

Dashboarding via ShinyApps

Get going (R side)

Try their Demo app as a template

<https://shiny.rstudio.com/articles/shinyapps.html>

Ignore most of the shinyapps.io setup and focus on their app construction and example app.

Get Going (SFU side)

Full instructions:

<http://www.rcg.sfu.ca/services/shiny/index.html>

Step 1: sign up for the mail list to give you access to our servers

Step 2: Upload your Shiny App

Step 3: tell your friends / show employers / tweet #ShinyApp
using your own url:

[https://shiny.rcg.sfu.ca/u/your_SFU_username_goes_here/
myappOrSomeOtherNameYouveChosen](https://shiny.rcg.sfu.ca/u/your_SFU_username_goes_here/myappOrSomeOtherNameYouveChosen)

Sign up for that maillist...

Visit: [https://
amaint.sfu.ca/cgi-bin/
WebObjects/
Maillist.woa/](https://amaint.sfu.ca/cgi-bin/WebObjects/Maillist.woa/)

Find maillist



The screenshot shows the SFU Maillist Manager web application. At the top, there is a header with the SFU logo and the text 'SIMON FRASER UNIVERSITY ENGAGING THE WORLD' and 'IT SERVICES Maillist Manager'. On the right side of the header, there is a 'Welcome, I' message and a 'Logout' link. Below the header is a navigation bar with four links: 'MAILLIST HOME', 'FIND MAILLISTS', 'CREATE NEW MAILLIST', and 'PREFERENCES'. The 'FIND MAILLISTS' link is highlighted with a red arrow. To the right of the navigation bar is the main content area. It has a title 'SFU Maillist Manager' and a paragraph of text: 'This application allows you to create and manage mailing lists. You can create lists... members are automatically updated -- for example a course-based list in which th... is automatically synced with the roster of students for the course. You can also cre... you manage the membership yourself. Tools are provided to facilitate this, such a... import and export, and bulk update functions.' Below this paragraph is another paragraph: 'To create a new list, click the Create new Maillist link in the navigation bar. To find existing lists, click the Find Maillists link in the navigation bar. To edit an existing list, click the Find Maillists link, search for the list, then click t... Click the Preferences link to customize some aspects of this application.' At the bottom of the main content area, there is a section titled 'Recent Changes' with the text 'MAILLIST VERSION 3.0 (2012-09-01)' and a list of changes: 'Extensive changes including:', 'Updated look-and-feel and improved user experience', 'Bulk processing functions', and 'Change and delivery history'.

Search for the rcg-shiny-users
maillist here

Then tell it you want to
subscribe

Procrastinators Beware: (Then
wait ~1/2 hour for the next step)

Find Maillists

Type a maillist name in the **Go to maillist** input field and hit return to jump directly to the maillist page.

Or click on **Preset Searches** to run predefined searches or your saved custom searches. The search result will be displayed below under **Search results**, and you can click the list name to go to the list.

Search lists

Search for lists with...

name like:

[Advanced search...](#)

Go to maillist:

Preset searches

Required

Search results

Lists name like: "rcg shiny": Found 1 lists.

List name	Owner	Is member?	Description
rcg-shiny-users	rcgop	<input checked="" type="checkbox"/> Yes <input type="button" value="Subscribe"/>	Users allowed to SFTP to shiny.rcg.sfu.ca for deployment

The tutorial: <http://www.rcg.sfu.ca/services/shiny/index.html> is general and shows how to sftp into any server and gives code for logging into a different server. Make sure that you are connecting to the [shiny.rcg.SFU.ca](http://shiny.rcg.sfu.ca) server

Windows WinSCP to connect to a remote machine

WARNING: SFU is 'pretty secure'. It's complicated to login remotely to these machines if you aren't on SFUNET wifi or a lab machine.

