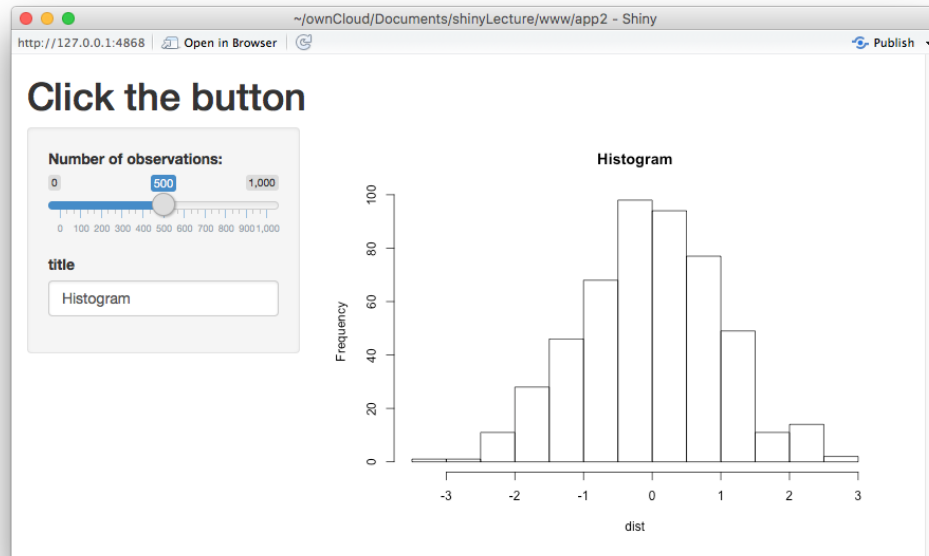


# R과 Shiny를 이용한 Web Application의 제작(II)

문건웅

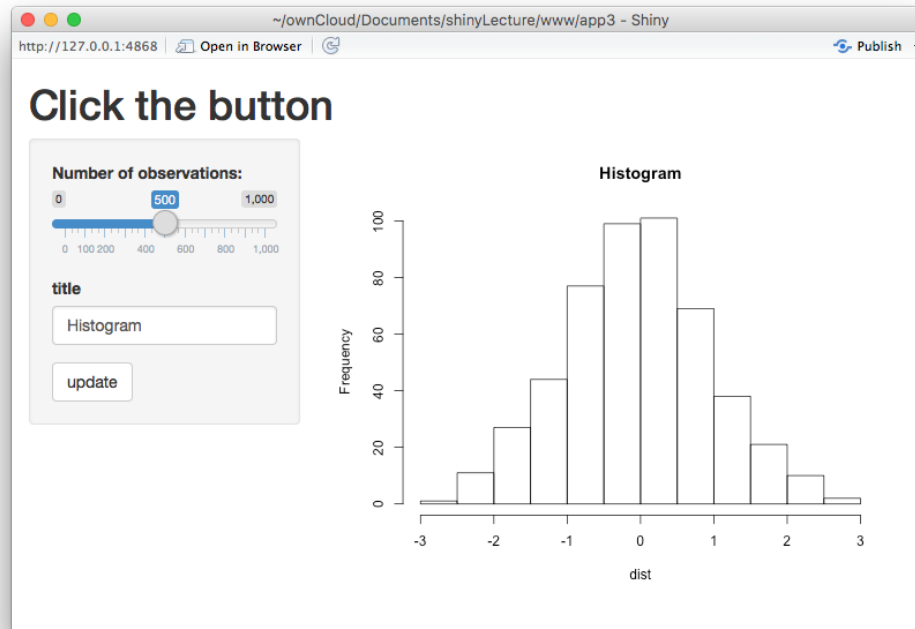
7-Nov-2017

## 2. Reactivity



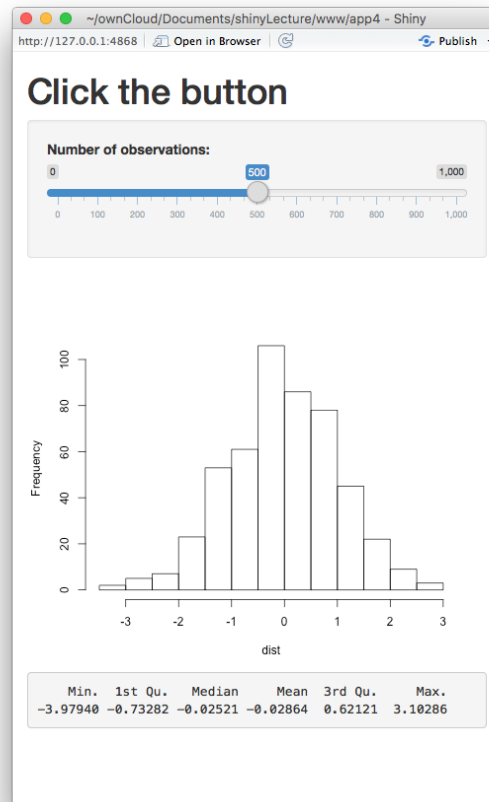
```
