           xaringanthemer)  
install.packages("packs")
```



Creating an R project 🐥

- Create a new R Project from within R Studio

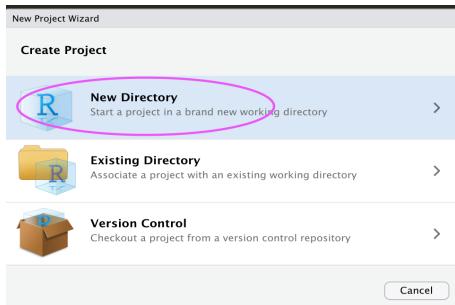


The screenshot shows the R Studio interface with a project titled "xaringan-metropolis" open. The "New Project..." option in the "File" menu is highlighted with a blue oval. The "Files" tab in the bottom right shows the contents of the project directory:

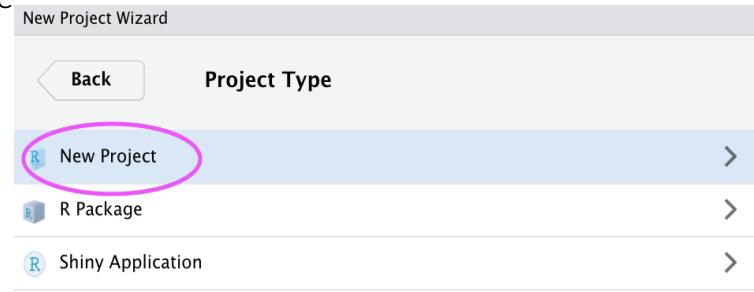
Name	Size	Last Modified
..		
css	450 B	Aug 2
fonts_mtheme.css	450 B	Aug 2
img		
Impact Evaluation.Rmd	47.4 KB	Oct 5,
macros.js	144 B	Sep 5,



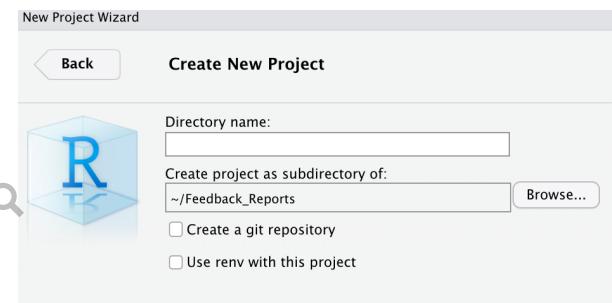
- Save in new directory

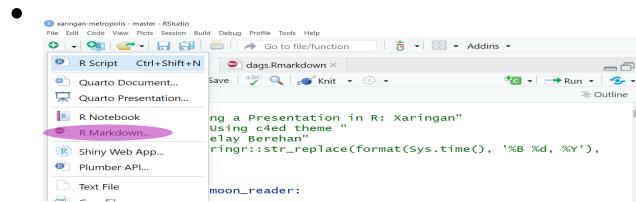


- Choose the folder where you want to store



your R Markdown file





- In that new folder, create an R Markdown file
 - When you knit, the following happens:



- knit executes the code if there is any, converts the resulting document from `.Rmd` (R Markdown) into `.md` (Markdown)
- pandoc transforms the `.md` document into your preferred output format(s) (e.g., word, pdf, html)



The YAML header

YAML includes the metadata variables

- e.g., title, output format
- written between a pair of three hyphens -

```
---  
title:  
output:  
---
```

- Typical **YAML variables** for any output format:

```
---  
title:  
author:  
date:  
output:  
---
```



YAML – Variables

- Variables can be provided as strings, options, sub-options, and code

```
---
```

```
title: "My very funny first slide"
output:
  pdf_document:
    keep_tex: true
date: `r Sys.Date()`
---
```

- Documents as output formats include

```
---
```

```
output: html_document
output: latex_document
output: pdf_document
output: word_document
---
```

- HTML
- LaTeX
- PDF
- Word



Headers

- The number sign # introduces headers; lower levels are created with additional # — up to total four levels

