

INPUTS, OUTPUTS E REATIVIDADE

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JUSTIÇA 4.0: INOVAÇÃO E EFETIVIDADE NA REALIZAÇÃO DA JUSTIÇA PARA TODOS
PROJETO DE EXECUÇÃO NACIONAL BRA/20/015

1. Inputs

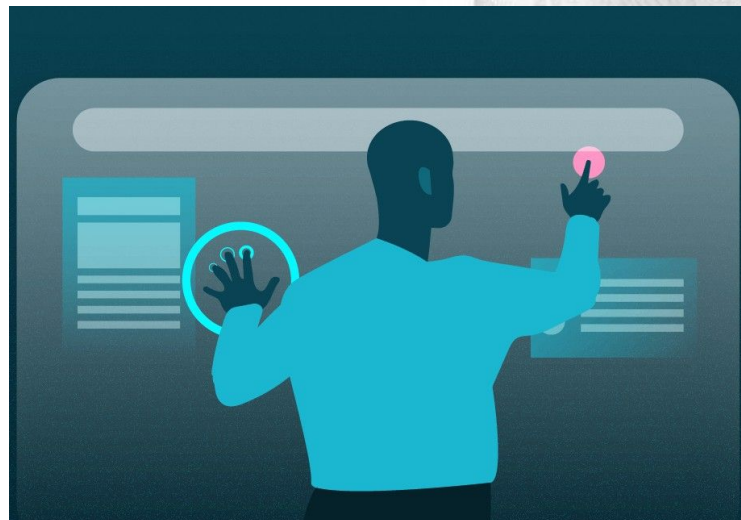
Widgets que o usuário interage



Inputs

São elementos com os quais o usuário interage, controle e define variáveis na interface:

- ▶ Texto.
- ▶ Números.
- ▶ Datas.
- ▶ Filtros.
- ▶ Arquivos.



<https://rockcontent.com/blog/increase-user-interaction/>

Caixa de seleção

Single checkbox

☒ Choice A

Current Value:

[1] TRUE

See Code

checkboxInput()

Retornam TRUE ou FALSE.

DICA

```
ls("package:shiny") |>
  grep(pattern = "checkbox",
        value = TRUE)
```

Grupo de caixas de seleção

Checkbox group

☒ Choice 1

☐ Choice 2

☐ Choice 3

Current Values:

[1] "1"

See Code

checkboxGroupInput()

Retornam as posições do TRUE.

Lista de seleção

Select box

Choice 1 ▾

Current Value:

[1] "1"

See Code

`selectInput()` e **`selectizeInput()`**
Retornam o(s) elemento(s) escolhidos.

Botões de seleção

Radio buttons

☒ Choice 1
☐ Choice 2
☐ Choice 3

Current Values:

[1] "1"

See Code

radioButtons()

Retorna o elemento selecionado.

Texto livre

Text input

Enter text...

Current Value:

[1] "Enter text..."

See Code

textInput()

Retorna um character.

Entrada de valor numérico

Numeric input

1

Current Value:

[1] 1

See Code

numericInput()

Retorna valores numéricos.

Deslizadores numéricos

Slider



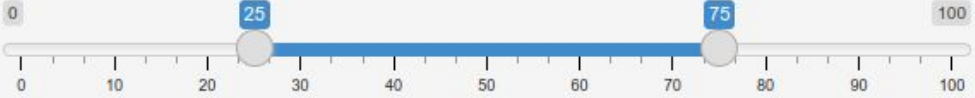
0 10 20 30 40 50 60

Current Value:

[1] 50

See Code

Slider range



0 10 20 30 40 50 60 70 80 90 100

Current Values:

[1] 25 75

See Code

sliderInput()

Retorna valores numéricos.

Seletores de data

Date input

2014-01-01

Current Value:

[1] "2014-01-01"

See Code

Date range

2022-05-16

to

2022-05-16

Current Values:

[1] "2022-05-16" "2022-05-16"

See Code

dateInput() e **dateRangeInput()**

Retorna characters no formato de data.

DICA

```
ls("package:shiny") |>
  grep(pattern = "date.*Input",
        value = TRUE)
```

Botões de ação

Action button

Action

Current Value:

```
[1] 0
attr(,"class")
[1] "integer"                "shinyActionButtonValue"
```

See Code

actionButton(), **submitButton()**, etc
Retornam inteiros.

DICA

```
ls("package:shiny") |>
  grep(pattern = "button",
       value = TRUE)
```

Upload de arquivo

File input

Browse...

No file selected

Current Value:

NULL

See Code

fileInput()

Retorna informações para o upload.