Test code anywhere using your own machine, upload to SFU is simplest from on a campus computer or network

Shiny Apps

Goal:

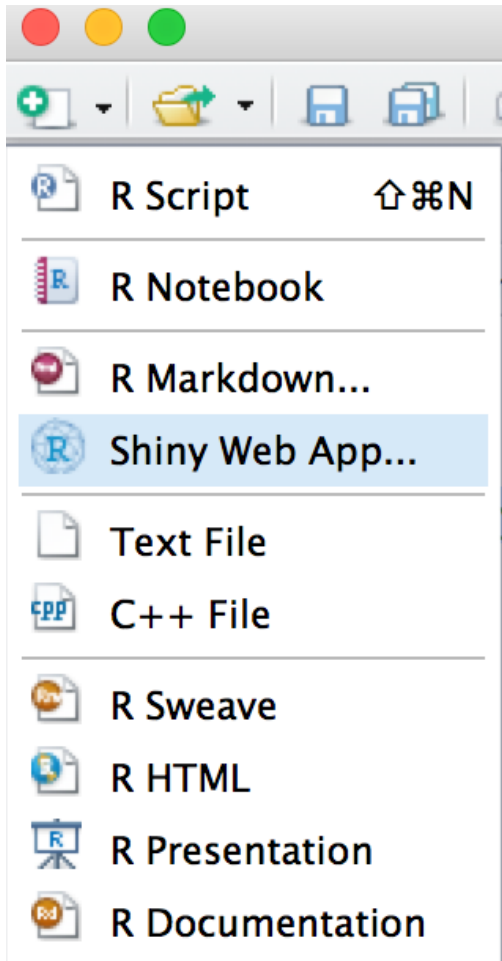
Communicate information

Allow the user to change the variables, timing, type of analysis

Run analysis in real time, output insight into a html page

Viewable on any device since R runs on the server not the user device

Getting Started

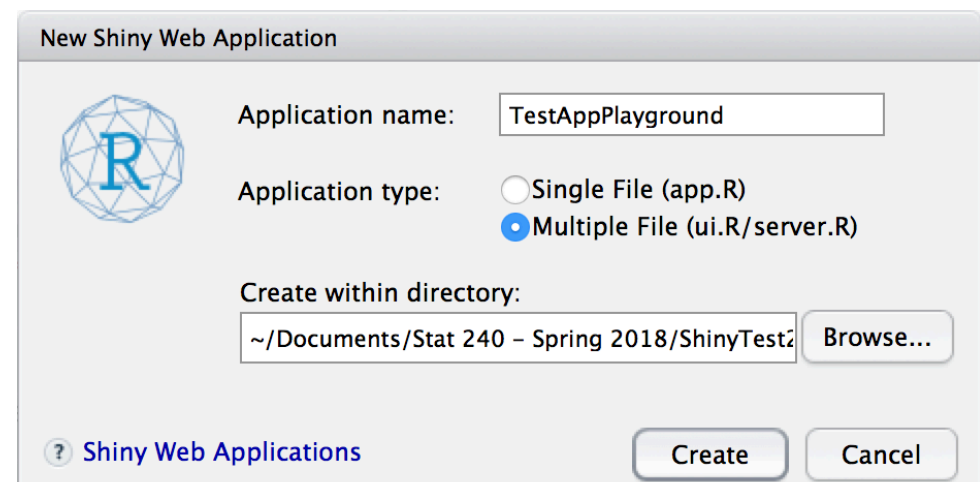


Start a new Shiny Web App

Name it

We'll use "Multiple File"

