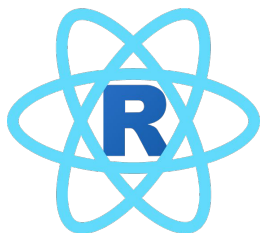


# Integrating React.js and Shiny

*Or, how to use cool JavaScript libraries  
from R with minimal effort*



Alan Dipert  
Software Engineer, RStudio  
[@alandipert](https://twitter.com/alandipert)



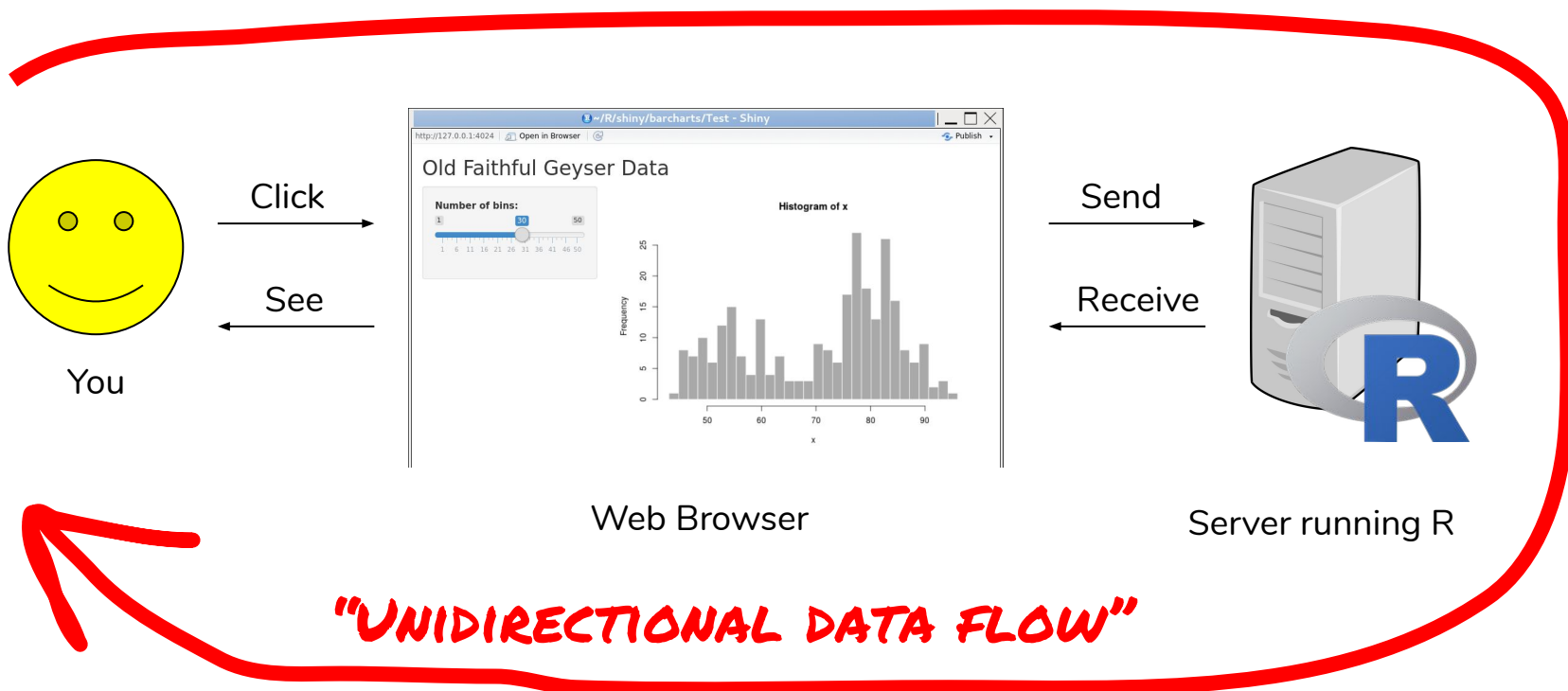
# Objective

Help you understand enough about Shiny, JavaScript, and React.js to see the utility of the reactR package and motivate you to learn more about it.