2. Outputs

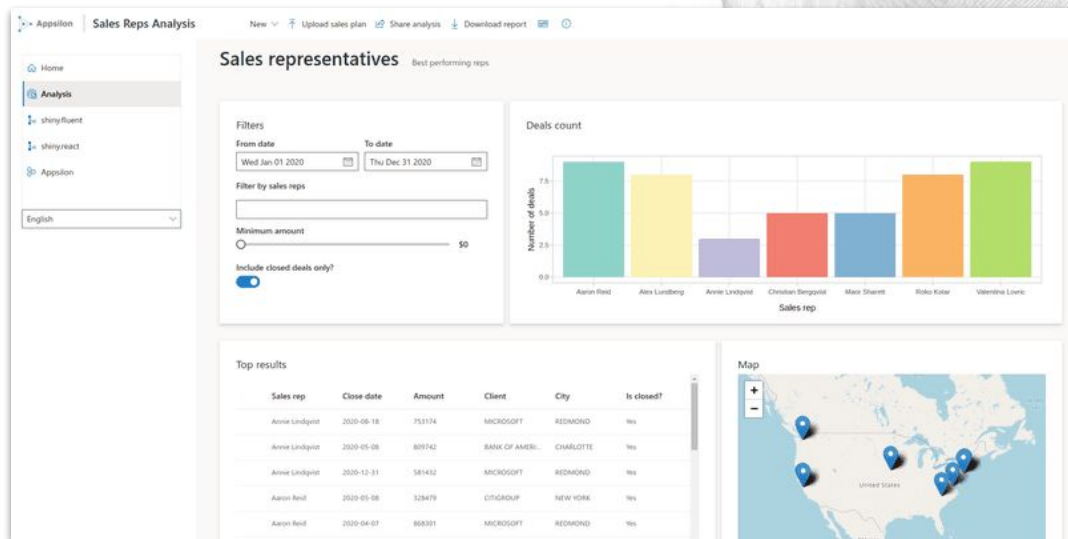
Widgets que o usuário examina



Outputs

São elementos que o seu usuário examina:

- ▶ Gráficos.
- ▶ Tabelas.
- ▶ Saídas de texto.
- ▶ Imagens.
- ▶ Arquivos.



<https://appsilon.com/>

Gráficos estáticos

`renderPlot()` → `plotOutput()`



Tabelas estáticas

`renderTable()` → `tableOutput()`

Category1	Info	Category2	Size	MoreStuff
a	Text info 1	o	12	More Stuff 1
a	Text info 2	o	19	More Stuff 2
a	Text info 3	p	29	More Stuff 3
a	Text info 4	o	53	More Stuff 4
a	Text info 5	s	73	More Stuff 5
a	Text info 6	o	17	More Stuff 6
a	Text info 7	r	81	More Stuff 7
a	Text info 8	s	3	More Stuff 8
a	Text info 9	r	21	More Stuff 9
a	Text info 10	s	5	More Stuff 10

Tabelas interativas

`renderDataTable()` → `dataTableOutput()`

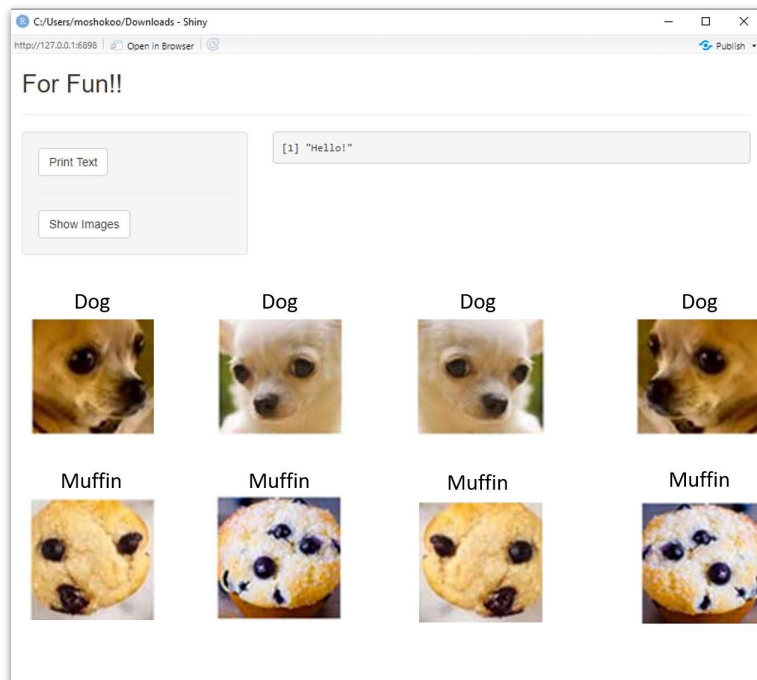
Show entries Search:

	id	title	first_name	last_name	email	gender	ip_address	ssn
	<input type="text"/>	<input type="text"/>	<input type="text" value="A"/>	<input type="text" value="AI"/>	<input type="text" value="All"/>	<input type="text"/>	<input type="text" value="All"/>	<input type="text" value="A"/>
1	1	Mrs	Kyla	Doddemeede	kdoddemeede0@comsenz.com	Female	167.87.233.15	531-8
2	2	Mrs	Kermy	Ramage	kramage1@skyrock.com	Male	17.5.202.255	565-1
3	3	Mr	Vanessa	Gwinn	vgwinn2@imdb.com	Female	81.15.14.40	721-0
4	4	Mr	Mitzi	Crutchley	mcrutchley3@vinaora.com	Female	88.69.92.162	758-9
5	5	Rev	Correy	Folder	cfolder4@webs.com	Male	40.72.10.128	372-4
6	6	Ms	Brianna	Bes	bbes5@bluehost.com	Female	168.4.139.117	542-2
7	7	Dr	Dex	Retallick	dretallick6@mashable.com	Male	197.114.108.207	555-3
8	8	Honorable	Jennilee	Foxcroft		Female	117.62.196.148	765-2
9	9	Dr	Helena	Sagrott	hsagrott8@soundcloud.com	Female	7.51.0.104	108-6
10	10	Rev	Clemence	Ansill	cansill9@ebay.co.uk	Female	122.126.60.141	572-8

Showing 1 to 10 of 1,000 entries Previous 2 3 4 5 ... 100 Next

Imagens

`renderImage()` → `imageOutput()`



Interessante para
usar QR code.

Saída de texto

`renderPrint()` → `textOutput()`
`verbatimTextOutput()`
`htmlOutput()`

Data Summary

area	peri	shape	perm
Min. : 1016	Min. : 308.6	Min. : 0.09033	Min. : 6.30
1st Qu.: 5305	1st Qu.: 1414.9	1st Qu.: 0.16226	1st Qu.: 76.45
Median : 7487	Median : 2536.2	Median : 0.19886	Median : 130.50
Mean : 7188	Mean : 2682.2	Mean : 0.21811	Mean : 415.45
3rd Qu.: 8870	3rd Qu.: 3989.5	3rd Qu.: 0.26267	3rd Qu.: 777.50
Max. : 12212	Max. : 4864.2	Max. : 0.46413	Max. : 1300.00

Tabela interativa -> {reactable}

reactable::renderReactable() —> reactable::reactableOutput()

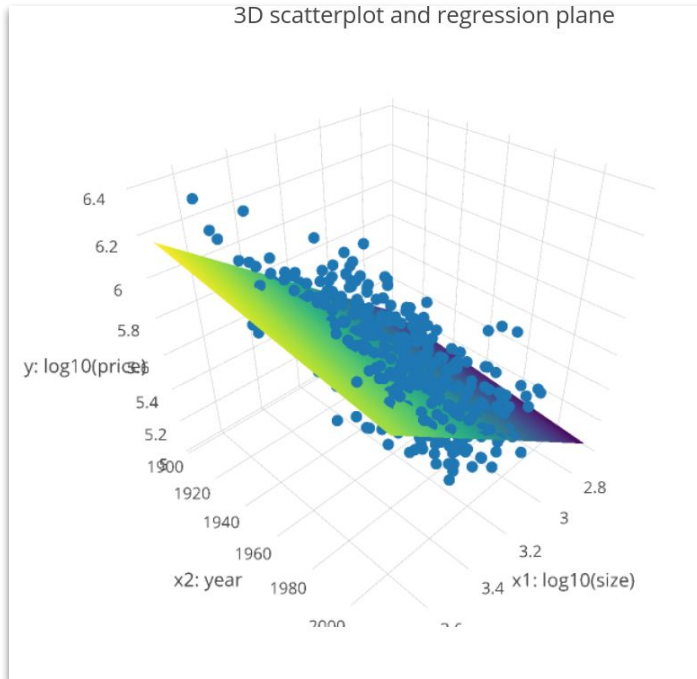
2019 Women's World Cup Predictions

Soccer Power Index (SPI) ratings and chances of advancing for every team

TEAM	GROUP	Team Rating			Chance of Finishing Group Stage In ...			Knockout Stage Chances				WIN WORLD CUP
		SPI	OFF.	DEF.	1ST PLACE	2ND PLACE	3RD PLACE	MAKE ROUND OF 16	MAKE QTR-FINALS	MAKE SEMIFINALS	MAKE FINAL	
 USA 6 pts.	F	98.3	5.5	0.6	83%	17%	—	✓	78%	47%	35%	24%
 France 6 pts.	A	96.3	4.3	0.5	>99%	<1%	<1%	✓	78%	42%	30%	19%
 Germany 6 pts.	B	93.8	4.0	0.7	98%	2%	—	✓	89%	48%	28%	12%
 Canada 6 pts.	E	93.5	3.7	0.6	39%	61%	—	✓	59%	36%	20%	9%
 England 6 pts.	D	91.9	3.5	0.6	71%	29%	—	✓	69%	43%	16%	8%
 Netherlands 6 pts.	E	92.7	3.9	0.7	61%	39%	—	✓	59%	37%	19%	8%
 Australia 3 pts.	C	92.8	4.2	0.9	13%	54%	34%	>99%	54%	26%	10%	5%