Give it a save location



RStudio will make 2 files, ui.R and server.R

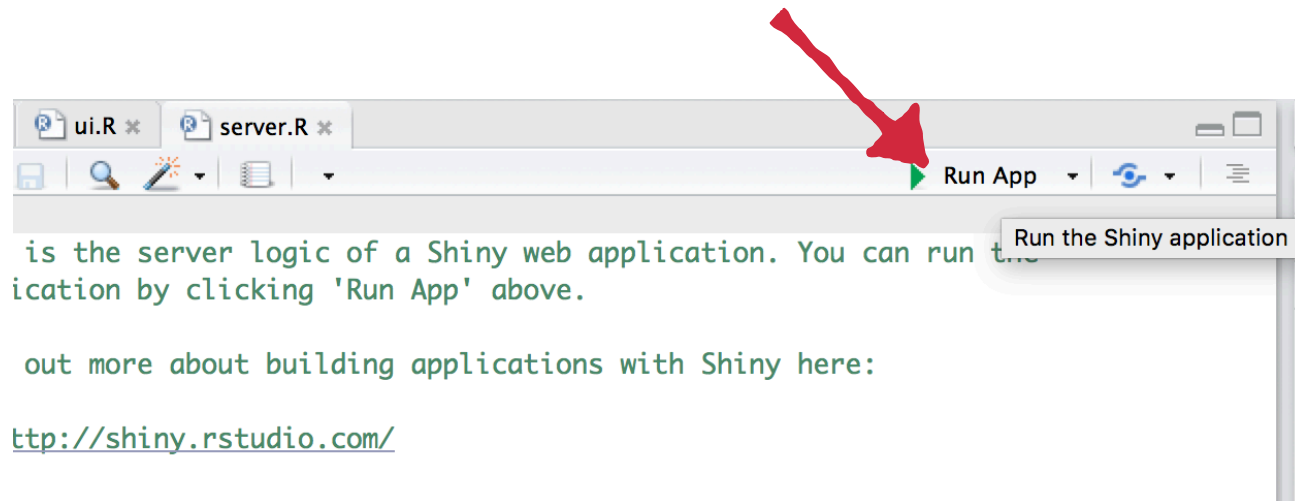
```
1 #
2 # This is the user-interface definition of a Shiny web application. You can
3 # run the application by clicking 'Run App' above.
4 #
5 # Find out more about building applications with Shiny here:
6 #
7 #   http://shiny.rstudio.com/
8 #
9
10 library(shiny)
11
12 # Define UI for application that draws a histogram
13 shinyUI(fluidPage(
14
15   # Application title
16   titlePanel("Old Faithful Geyser Data"),
17
18   # Sidebar with a slider input for number of bins
19   sidebarLayout(
20     sidebarPanel(
21       sliderInput("bins",
22                 "Number of bins:",
23                 min = 1,
24                 max = 50,
25                 value = 30)
26     ),
27
28     # Show a plot of the generated distribution
29     mainPanel(
30       plotOutput("distPlot")
31     )
32   )
33 ))
34
```

```
1 #
2 # This is the server logic of a Shiny web application. You can run the
3 # application by clicking 'Run App' above.
4 #
5 # Find out more about building applications with Shiny here:
6 #
7 #   http://shiny.rstudio.com/
8 #
9
10 library(shiny)
11
12 # Define server logic required to draw a histogram
13 shinyServer(function(input, output) {
14
15   output$distPlot <- renderPlot({
16
17     # generate bins based on input$bins from ui.R
18     x <- faithful[, 2]
19     bins <- seq(min(x), max(x), length.out = input$bins + 1)
20
21     # draw the histogram with the specified number of bins
22     hist(x, breaks = bins, col = 'darkgray', border = 'white')
23
24   })
25
26 })
27
```

This is a working Shiny App.

