R Products

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What can you make in R?

- .R scripts
- R Markdown: reports/documents/notebooks (html/pdf/.doc)
- R packages
- Shiny apps
- blogdown: blogs & websites
- bookdown: books

Today we will focus on...

- .R scripts
- R Markdown: reports/documents/notebooks (html/pdf/.doc)
- **R packages**
- **Shiny apps**
- blogdown: blogs & websites
- bookdown: books

R Packages

R Packages: Why Make Them?

"It is about saving yourself time." - Hilary Parker

"Anything that can be automated, should be automated. Do as little as possible by hand. Do as much possible with functions." - Hadley Wickham

script.R

```
print("hi Ben")

print("bye Ben")

print("hi Sophie")

print("bye Sophie")

print("hi Jacob")

...
```

script.R

```
print("hi Ben")

print("bye Ben")

print("hi Sophie")

print("bye Sophie")

print("hi Jacob")

...
```

my_functions.R

```
hi <- function(name){

    return(paste0("hi ",name))

}

bye <- function(name){

    return(paste0("bye ",name))

}
```

script.R

```
print("hi Ben")

print("bye Ben")

print("hi Sophie")

print("bye Sophie")

print("hi Jacob")

...
```
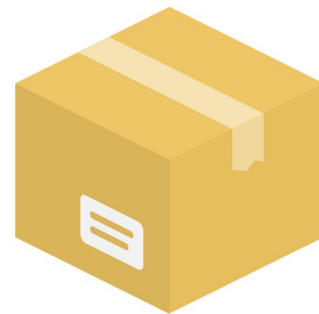
my_functions.R

```
hi <- function(name){

    return(paste0("hi ",name))

}

bye <- function(name){

    return(paste0("bye ",name))

}
```
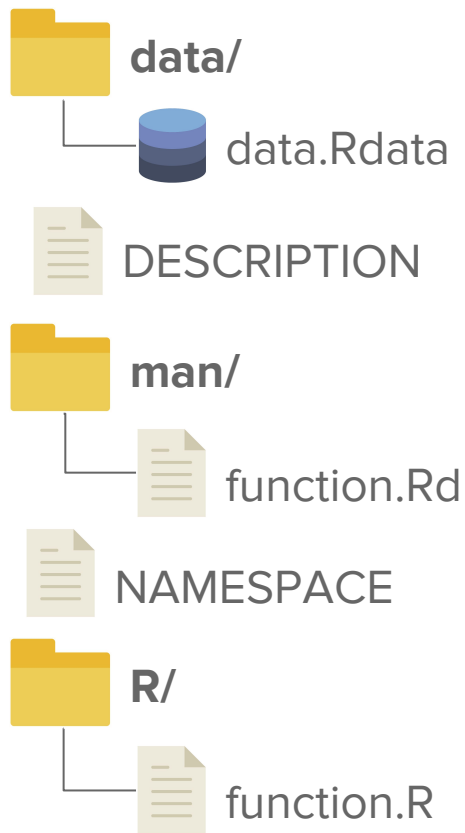
gReetings

```
gReetings::hi()
```

```
gReetings::bye()
```

R Packages: Structure

📁 **data/**
└── 🛢 data.Rdata

📄 DESCRIPTION

📁 **man/**
└── 📄 function.Rd

📄 NAMESPACE

📁 **R/**
└── 📄 function.R

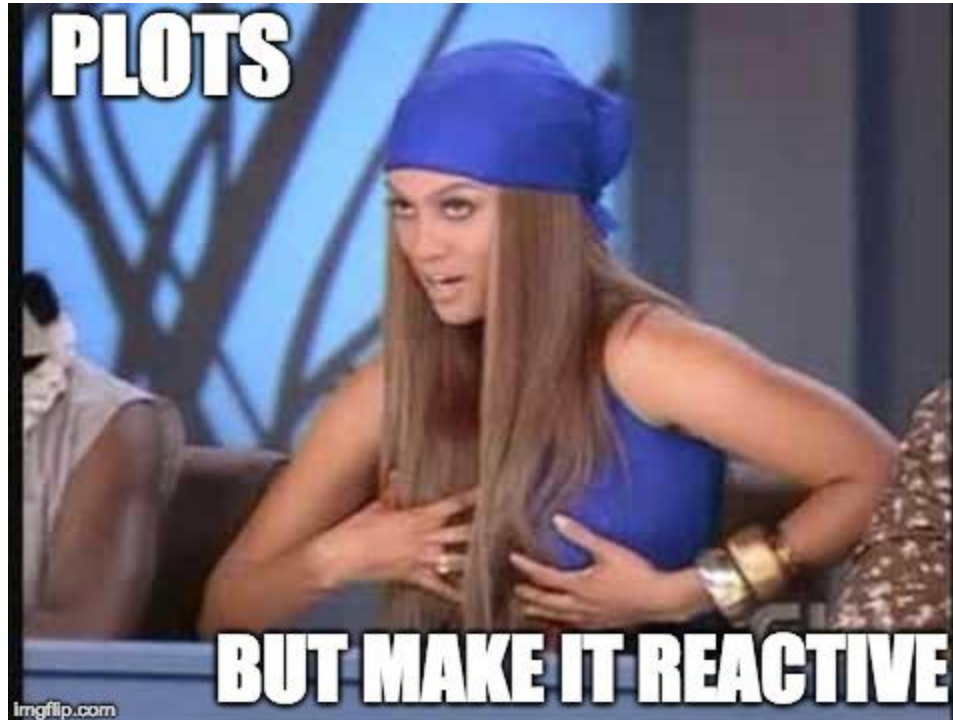# You can host R packages on...