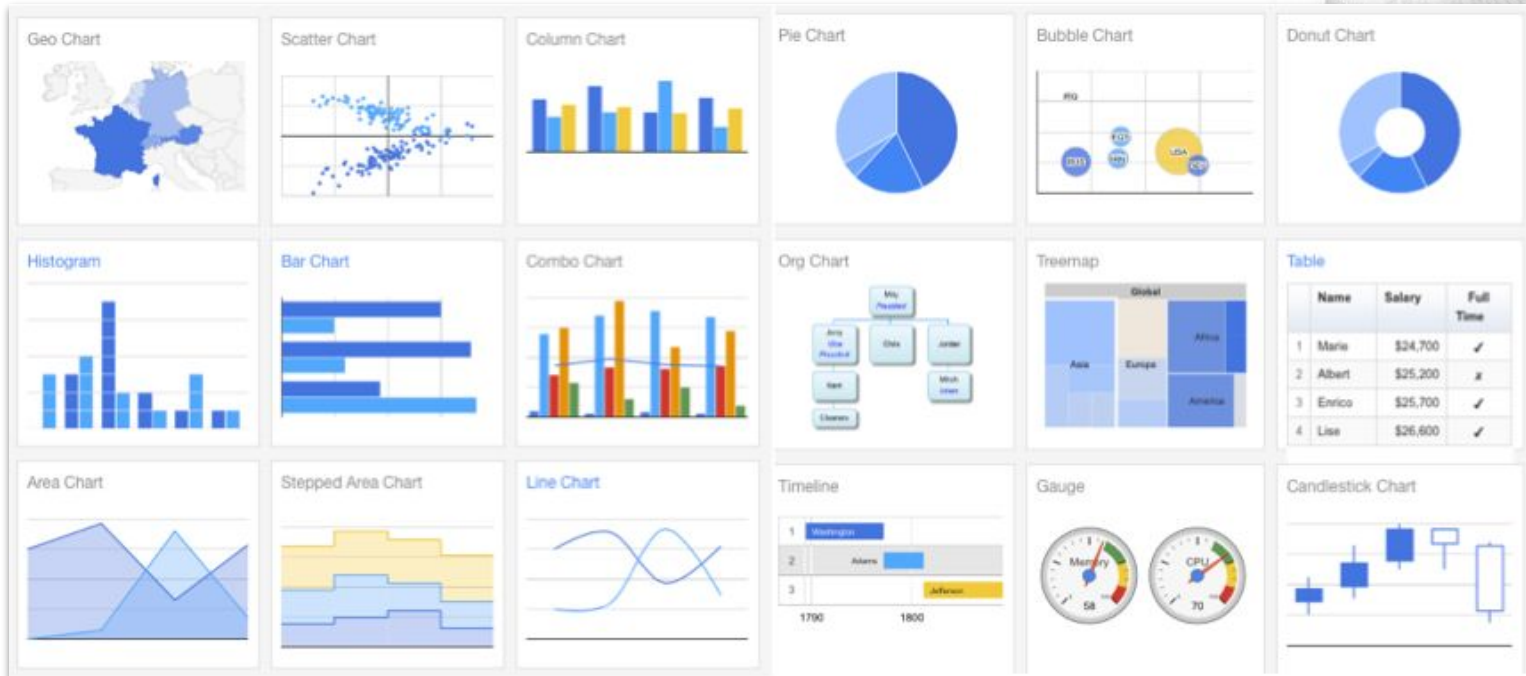
Gráficos interativos -> {plotly}

`plotly::renderPlotly()` → `plotly::plotlyOutput()`



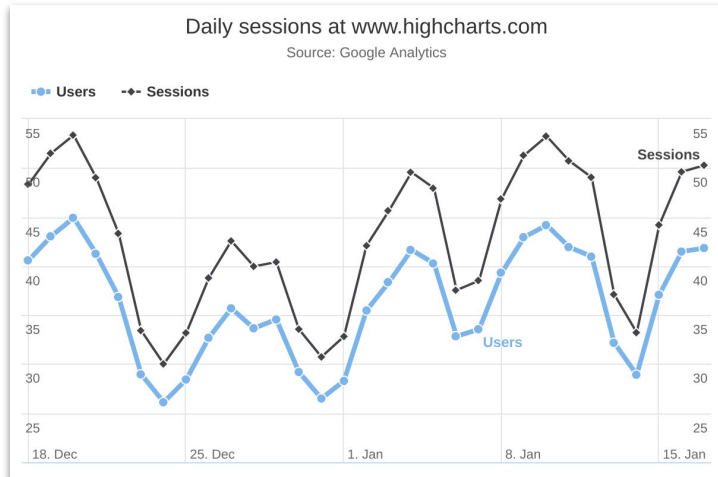
Gráficos interactivos -> {googleVis}

`googleVis::renderGvis()` → `htmlOutput()`