```
# Introduction  
## Introduction  
### Introduction  
#### Introduction
```

Introduction

Introduction

Introduction

Introduction

Emphases

- A pair of single asterisk * or underscores _ introduces italics
- *italics* or italics becomes *italics*
- A pair of double asterisk or underscores introduces bold
- **bold** or bold becomes **bold**



Equations

Inline equations go between a pair of single dollar signs "\$" with no space between the signs and the equation itself

`$E = mc^2$` becomes $E = mc^2$

Block equations go in between a pair of double dollar signs

`$$E = mc^2$$` becomes

$$E = mc^2$$

```
 $$Y=\beta_0+\beta_1x^2+\epsilon$$
 $$\bar{x}=\frac{\sum_{i=1}^n x_i}{n}$$
```

$$Y = \beta_0 + \beta_1 x + \beta_2 x^2 + \epsilon$$

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$$



Lists

Lines starting with asterisk * as well as plus + or minus - signs introduce lists

- books
- articles
- reports

- books
- articles
- reports

- Lists can be numbered, nested within each other, with indentation

- 1. books
- 2. articles
 - published
 - under review
 - + revised and resubmitted
 - work **in** progress

- 1. books
- 2. articles
 - published
 - under review
 - revised and resubmitted
 - work in progress



Dashes

- Two hyphens grouped together introduce small dash
 - -- becomes $\textcolor{red}{-}$
 - Three hyphens grouped together introduce bigger dash
 - --- becomes $\textcolor{red}{-}$
-

Subscripts and Superscripts

- underscore ($\underline{}$) introduces subscript
 - $\$ \text{CO}_2 \$$ becomes CO_2
- $\overset{\wedge}{}$ introduces superscript
 - R^2 becomes R^2



Making presentation slide using xaringan template 📄

- Xaringan = shar-in-gen or [ʃæ.'riŋ.gæn], which is created by Yihui Xie
- Install the package from GitHub

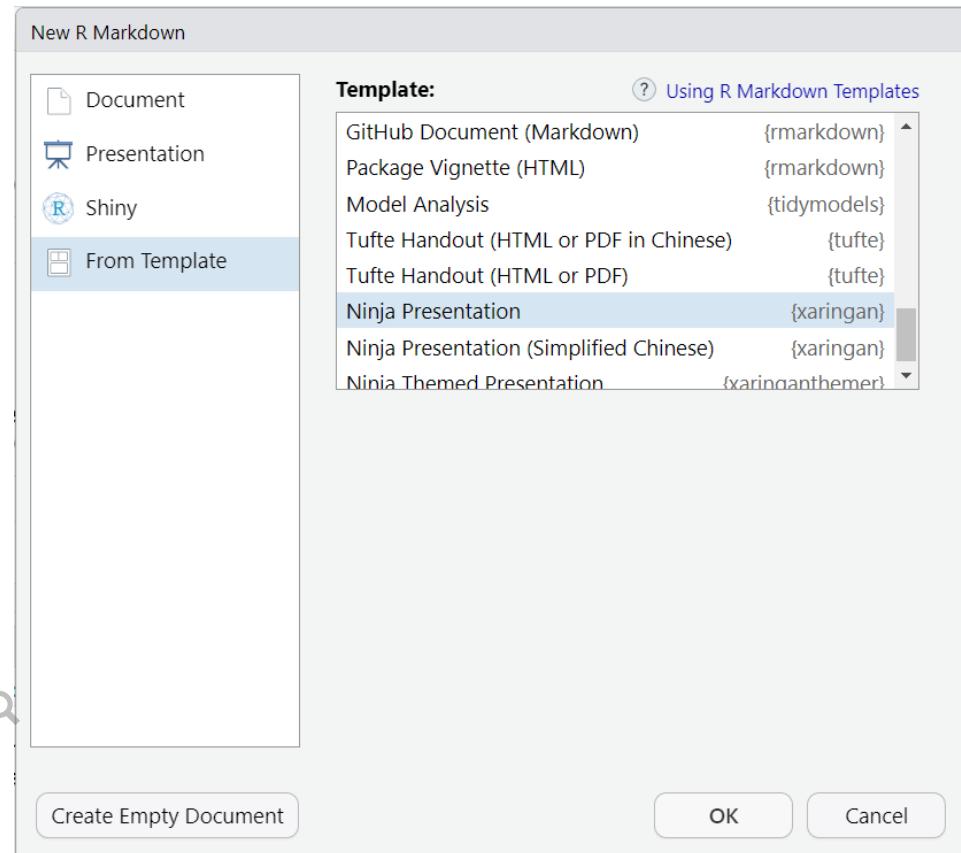
```
remotes::install_github("yihui/xaringan")
```

- In RStudio: Make a new project
- File ➔ New File ➔ R Markdown ➔ From Template ➔ Ninja Presentation
- Delete everything but YAML
- Save. (save, save, save!)



Then the YAML page