shiny::runGitHub('shinyLecture2', 'cardiomoon', subdir='inst/app2')
```

### 3. Stop reactions with isolate()

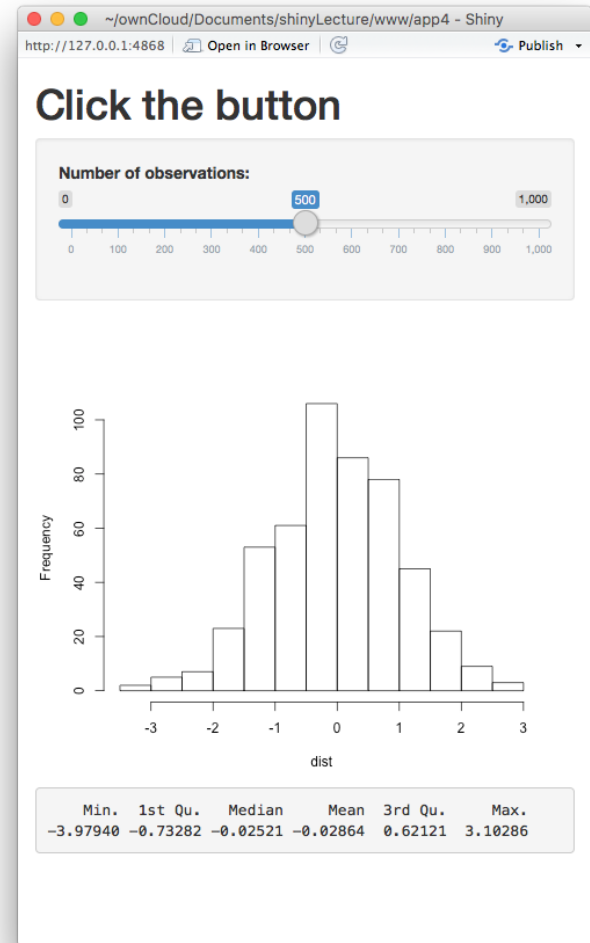
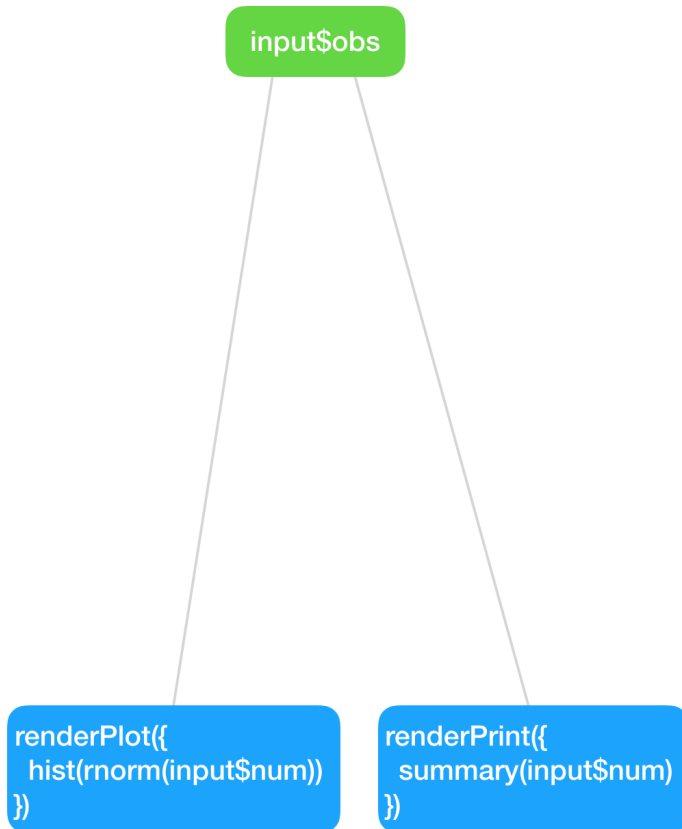


```
shiny::runGitHub('shinyLecture2', 'cardiomoon', subdir='inst/app3')
```

