



Studio[®]

R Markdown for Reproducible Research

Outline

- What is Reproducibility
- Why R Markdown
- Tips and Tricks

What is Reproducibility?

A result is reproducible if it can be reliably replicated or recomputed in another time or place.

What is Reproducibility?



Ingredients



Process

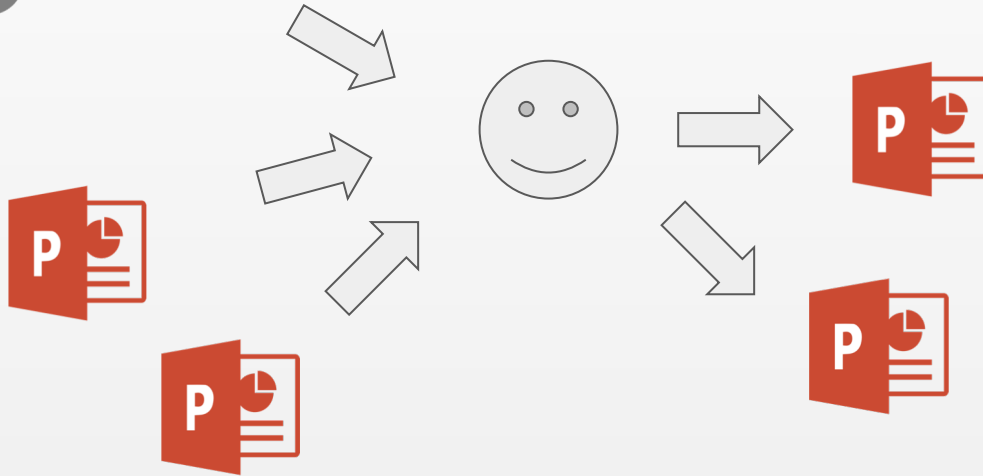


Result

A Motivational Example



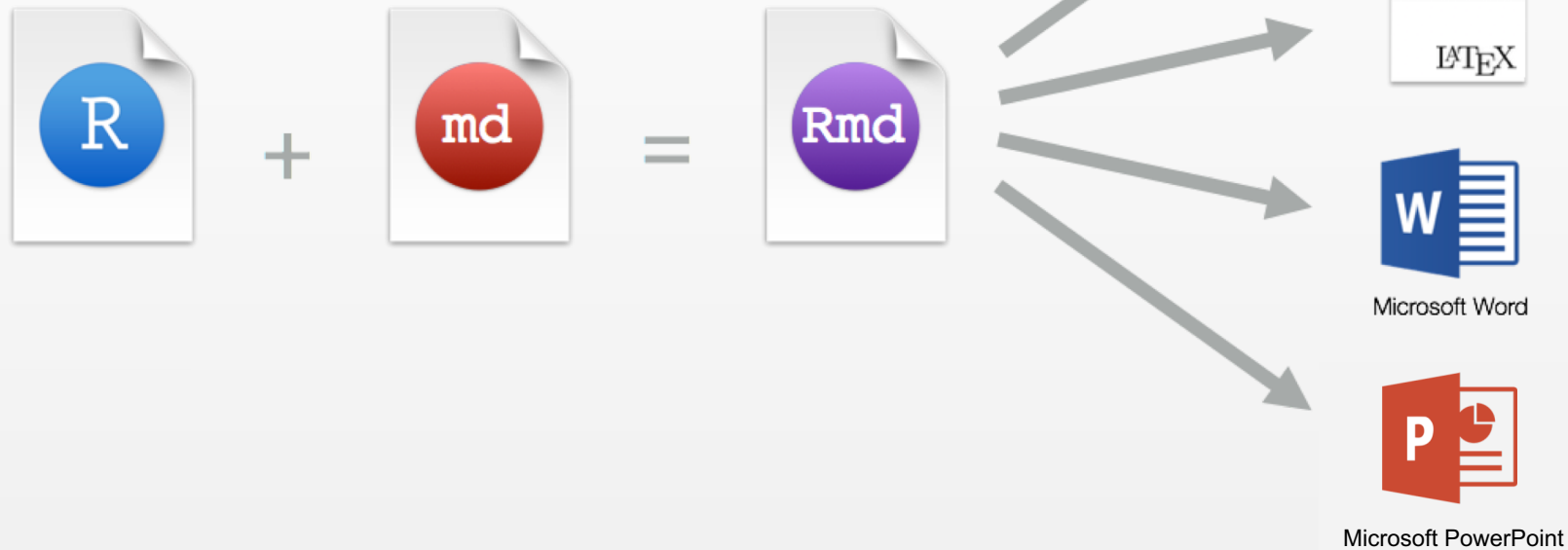
A Motivational Example



A Motivational Example



What is R Markdown?



What is R Markdown?