# Outline

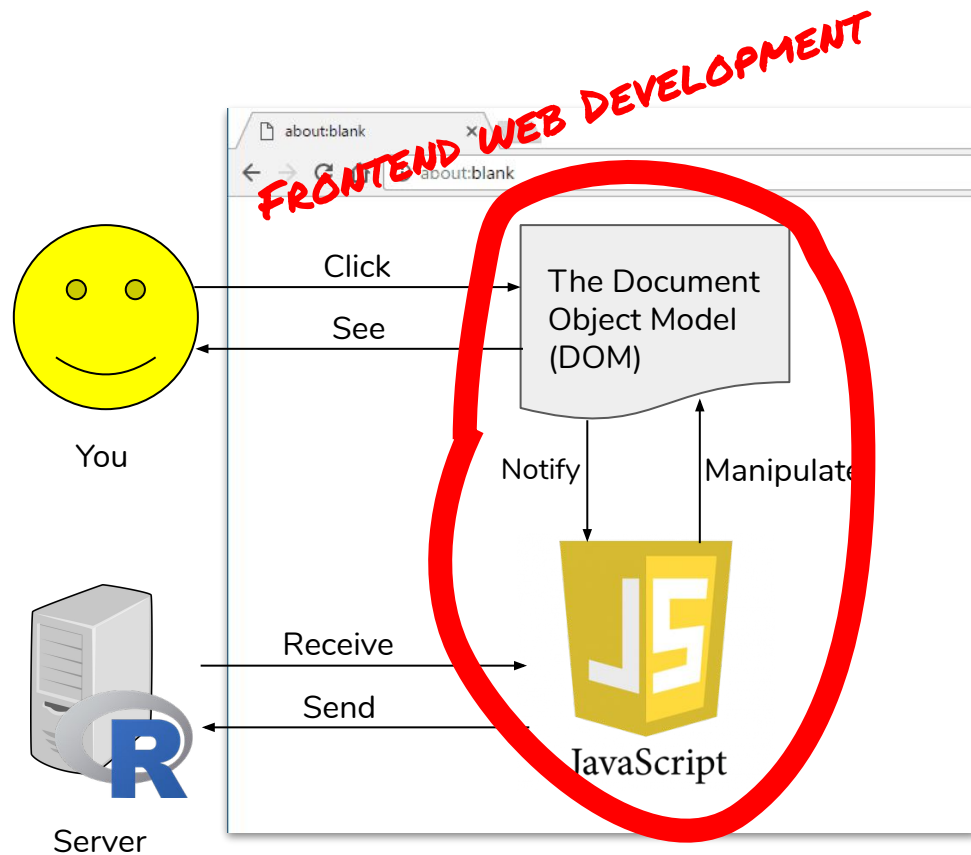
1. How Shiny works: unidirectional data flow
2. What happens in the web browser
3. What is React.js?
4. What is reactR?
5. Demonstration: Adapting a React library

# How Shiny works



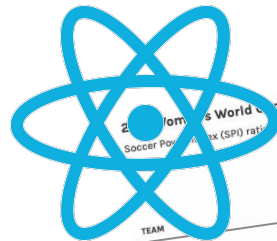
# Inside the Web Browser

1. DOM events collected from sliders, buttons, text boxes, etc.
2. Events filtered, aggregated
3. Events combined in JavaScript into a single outgoing WebSocket message of **input values**
4. Incoming WebSocket messages received in JavaScript
5. Messages contain multiple incoming **output values**
6. Output values mapped to plots, tables, etc. in the DOM
7. GOTO 1



# React.js: for Frontend Web Development

1. There are many different ways to approach frontend web development
2. React.js is one of the most popular
3. A React **component** describes reusable appearances and behaviors
4. Components are the building blocks of a React-based interface
5. There is a large ecosystem of stock React components packaged as **npm libraries**