## 4. one input, two output



```
shiny::runGitHub('shinyLecture2', 'cardiomoon', subdir='inst/app4')
```



# reactive()

- reactive 함수로 반응성 객체를 만든다.

```
data <- reactive({rnorm(input$num)})
```

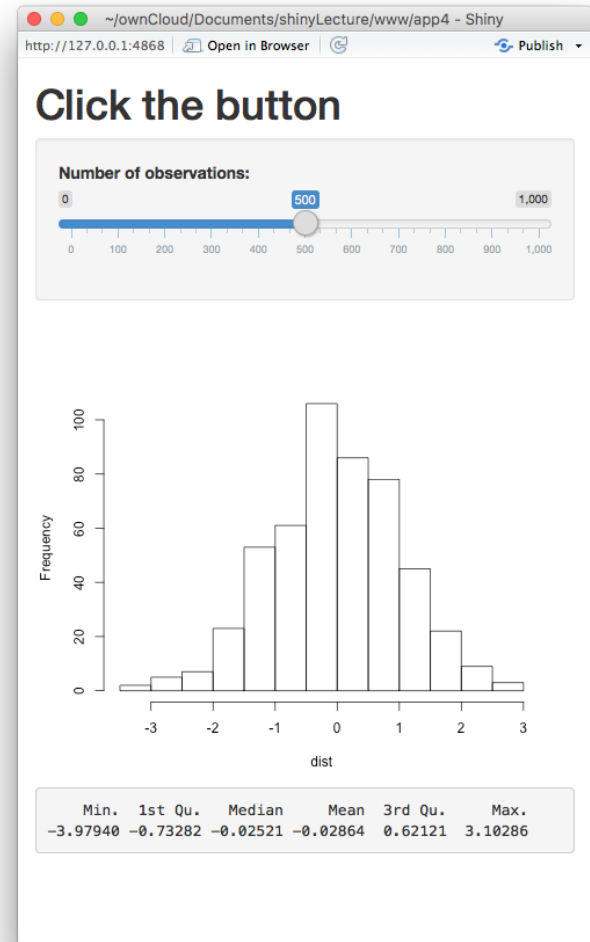
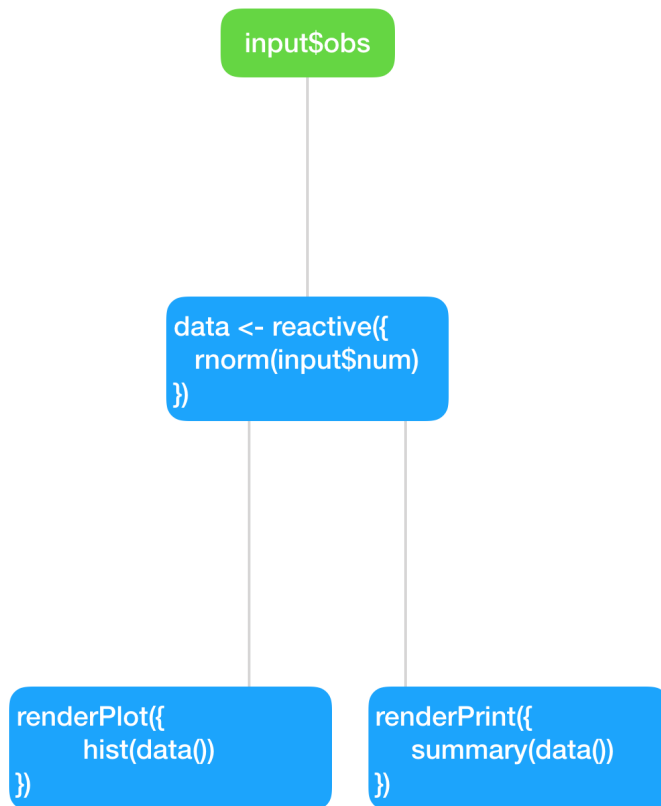
- 이 객체는 reactive value가 변할 때마다 반응한다.