Ingredients

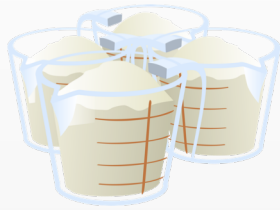


Process



Result

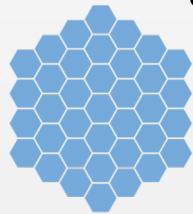
What is R Markdown?



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Ingredients

+

Process

=

Result



R Studio®

How does it help?

```
12
13 ▾ ## R Markdown
14
15 ▾ ### Start Date: `r params$start_date`
16
17 ▾ ### End Date: `r params$end_date`
18
19 Below is a plot on data for the time
20 period.
21 ▾ ```{r plot}
22 plot(iris)
23 ```
24
```

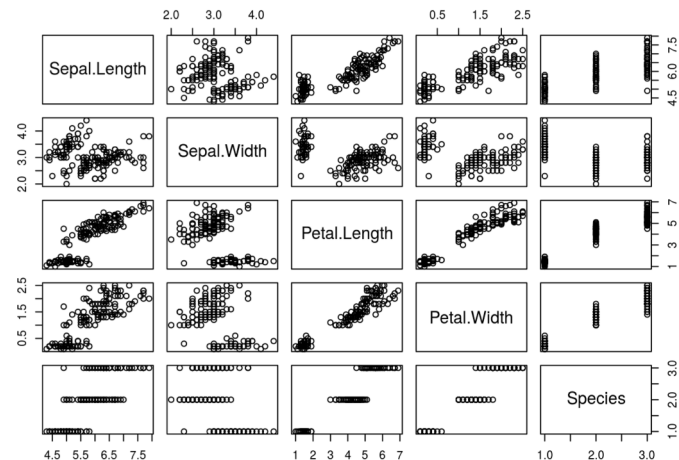
R Markdown

Start Date: 2019-02-05

End Date: 2019-02-15

Below is a plot on data for the time period.

```
plot(iris)
```



Parameterized R Markdown

```
---  
title: "ex-parameterized"  
output: html_document  
params:  
  start_date: !r Sys.Date() - 10  
  end_date: !r Sys.Date()  
---  
`r params$start_date`
```

Parameterized R Markdown

```
> rmarkdown::render(  
+   "./ex/ex-parameterized.Rmd",  
+   params = list(start_date = Sys.Date()-2)  
+ )
```

←→↺https://rstudio.cloud/project/162360

Dynamically provi...

Generating Rd files

RStudio - test-odbc

phpLDAPAdmin (1....

Real Estate Search

* RStudio (rstudio...

cross platform - ...

Welcome Center | ...

»

Other Bookmarks

CA

≡

Your Workspace / rmarkdown-for-reproducible-research

File

Edit

Code

View

Plots

Session

Build

Debug

Profile

Tools

Help

+

↵

📄

📄

🖨

Go to file/function

+

🧩

+

+

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Addins

R 3.5.2

gitignore

ex-name.Rmd

ex-parameterized.Rmd

ex-research.Rmd

ex-other-languages.Rmc

←

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📄

ABC

🔍

🌀

Knit

⚙

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Insert

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Run

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1

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3

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11

12

🌐

Knit to HTML

📄

Knit to PDF

📄

Knit to Word

Knit with Parameters...

Knit Directory

🧹

Clear Knitr Cache...

It is `r params\$name`

8:16

I know your name

R Markdown

Environment

History

Diff

Commit

Your branch is ahead of 'origi

Staged

Status

Path

r-reticulate/

venv/

Files

Plots

Package

Including Python (or other languages)



```
```{r}
name <- "cole"
```
```

```
```{python}
print("Hello " + r.name + "!")
```
```

Hello cole!

```
```{bash info}
hostname
echo "hello friend"
```
```

application-628224-deployment-2358823-kg9s7
hello friend

All Output Types

Websites

- blogdown, bookdown, pkgdown, HTML

Documents

- PDF, Word, HTML, Pagedown

Slides

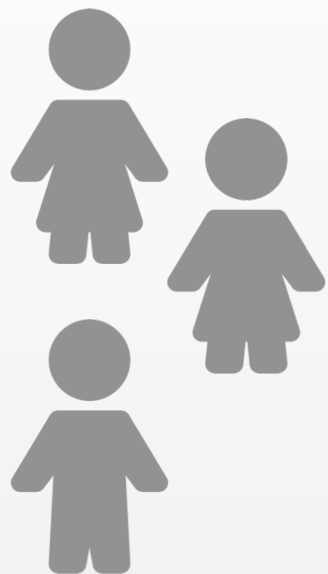
- PowerPoint, HTML (ioslides, Slidy, xaringan), PDF (Beamer)