- CRAN
- Bioconductor/Neuroconductor
- R-Forge
- GitHub

You can host R packages *most easily* on...

- CRAN
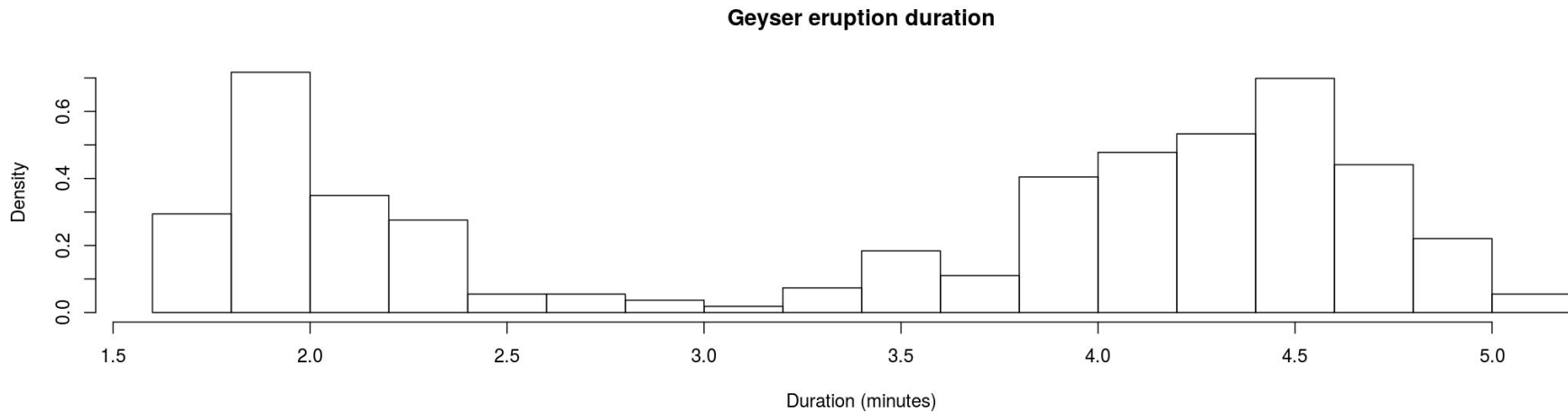- Bioconductor/Neuroconductor
- R-Forge
- GitHub

Shiny Apps ✨

Shiny Apps: What Are They?

Shiny Apps: What Are They?