# 반응성 객체

반응성 객체의 두가지 면에서 특별하다.

```
data()
```

- 반응성 객체를 호출할 때는 함수처럼 호출한다.
- 반응성 객체는 그 값을 임시로 저장한다(cache).
  - 무효화되지 않을 경우 가장 최근의 값을 반환한다.

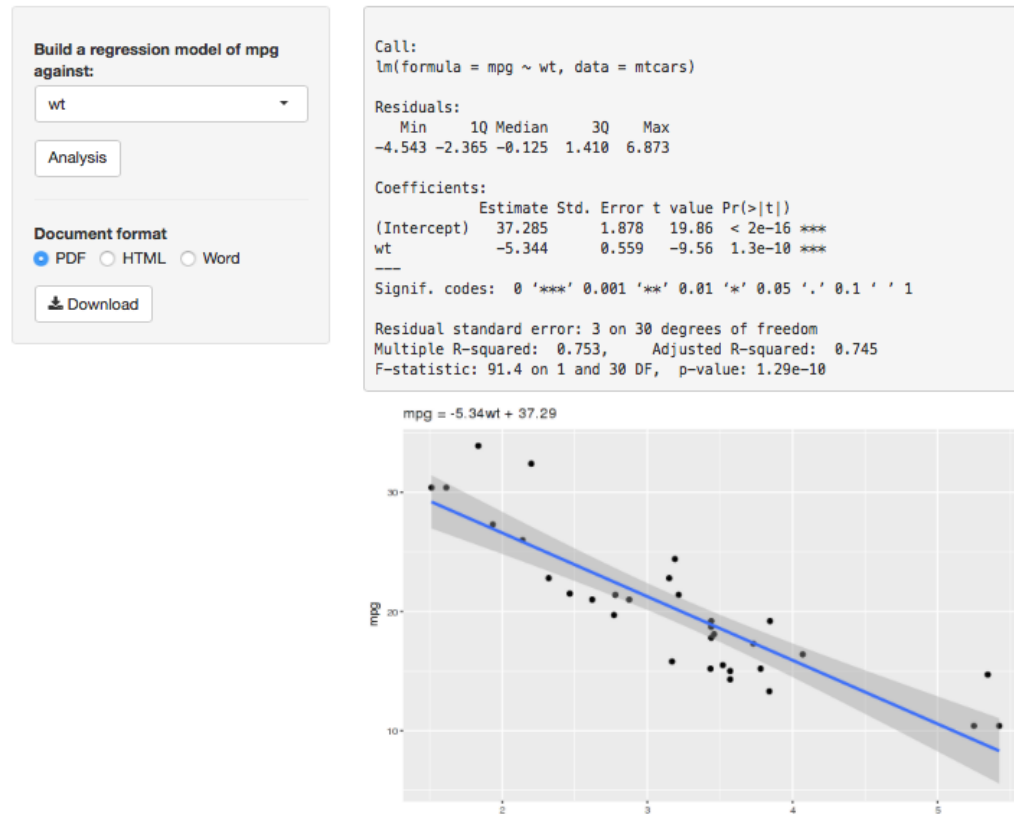


```
shiny::runGitHub('shinyLecture2', 'cardiomoon', subdir='inst/app5')
```