Apps / Dashboards

- Shiny, flexdashboard



Deployment, Automation, Distribution



Creators



Consumers



Deployment, Automation, Distribution

- Central content / publishing portal
 - Cut down on version changes
 - Lower bar for non-programmers
- Schedule content to refresh automatically
- Interact with content (change parameters, etc.)
- Customized emails using `rmarkdown::output_metadata`
 - `blastula` package

Summary

- R Markdown helps reproduce your entire result
- Parameters help you easily specify inputs
- R Markdown is language agnostic

Stay in Touch

RStudio Community - <http://rstd.io/community>

Developer Blog - <http://rstd.io/dev-blog>

R Views Blog - <http://rstd.io/rviews-blog>

TensorFlow Blog - <http://rstd.io/tf-blog>

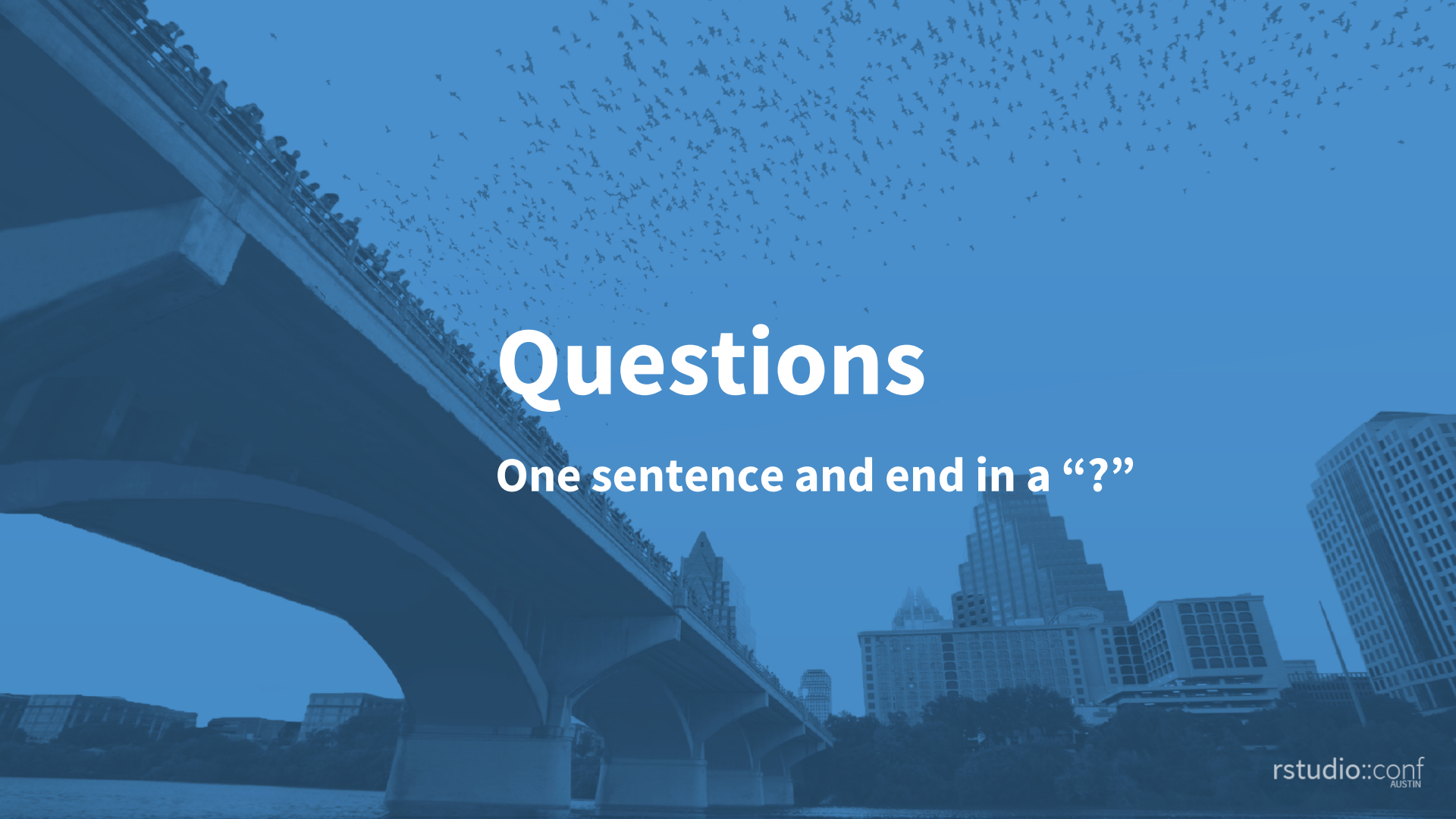
Twitter - <http://rstd.io/twitter>

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Questions

One sentence and end in a “?”