```
knitr::include_graphics("img/Ninja.png")
```



```
---
```

```
title: "Presentation Ninja"
subtitle: "X<br/>with xaringan"
author: "Yihui Xie"
institute: "RStudio, PBC"
date: "2016/12/12(updated: `r Sys.Date()`)"
output:
  xaringan::moon_reader: # output format
  nature:
    highlightStyle: # how the code displays
    highlightLines: true
  countIncrementalSlides: false
#ratio "16:9" # or 4:3
---
```



- To view the slides generated by your new Rmd file, you have two options:

Option 1. Run xaringan's infinite moon reader function in the console 

```
xaringan::inf_mr()
```

Option 2. Knit the document 



Familiar from **markdown**

- Headings (#, ##, ####)
- **Bold** and *italic* type
- Links and images with `[]()` and ``
- Bullet points can be added with
`-`, `+`, or `*`
- Numbered lists can be created with `1.`

Not so familiar, from **remark.js**

- First slide starts immediately after YAML, doesn't need to begin with three dashes(`---`)
- Slides are separated by three dashes
(`---`)
- Incremental slides are separated by two dashes (`--`)



How can we make our slides look more interesting?

by adjusting

- Placement of texts
- pretty pictures
- and icons



Make slides look more interesting: Align an entire slide

Horizontally

```
left,  
center,  
right
```

Vertically

```
top,  
middle,  
bottom
```

```
---
```

```
class: center, middle
```

This content is also centered and **in** the middle of the slide

```
---
```

- Slide with some text aligned

```
.right[ ... and finish it on the right.]
```

...and finish it on the right.



- Pull content to either side of the slide
- The `.pull-left[]` class pulls content to the left 47%

```
.pull-left[  
  
]
```



- And `.pull-right[]` pulls content to the right 47%

```
.pull-right[  
  
]
```



- They don't have to take up the entire slide. Like for this text, you can decide to continue creating content that isn't pulled to either side.



Make slides look more interesting: two-column layout

.left-column[] places
content into a column
20% wide

- And text is a little lighter

.right-column[] places content into a column 75% wide

- It also has a *little* bit of padding on the top
- And unlike the .pull content classes, these column classes are fixed for the entire slide
- They are meant to be used together



Make slides look more interesting: Adding colors



How to add images to your slides pictures

- Insert image from local or external sources
- Integrate R plots to the slide



insert image from local or external sources

- There are a variety of ways to add images to your slides!

Markdown knitr HTML

```

```

- simple
- not very flexible
- output size fully dependent on the size of the image,
but scaling can be managed



insert image from local or external sources

- There are a variety of ways to add images to your slides!

Markdown knitr HTML