## 6. Download knitr Reports

### Download a Report



```
shiny::runGitHub('shinyLecture2', 'cardiomoon', subdir='inst/app13')
```

# Report.Rmd File

```
shinyLecture.Rmd x ShinyGadget.Rmd x test.Rmd x server.R x ui.R x Untitled1 x report.Rmd x
1 ---
2 title: "Regression Analysis"
3 output: html_document
4 ---
5
6 ```{r setup, include=FALSE}
7 knitr::opts_chunk$set(echo = TRUE, comment=NA)
8 ```
9
10 Summary of Regression Model:
11
12 ```{r model, echo=FALSE}
13 options(digits = 2)
14 fit <- eval(parse(text=paste0("lm( mpg ~", input$x, ", data = mtcars)")))
15 b <- coef(fit)
16 ```
17
18 ```{r}
19 summary(fit)
20 ```
21
22 The fitting result is $mpg = `r b[2]` `r input$x` + `r b[1]`$.
23 Below is a scatter plot with the regression line.
24
25 ```{r plot, echo=FALSE, fig.height=4}
26 ggplot(data=mtcars, aes_string(req(input$x), "mpg"))+
27   geom_point()+
28   geom_smooth(method="lm")+
29   ggtitle(regEquation())
30 ```
31
```

<https://github.com/cardiomoon/shinyLecture2/tree/master/inst/app13>

# PDF 다운로드를 위해서는

- 자신의 컴퓨터에 LaTeX이 설치되어 있어야 한다. (<http://ktug.or.kr>)
- 또는 LaTeX가 설치된 shiny server에서 shiny app을 실행하여야 한다.

# 7. Basic DataTable

**Basic DataTable**

Manufacturer:  Transmission:  Cylinders:

Show  entries Search:

	manufacturer	model	displ	year	cyl	trans	drv	cty	hwy	fl	class
1	audi	a4	1.8	1999	4	auto(l5)	f	18	29	p	compact
2	audi	a4	1.8	1999	4	manual(m5)	f	21	29	p	compact
3	audi	a4	2	2008	4	manual(m6)	f	20	31	p	compact
4	audi	a4	2	2008	4	auto(av)	f	21	30	p	compact
5	audi	a4	2.8	1999	6	auto(l5)	f	16	26	p	compact
6	audi	a4	2.8	1999	6	manual(m5)	f	18	26	p	compact
7	audi	a4	3.1	2008	6	auto(av)	f	18	27	p	compact
8	audi	a4 quattro	1.8	1999	4	manual(m5)	4	18	26	p	compact
9	audi	a4 quattro	1.8	1999	4	auto(l5)	4	16	25	p	compact
10	audi	a4 quattro	2	2008	4	manual(m6)	4	20	28	p	compact

Showing 1 to 10 of 234 entries Previous  2 3 4 5 ... 24 Next

```
shiny::runGitHub('shinyLecture2', 'cardiomoon', subDir='inst/app14')
```

# 8. Advanced App - Multiple Reactive Output

## Multiple Regression Analysis

**Select data**

☒ mtcars

☐ iris

☐ aca

☐ radial

**Response variable(종속변수)**

mpg

**Explanatory variable(s)(독립변수)**

Analysis

☒ show data.table

Show 10 entries

Search:

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21	6	160	110	3.9	2.62	16.46	0	1	4	4
Mazda RX4 Wag	21	6	160	110	3.9	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.32	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	3.44	17.02	0	0	3	2
Valiant	18.1	6	225	105	2.76	3.46	20.22	1	0	3	1
Duster 360	14.3	8	360	245	3.21	3.57	15.84	0	0	3	4
Merc 240D	24.4	4	146.7	62	3.69	3.19	20	1	0	4	2
Merc 230	22.8	4	140.8	95	3.92	3.15	22.9	1	0	4	2
Merc 280	19.2	6	167.6	123	3.92	3.44	18.3	1	0	4	4

Showing 1 to 10 of 32 entries

Previous 1 2 3 4 Next

```
shiny::runGitHub('shinyLecture2', 'cardiomoon', subid='inst/app15')
```

## 9. Advanced App - Interactive Plot

### Multiple Regression Analysis

**Select data**

☒ mtcars

☐ iris

☐ acs

☐ radial

**Reponse variable(종속변수)**

mpg

**Explanatory variables(독립변수)**

Analysis

☒ show se

☐ show datatable

```
shiny::runGitHub('shinyLecture2', 'cardiomoon', subdir='inst/app19')
```

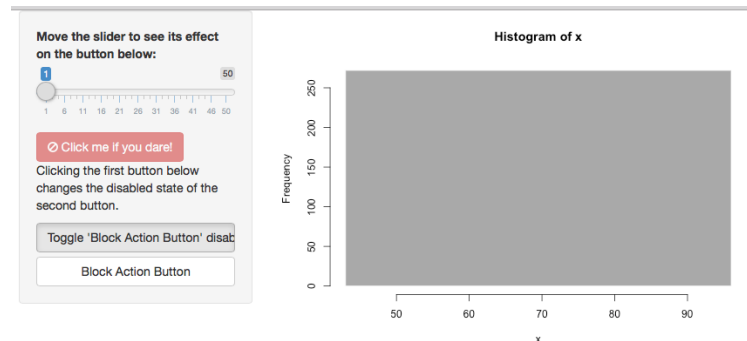
# Add-on packages for shiny

# 1. shinyBS

homepage: <https://ebailey78.github.io/shinyBS/index.html>

Twitter Bootstrap Components for Shiny. Add additional functionality and interactivity to your Shiny applications.

bsButton, bsTooltip, bsPopover



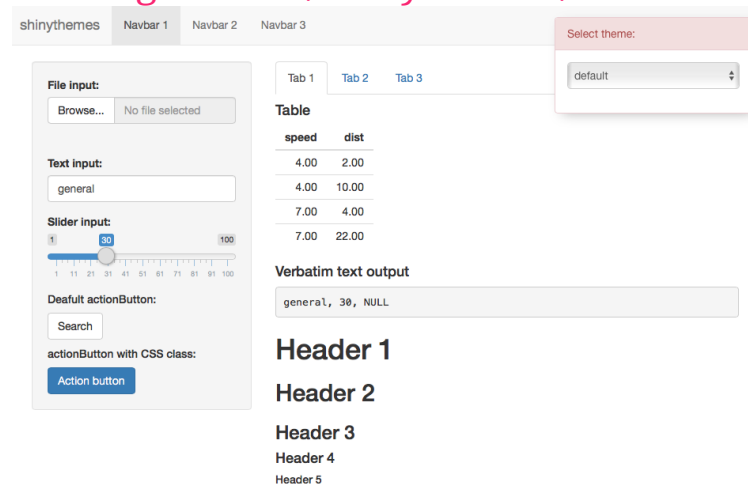
```
shiny::runGitHub('shinyLecture2', 'cardiomoon', subdir='inst/app16')
```



## 2. Shiny themes

Bootstrap themes

homepage: <https://rstudio.github.io/shinythemes/>



The screenshot shows a Shiny application interface with a light gray theme. At the top, there is a navigation bar with four items: "shinythemes", "Navbar 1", "Navbar 2", and "Navbar 3". Below the navigation bar, the interface is divided into two main columns. The left column contains several input controls: a "File input" with a "Browse..." button and "No file selected" text; a "Text input" with the value "general"; a "Slider input" with a range from 1 to 100 and a current value of 50; a "Default actionButton" with a "Search" button; and an "actionButton with CSS class" with a blue "Action button". The right column contains a "Table" with two columns, "speed" and "dist", and four rows of data. Below the table is a "Verbatim text output" box showing the text "general, 30, NULL". At the bottom of the right column, there are five headers labeled "Header 1" through "Header 5". A "Select theme:" dropdown menu is open in the top right corner, showing "default" as the selected option.