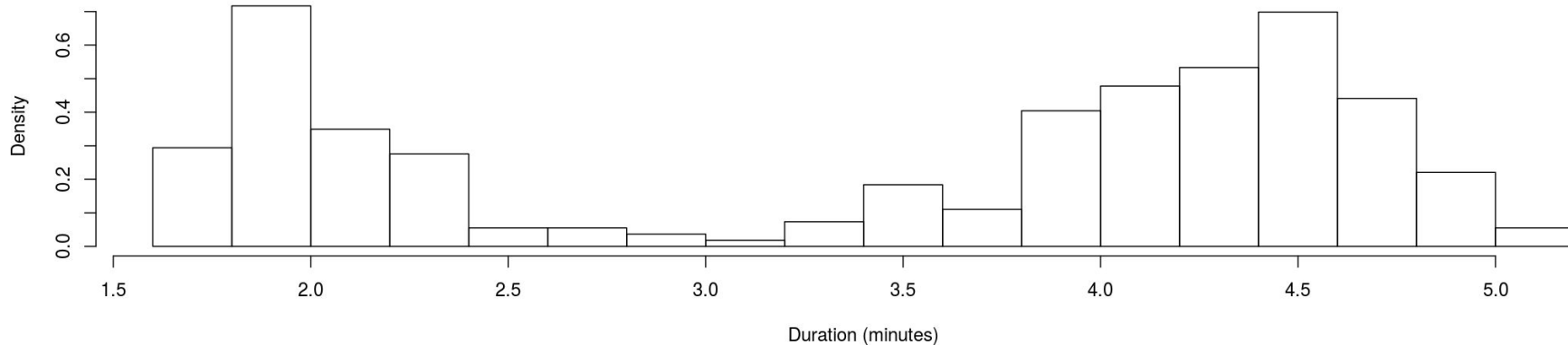Geyser eruption duration

Shiny Apps: What Are They?

Number of bins in histogram (approximate):

20

☐ Show individual observations
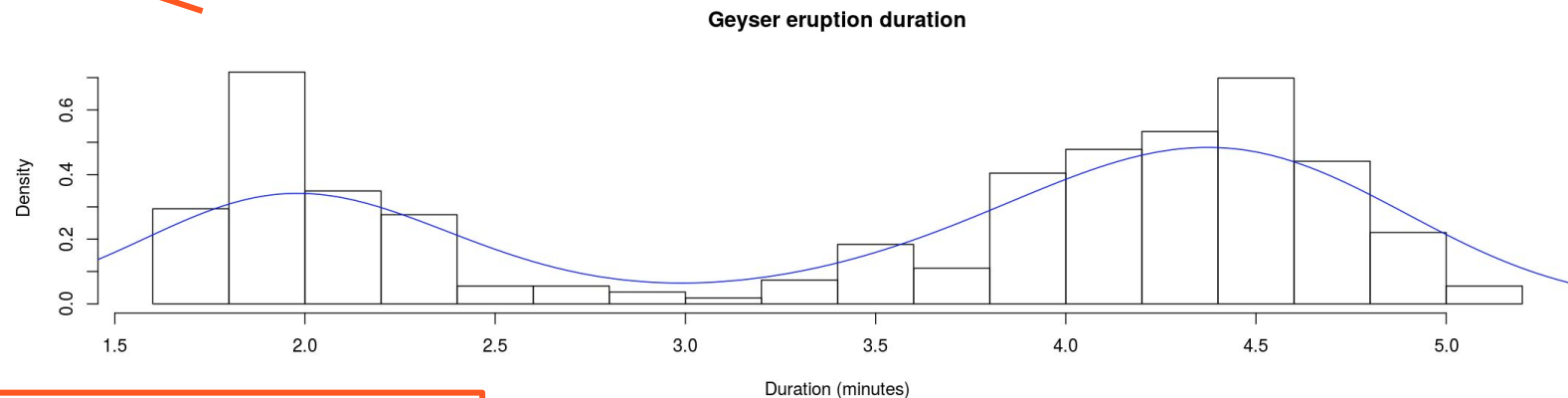
☐ Show density estimate

Geyser eruption duration

Density vs Duration (minutes)

Shiny Apps: What Are They?

Number of bins in histogram (approximate):

20 ▼

☐ **Show individual observations**

☑ **Show density estimate**

Geyser eruption duration

Duration (minutes)

Bandwidth adjustment:

0.2 ———●——— 2

0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2

Shiny Apps: What Are They?

Number of bins in histogram (approximate):

20 ▾
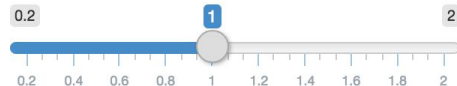
☐ **Show individual observations**

☑ **Show density estimate**

Geyser eruption duration

Bandwidth adjustment:

0.2

0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2

ui.R

```
......
sidebarPanel(
    checkboxInput(
        "check",
        "Select this",
        FALSE)
    ),

mainPanel(
    textOutput("response")
)
......
```

server.R

```
......


output$response = renderText({
    if(input$check == TRUE){"Yes"}
    if(input$check == FALSE){"No"}
})


......
```

ui.R

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Some examples...

- [2017 GOP Tax Plan: "Grad Student" Tax](#)
- [Salaries of Stat/Biostat Professors](#)
- More in the [Shiny Gallery](#)

Let's learn by doing!

(Start R Products Tutorial)