2018 World Cup Predictions

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

TEAM	GROUP	SPI	Team Rating			Chance of Finishing Group Stage in ...			Knockout Stage Chances			
			OFF.	DEF.	1ST PLACE	2ND PLACE	3RD PLACE	MAKE ROUND OF 16	MAKE QTR-FINALS	MAKE SEMIFINALS	MAKE FINAL	WIN WORLD CUP
USA 6 pts.	F	98.3	6.5	6.4	83%	17%	-	✓	78%	47%	35%	24%
France 6 pts.	A	96.3	4.3	8.5	>99%	<1%	<1%	✓	78%	42%	30%	19%
	B	93.8	4.8	8.7	98%	2%	-	✓	89%	48%	28%	12%
	C				<1%	-	-	✓	59%	36%	20%	9%
	D				<1%	-	-		43%	16%	8%	
	E				<1%	-	-		37%	19%	8%	

brillout / awesome-react-components

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Code Issues 1 Pull requests 1 Actions Projects 0 Wiki Security Insights

Curated List of React Components & Libraries.

react awesome awesome-list react-components react-component

372 commits 2 branches 0 packages 0 releases 69 contributors

Branch: master New pull request Create new file Upload files Find

brillout Improve RPC ad

CONTRIBUTING.md Update CONTRIBUTING.md

README.md improve RPC ad

code-of-conduct.md add license and code of conduct

declined.json remove antd and antd-mobile from declined list

license add license and code of conduct

react-logo.svg add react logo for devarchy

README.md



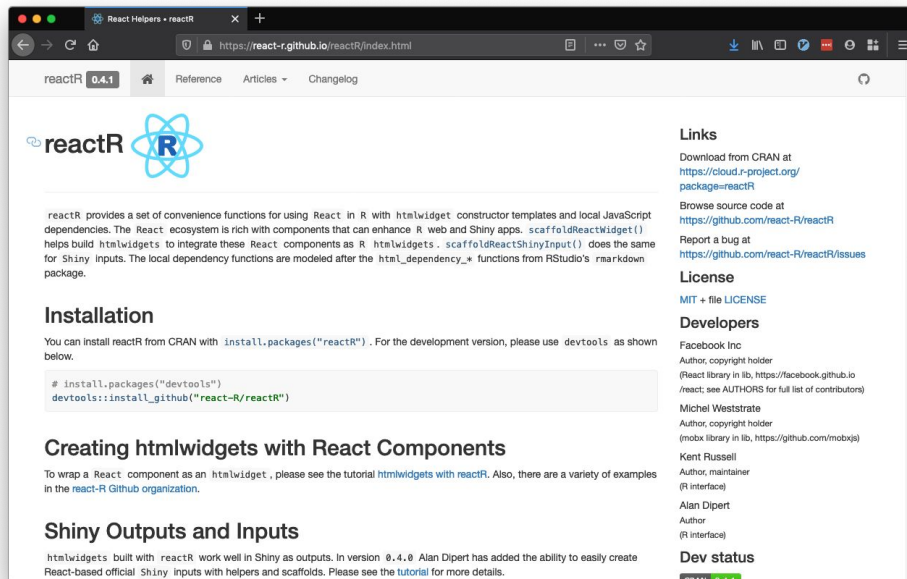
## Absolutely Awesome React Components & Libraries

This is a list of AWESOME components. Nope, it's NOT a comprehensive list of every React component under the sun. So, what does "awesome" mean? Well:



# reactR: Leverage React in an R context

- Introduces the world of R to the world of React
- Documents and recommends hybrid R/JavaScript project tools and configuration
- Provides JavaScript for using React components as easily as possible
- Builds on existing Shiny/htmlwidgets APIs



**A KENT RUSSELL JOINT  
@TIMELYPORTFOLIO**

# Demo: Color Picker Input



# Learning Resources

- reactR: <https://react-r.github.io/reactR/>
- Learn JavaScript: <https://github.com/getify/You-Dont-Know-JS>
- Cool JavaScript ideas: <https://wattenberger.com/>