Run it by clicking

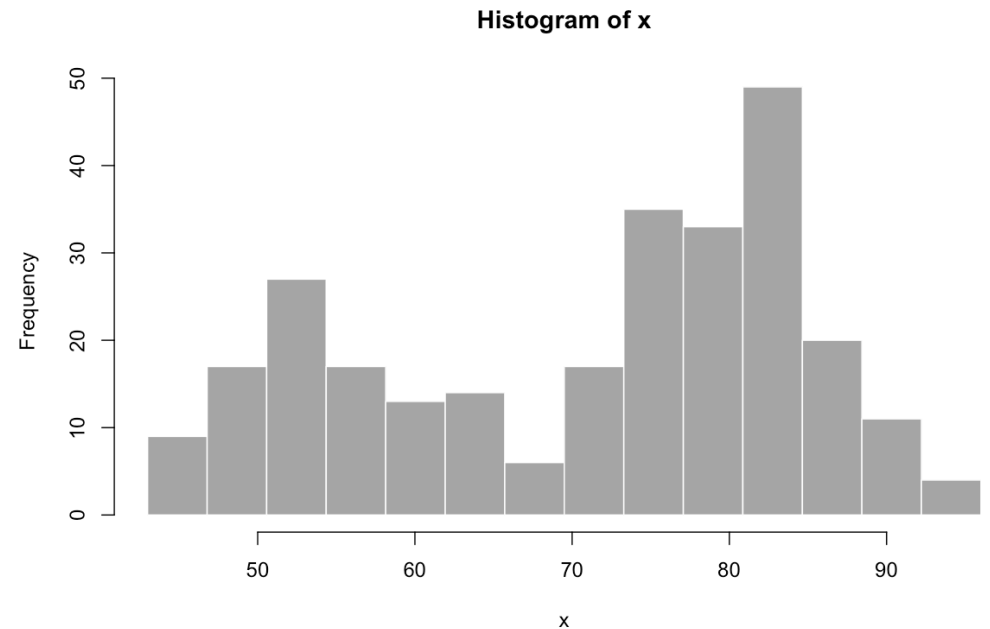
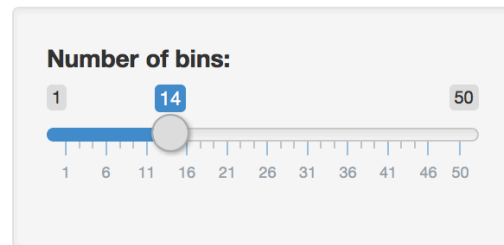
>Run App



A browser window will open that is running the app.

We'll modify these files to build our page.

Old Faithful Geyser Data



Inputs are defined using sliders, buttons, check boxes etc... in the html, but coded within the ui.R file

Those inputs are passed to the server.R file which takes them as elements of a list.

<https://shiny.rstudio.com/images/shiny-cheatsheet.pdf>

Shiny Apps

Part1: The webpage (UI)

Part2: The computer running R (Server)

Part3: test it locally on your own (or lab) machine using:
`shinyAppDir("directory/name/goes/here")`

Part4: Upload the app to https://shiny.rcg.sfu.ca/u/your_username/myapp and it will run automatically when a user visits the page

ui.R

This file sets inputs and makes use of outputs from the html page.

Inputs are passed to the server file

Outputs are retrieved from the server file

server.R

Takes inputs from ui.R and produces outputs

Folder

Must contain only one ui.R and server.R, but can contain any other data or R files

Trouble Shooting

Make few small changes at a time and try running your App.

Make an input list and test the server.R file

ShinyApp examples

https://en.wikipedia.org/wiki/Global_warming

In 2013, the [Intergovernmental Panel on Climate Change \(IPCC\) Fifth Assessment Report](#) concluded, "It is *extremely likely* that human influence has been the [dominant cause](#) of the observed warming since the mid-20th century."^[9] The largest human influence has been the emission of [greenhouse gases](#) such as [carbon dioxide](#), [methane](#), and [nitrous oxide](#). [Climate model](#) projections summarized in the report indicated that during the 21st century, the global surface temperature is likely to rise a further 0.3 to 1.7 °C (0.5 to 3.1 °F) to 2.6 to 4.8 °C (4.7 to 8.6 °F) depending on the [rate of greenhouse gas emissions](#) and on [climate feedback effects](#).^[10] These findings have been recognized by the national science academies of the major industrialized nations^{[11][a]} and [are not disputed by any scientific body of national or international standing](#).^{[13][14]}

Lab

Using Shiny Apps to explore climate change data.

Use plots and tools from STAT 240 and/or other courses such as regression, moving averages, density estimators, statistical tests, or whatever else makes sense to convey the story in the data.

You can use your own data and/or another topic area, but you must talk to me first.