```
knitr::include_graphics("img/fig.png")
```

- pretty flexible
- a little bulky



insert image from local or external sources

- There are a variety of ways to add images to your slides!

Markdown

knitr

HTML

```

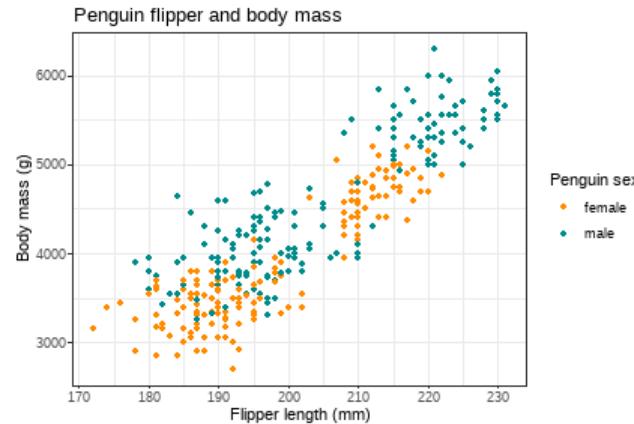
```

- most flexible
- a bit unsightly
- takes time to [get used to syntax](#)



visualize our data using r code

plot R code



visualize our data using r code

plot R code

```
library(ggplot2)
library(palmerpenguins)
ggplot(penguins, aes(x = flipper_length_mm, y = body_mass_g, color = sex)) +
  geom_point() + theme_bw() +
  scale_color_manual(values = c("darkorange", "cyan4"), na.translate = FALSE) +
  labs(title = "Penguin flipper and body mass") +
  labs(x = "Flipper length (mm)", y = "Body mass (g)",
       color = "Penguin sex") # facet_wrap(~ species)
```



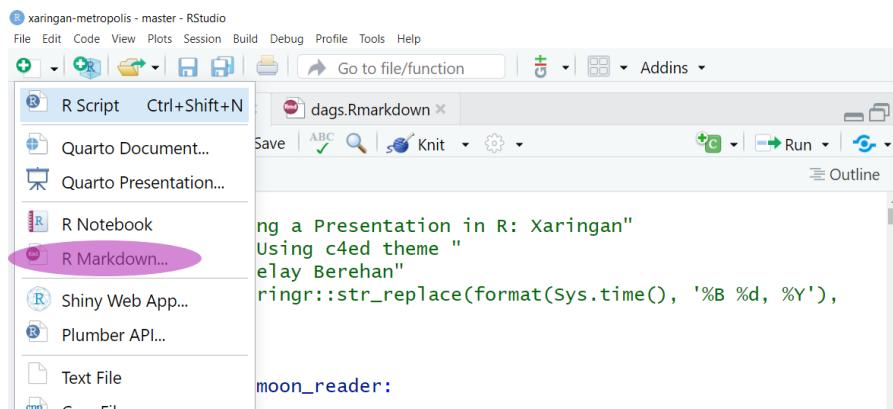
- I designed a custom CSS theme for C4ED theme as draft.

Getting started

New Rmd File Directory YAML 1 YAML 2 Extra info

1. New File

2. New R Markdown

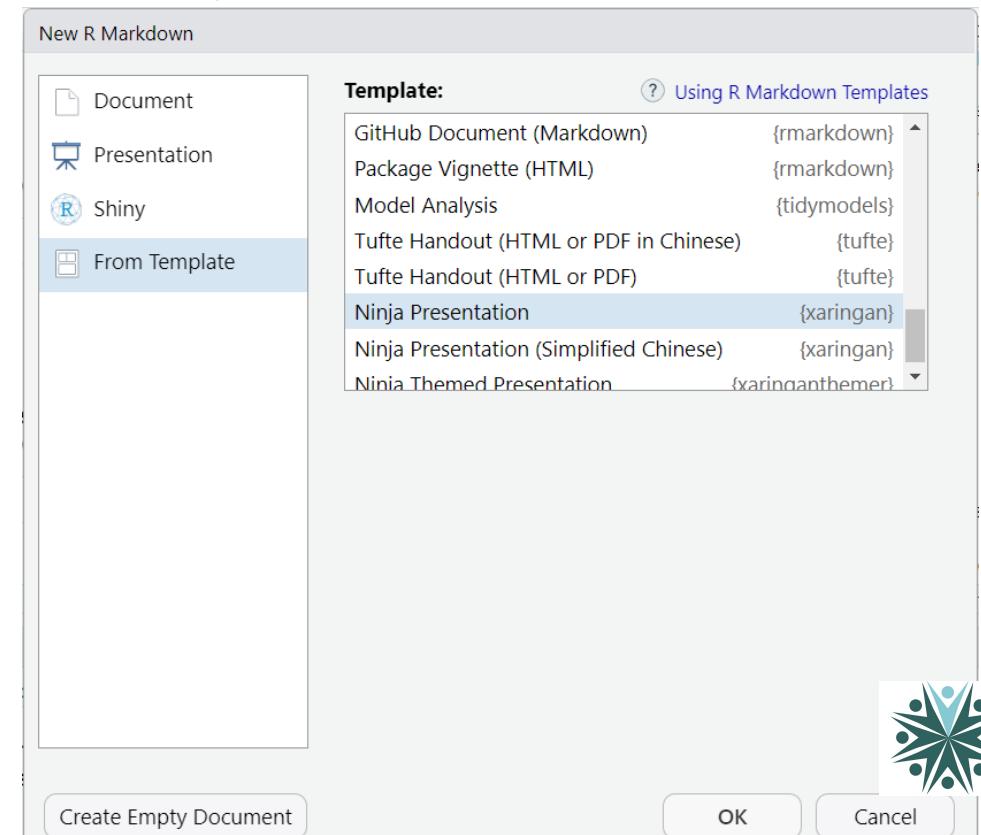


A screenshot of the RStudio interface. The title bar says "xaringan-metropolis - master - RStudio". The left sidebar shows options like R Script, Quarto Document..., Quarto Presentation..., R Notebook, R Markdown... (which is highlighted with a pink oval), Shiny Web App..., Plumber API..., and Text File. The main workspace shows the code for a presentation:

```
ng a Presentation in R: Xaringan"
Using c4ed theme "
elay Berehan"
ringr::str_replace(format(sys.time()), '%B %d, %Y'),

moon_reader:
```

3. From Template



- I designed a custom CSS theme for C4ED theme as draft.

Getting started

New Rmd File **Directory** YAML 1 YAML 2 Extra info

The new directory in the "Files" pane contains

- the new Rmd file (i.e. `Xaringan_Slide.Rmd`)
- the `img` folder containing logo files
- the `css` folder containing the custom `C4ED` theme files and an HTML file in charge of adding the c4ed logo to each slide.



- I designed a custom CSS theme for C4ED theme as draft.

Getting started

New Rmd File Directory **YAML 1** YAML 2 Extra info

```
---
```

```
title: "Making a Presentation in R Using c4ed theme: Xaringan"
subtitle: "Center for Evaluation and Development(C4ED) Using c4ed theme"
#institution: ""
author: "Yebelay Berehan"
date: `r stringr::str_replace(format(Sys.time(), '%B %d, %Y'), '^0','')`"
output:
  xaringan::moon_reader:
    css:
      - default
      - c4ed_theme.css
      - css/fonts_c4ed.css
```



- I designed a custom CSS theme for C4ED theme as draft.

Getting started

New Rmd File Directory YAML 1 **YAML 2** Extra info

More options for output `xaringan::moon_reader`