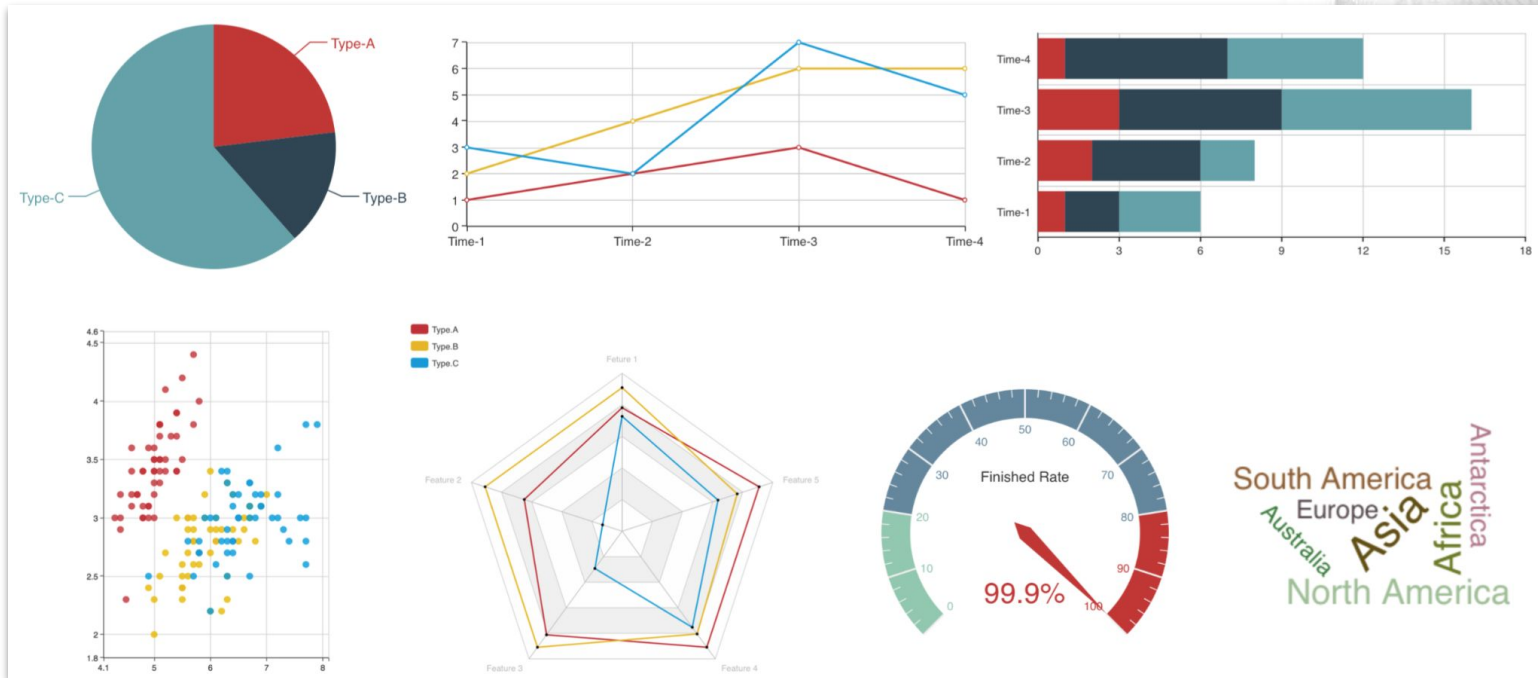
Gráficos interactivos -> {highcharter}

`highcharter::renderHighchart()` → `highcharter::highchartOutput()`



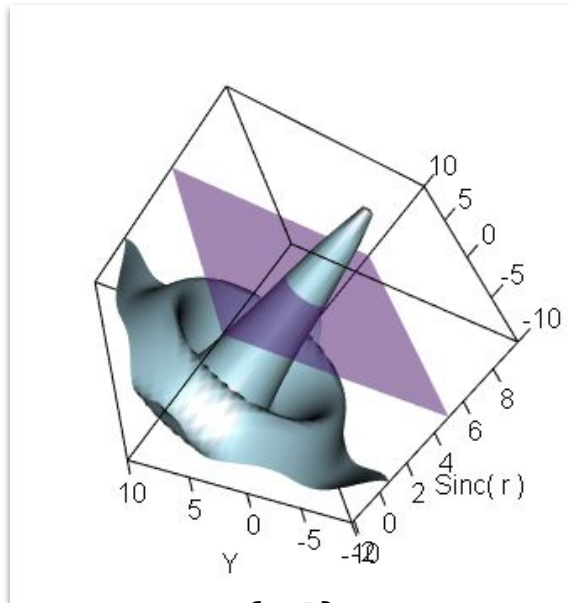
Gráficos interactivos -> {echarts4r}

