

# Developing Analysis Tools with Shiny Gadgets



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# Overview

- Overview of Shiny Developers Conference
- What are Shiny Gadgets?
- Why do we need Gadgets?
- Example of Creating Simple Gadgets
- Using RStudio Addins

# SHINY

# What is Shiny?

CDC Data Visualization

Disease Plots

Inf. Reported Diseases

CDC Pneumonia and Influenza Mortality

More Information

## CDC Weekly Case Count

**Disease Name**  
Salmonellosis

**Choose date range**  
2015-01-01 to 2016-02-22

**Location Type**

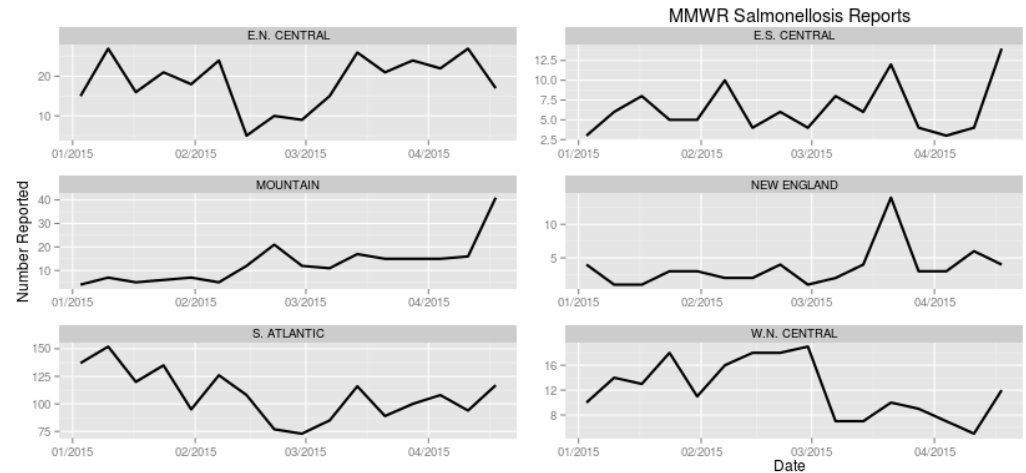
- State
- Single region
- All states within a region
- All regions
- Country

**Plot Type**

- Weekly data
- Weekly data by year
- Cumulative data by year

**Plot Options**

- Include alert thresholds (experimental)
- Force same scale for y-axis



CDC Disease Monitor, Shiny User Showcase

# Shiny Developers Conference

- Inaugural conference held in January 2016
- Aim to help proficient shiny users:
  - Improve robustness of code
  - Introduce new shiny tools
  - Introduce tools for making apps bigger and more complex
  - Learn how to handle problems with apps

# What was included?

- Reactivity
- Linked Brushing
- Gadgets (& addins!)
- UI
- Dashboards
- DT for data tables
- Profiling
- Debugging
- And much more!!

# SHINY GADGETS

# What is a gadget?

"Where a Shiny app represents the **output** of an analysis, Shiny Gadgets are designed to be used **in the course of analysis.**"

Joe Cheng, <http://shiny.rstudio.com/articles/gadgets.html>



Subset

Cancel Done

**Subset a data.frame**

**Data**  **Subset Expression**

Show  entries Search:

Subject	Sex	Age	Weight	Height	BMI	Smokes
3	F	23	72	170	25.1	No
6	F	29	67	169	23.5	No
15	F	27	73	172	24.8	No
23	F	26	82	175	26.8	No
26	F	25	58	175	18.9	No
28	F	28	69	172	23.4	No

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# Who are gadgets for?

"Where Shiny apps are designed to be **used by end users**, Shiny Gadgets are intended to be **used by R users**."

Joe Cheng, <http://shiny.rstudio.com/articles/gadgets.html>

# What's the point?

- Make tricky tasks easier
  - Connecting to an API
- Make common tasks faster
  - Data manipulation tasks
- Easily perform tasks that require a visual element
  - Selection of data in a plot

# How do we do it?

- Functionality using usual shiny functions
- User Interface using the **miniUI** package
  - `miniPage`, `miniContentPanel`
  - `gadgetTitleBar`

# Example of a Simple Gadget

Tidy Data

Cancel Tidy Data Done

Choose data:  
demo

Key: Variable Value: Value

Columns:

Removing output rows where value is NA

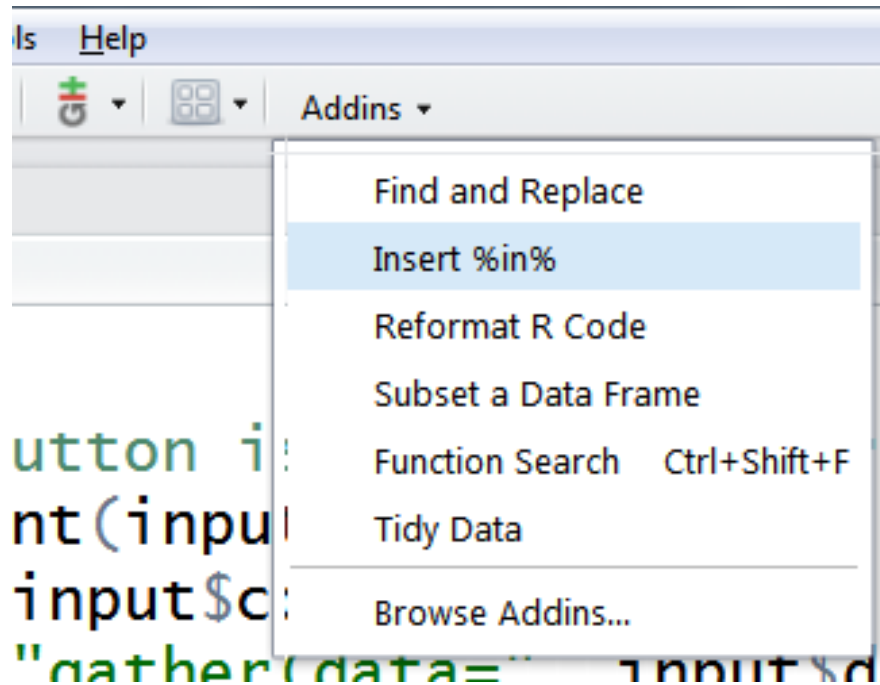
	Subject	Sex	Age	Weight	Height	BMI	Smokes
1	1	M	43	57	166	20.70	No
2	2	M	22	71	179	22.20	No
3	3	F	23	72	170	25.10	No
4	4	M	25	76	188	21.40	No
5	5	M	28	82	175	26.80	No

# RSTUDIO ADDINS

# What is an addin?

- A way of running R functions interactively
- Only available in the latest general release of RStudio
- Requires addins to have been defined inside an R package

# Gadgets as Addins





# Questions?



Code example:

[github.com/MangoTheCat/tidyshiny](https://github.com/MangoTheCat/tidyshiny)