```
nature:  
  highlightStyle: github    # highlighting syntax for code  
  highlightLines: true      # true: enables code line highlighting  
  countIncrementalSlides: false # incremet not counted as page  
  highlightLanguage: ["r"]     # languages to highlight  
  countdown: 60000 # add time count for each slide  
  ratio: "16:10" # or 16:9 # size of slide  
includes:  
  after_body: [css/insert-logo.html]  # include logos to each page
```



- I designed a custom CSS theme for C4ED theme as draft.

Getting started

New Rmd File Directory YAML 1 YAML 2 Extra info

- `seal: true` creates a title slide with inverse colors using metadata from your YAML
- Other highlightStyle options from **remark.js** are:
 - arta, ascetic, dark, default, far, github, googlecode, idea, ir-black, magula, monokai, rainbow, solarized-dark, solarized-light, sunburst, tomorrow, tomorrow-night-blue, tomorrow-night-bright, tomorrow-night, tomorrow-night-eighties, vs, zenburn.



Create presentation using C4ED template

Moon Reader

Setup chunk

Inverse slide

Incremental slides

To view the slides generated by your new Rmd file, you have two options:

Option 1. Run xaringan's infinite moon reader function in the console 

```
xaringan::inf_mr()
```

Option 2. Knit the document 



Create presentation using C4ED template

Moon Reader

Setup chunk

Inverse slide

Incremental slides

A `setup` chunk with a few libraries and some chunk options set for the whole slide deck

```
25 ```{r setup, include = FALSE}
26 library(knitr)
27 library(tidyverse)
28 library(nhsrtheme)
29 # set default options
30 opts_chunk$set(echo = FALSE,
31                 fig.width = 7.252,
32                 fig.height = 4,
33                 dpi = 300)
```

Create presentation using C4ED template 🎉

Moon Reader

Setup chunk

Inverse slide

Incremental slides

Code

```
50 ---  
51 class: inverse, middle, center  
52  
53 # An inverse slide  
54  
55 Often used for transitions  
56  
57 ---
```

Slide

An inverse slide

Often used for transitions

Create presentation using C4ED template

[Moon Reader](#)[Setup chunk](#)[Inverse slide](#)[Incremental slides](#)[Code](#)

```
57 ---  
58  
59 # A slide where bullets appear  
60  
61 --  
62  
63  
64 * first point  
65  
66 --  
67  
68 * second point  
69  
70 --  
71  
72 * third point  
73  
74 ---
```

A slide where bullets appear

- first point
- second point
- third point



3 / 3

Full image slides

Use the `background-image` property right after slide break (---):

- `background-image: url("actual url or file path here")`
- `background-size: cover` --> image is scaled to fit into the slide.
- `background-position:` play with `this`

```
class: inverse  
background-image: url("https://media.giphy.com/media/giphy.gif")  
background-size: cover
```



Table