`echarts4r::renderEcharts4r()` → `echarts4r::echarts4rOutput()`

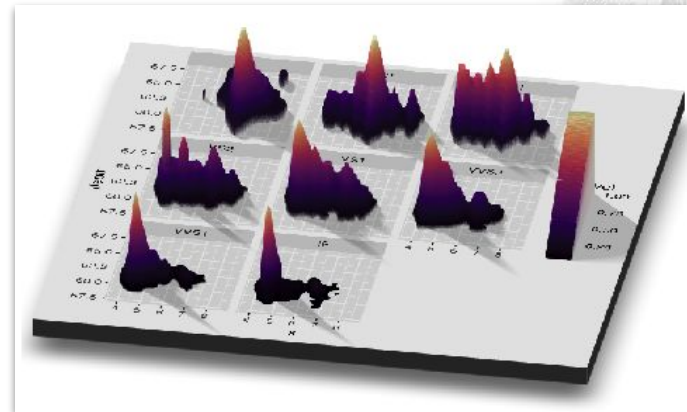


Gráficos interactivos -> {rgl}

`rgl::renderRglwidget()` → `rgl::rglwidgetOutput()`



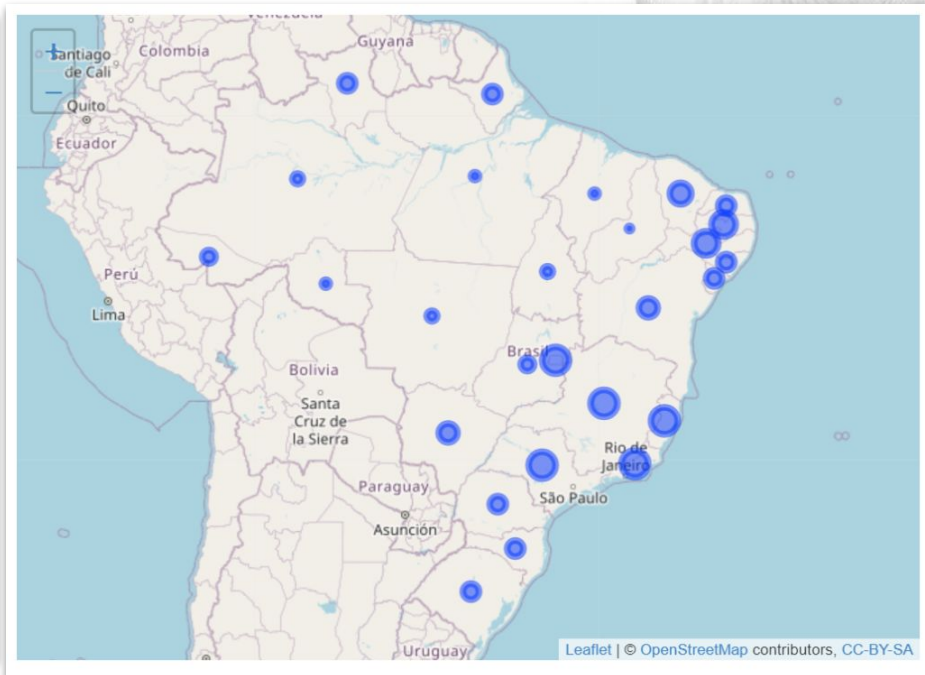
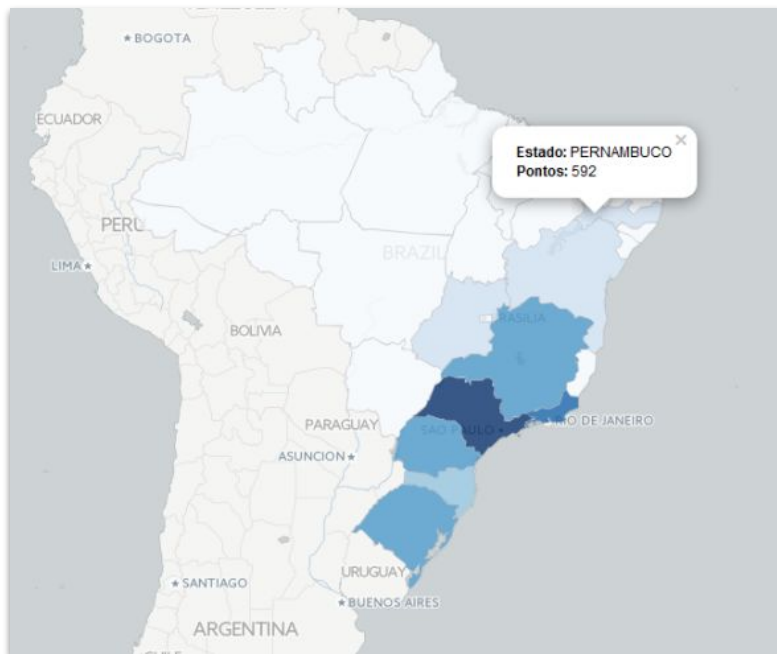
`{rgl}`