shinythemes   Navbar 1   Navbar 2   Navbar 3

Select theme:  
default

File input:  
Browse...   No file selected

Text input:  
general

Slider input:  
1 11 21 31 41 51 61 71 81 91 100  
50

Default actionButton:  
Search

actionButton with CSS class:  
Action button

Tab 1   Tab 2   Tab 3

Table

speed	dist
4.00	2.00
4.00	10.00
7.00	4.00
7.00	22.00

Verbatim text output  
general, 30, NULL

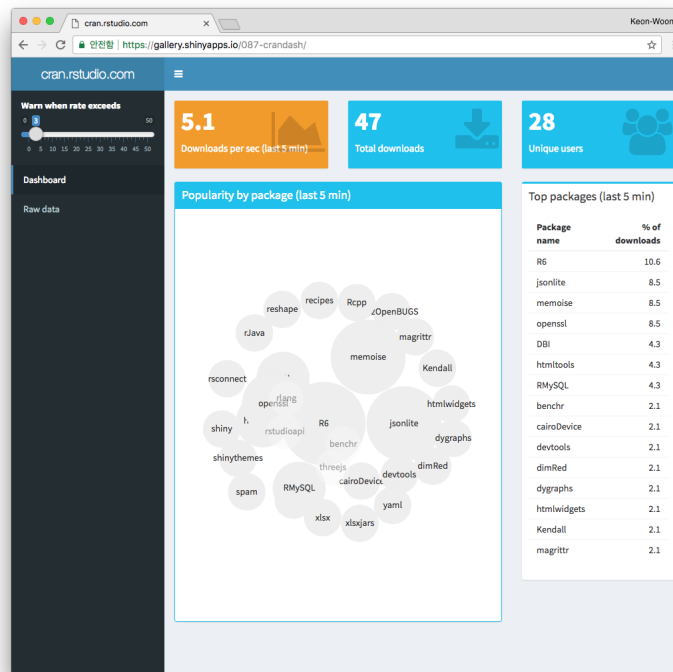
Header 1  
Header 2  
Header 3  
Header 4  
Header 5

<https://gallery.shinyapps.io/117-shinythemes/>

# 3.shinydashboard

shinydashboard makes it easy to use Shiny to create dashboards like these:

homepage: <https://rstudio.github.io/shinydashboard/index.html>



<https://gallery.shinyapps.io/087-crandash/>

# 4.shinyjs

homepage: <https://github.com/daattali/shinyjs>

### shinyjs demo

☐ Bigger text

Name

[Show/hide advanced info](#)  
Timestamp: Sun Oct 8 20:38:44 2017 [Update](#)

### shinyjs usage in this app

- Selecting 'Bigger text' uses `shinyjs::addClass()` to add a CSS class to the webpage that enlarges the font
- Typing text inside the 'Name' field uses `shinyjs::toggleState()` to enable the submit button, and similarly to disable the button when there is no input
- Clicking 'Show/hide advanced info' uses `shinyjs::onClick()` and `shinyjs::toggle()` to toggle between showing and hiding the advanced info section when the link is clicked
- Clicking 'Update' uses `shinyjs::onClick()` and `shinyjs::html()` to update the HTML in the timestamp when the link is clicked
- Clicking 'Submit' uses `shinyjs::alert()` to show a message to the user

These are just a subset of the functions available in shinyjs.

This app is available at <http://daattali.com/shiny/shinyjs-basic/> and the source code is on [GitHub](#)

[Visit the shinyjs website to learn more](#)

<http://daattali.com/shiny/shinyjs-basic/>