```
library(DT) # Create an interactive data table
datatable(iris, options = list(pageLength = 10))
```

Show 10 entries

Search:

	Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
1	5.1	3.5	1.4	0.2	setosa
2	4.9	3	1.4	0.2	setosa
3	4.7	3.2	1.3	0.2	setosa
4	4.6	3.1	1.5	0.2	setosa
5	5	3.6	1.4	0.2	setosa
6	5.4	3.9	1.7	0.4	setosa
7	4.6	3.4	1.4	0.3	setosa
8	5	3.4	1.5	0.2	setosa
9	4.4	2.9	1.4	0.2	setosa
10	4.9	3.1	1.5	0.1	setosa

Showing 1 to 10 of 150 entries

Previous

1

2

3

4

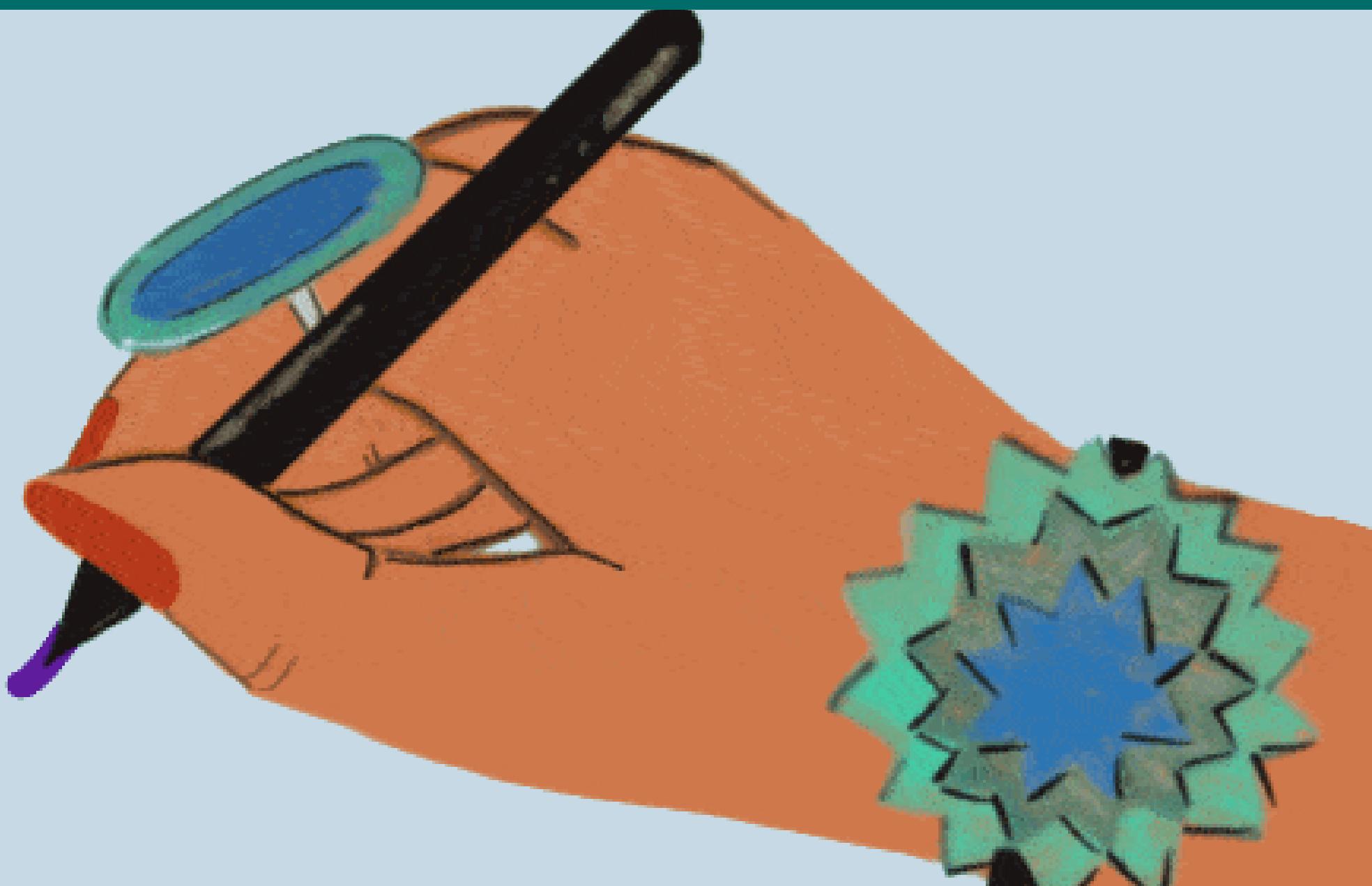
5

...

15

Next





```
## Warning: package 'renderthis' was built under R version 4.3.1
```

```
##  
ℹ Rendering 'file:/C:/Users/YebelayBerehan/Making Slide in R/Slide.html' into S...  
✓ Rendering 'file:/C:/Users/YebelayBerehan/Making Slide in R/Slide.html' into S...
```