`{rayshader}`

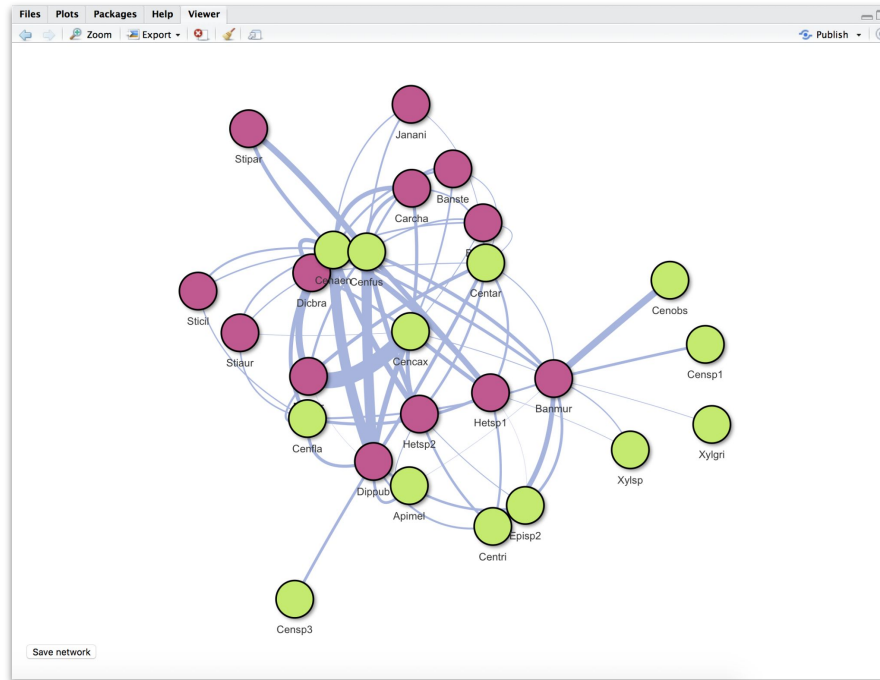
Mapas interativos -> {leaflet}

`leaflet::renderLeaflet()` —> `leaflet::leafletOutput()`



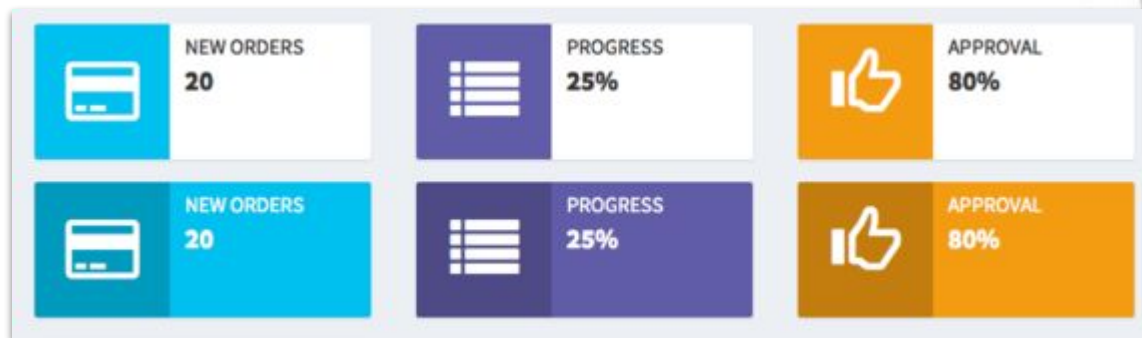
Redes de relacionamento -> {visNetwork}

`visNetwork::renderVisNetwork()` → `visNetwork::visNetworkOutput()`



Caixas de informação

`shinydashboard::renderInfoBox()` —————> `shinydashboard::infoBoxOutput()`

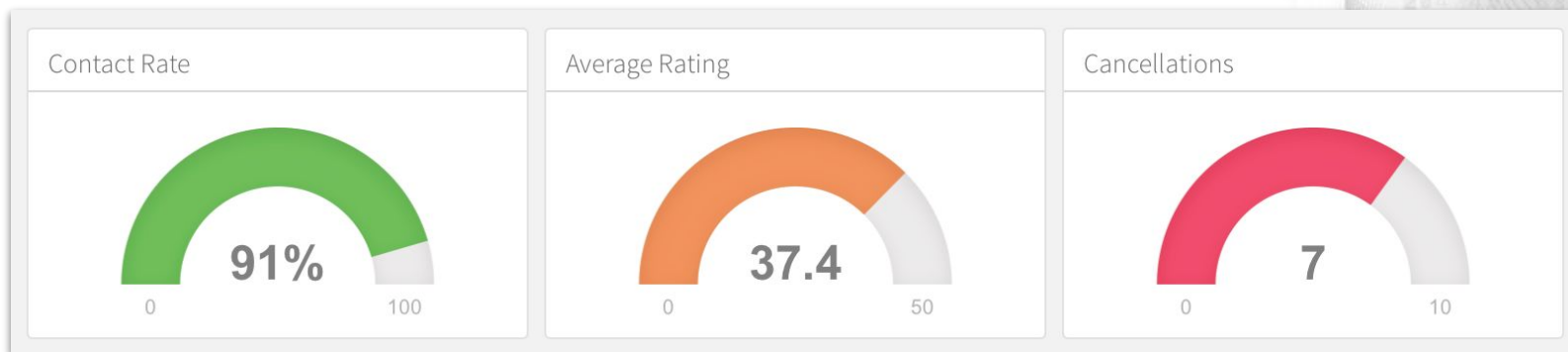


`shinydashboard::renderValueBox()` —————> `shinydashboard::valueBoxOutput()`



Indicadores ou medidores

`flexdashboard::renderGauge()` → `flexdashboard::gaugeOutput()`



3.

Elementos para a reatividade

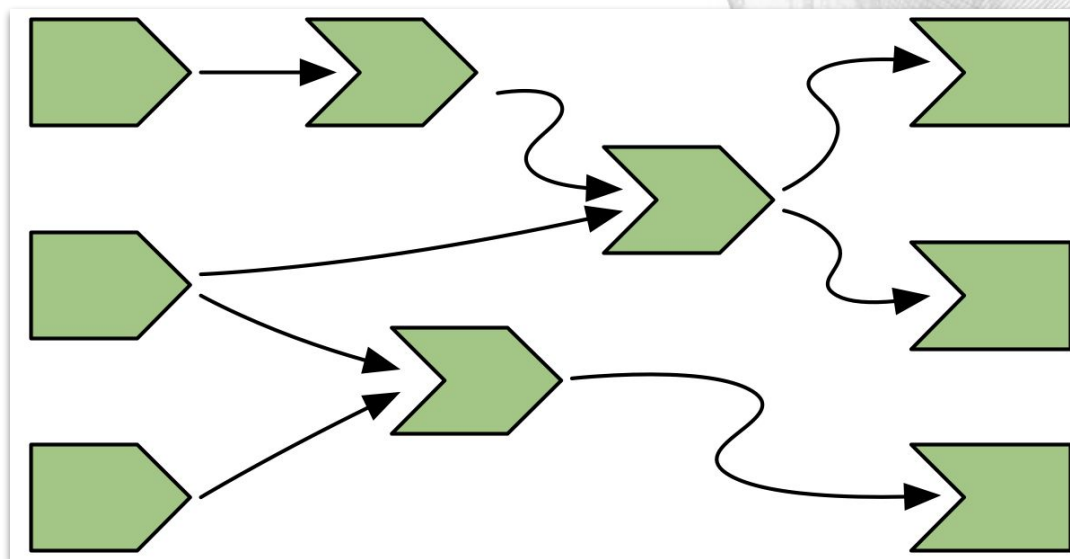
Como conectar "produtores" com "consumidores"



Reatividade

É o que conecta alterações em elementos de input com execução de código e outputs.

- ▶ Expressões reativas.
- ▶ Observadores.



<https://mastering-shiny.org/reactive-graph.html>

Expressões reativas

reactive()

Reage a todas inputs ou expressões reativas (IER) presentes em sua definição.

eventReactive()

Reage aos IER indicados. Ambos retornam conteúdo.



<https://www.institutoclaro.org.br/educacao/para-ensinar/planos-de-aula/3a-lei-de-newton/>

Expressões reativas

```
result <- reactive({  
  input$X + input$Y  
})  
  
output$RESULT <- renderPrint({  
  result()  
})
```

```
result <- eventReactive(input$X, {  
  input$X + input$Y  
})  
  
output$RESULT <- renderPrint({  
  result()  
})
```

Outros elementos reativos

reactiveVal()

Um vetor com um valor reativo.

reactiveValues()

Um vetor com vários valores reativos.

Outros elementos reativos

reactiveTime()

Executa a cada intervalo de tempo definido.

reactiveFileReader()

Executa a cada intervalo de tempo e se o arquivo mudar, então é lido.

reactivePool()

Idem acima mas comumente usado com bancos de dados.

Observadores

observe()

Reage a todas inputs ou expressões reativas (IER) presentes em sua definição mas sem retornar conteúdo.

observeEvent()

Reage aos IER indicados, sem retornar conteúdo também.



<http://operacoesmilitaresguia.blogspot.com/2020/11/observacao-do-tiro-de-artilharia-por.html>

Observadores

```
observe({  
  updateTextInput(inputId = "TEXT",  
    value = input$X)  
})
```

```
observeEvent(eventExpr = input$CLICK,  
  handlerExpr = {  
    updateTextInput(inputId = "TEXT",  
      value = input$X)  
  })
```

Isolador

`isolate()`

Previne que determinado IER manifeste reatividade dentro de escopos sensíveis.



<https://www.ndtv.com/offbeat/thief-falls-asleep-covered-in-doritos-wakes-up-in-handcuffs-1779059>

Isolador

```
output$RESULT <- renderPrint({
  result()
})

result <- reactive({
  input$X + isolate(input$Y)
})
```

```
observe({
  input$saveButton
  data <- get(isolate(input$dataset))
  writeToDatabase(data)
})
```