Interactive Graphics in R

Stat 480
Spring 2015

Outline

- server.r and ui.r
- widgets
- connecting code and widgets

shiny Apps

- Very good tutorial at http://shiny.rstudio.com/
- library(shiny)
  runExample("01_hello")

Your Turn

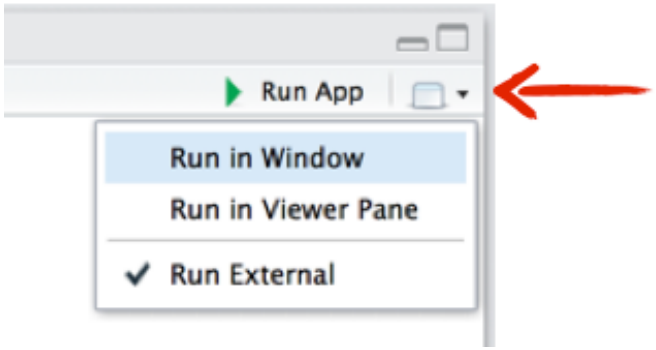
Run a few of the shiny examples (see function runExample for the different choices) and play with the different available features

Have a first look at some of the files server.R and ui.R

Open the first example and save the code into files server.r and ui.r

server.r and ui.r

- all of the interactivity is regulated through two files: server.r and ui.r
- both of these files have to go into the same folder
- … let's do that for the first example …



Your Turn

In the first example, make the following changes:

* Change the title from “Hello Shiny!” to “Hello World!”.

* Set the minimum value of the slider bar to 5.

* Change the histogram color from "darkgray" to “forestgreen".

Advanced: change from a base histogram to a qplot histogram

ui.r: input and output

```
# ui.R

shinyUI(fluidPage(
  titlePanel("title panel"),
  sidebarLayout(
    sidebarPanel("sidebar panel"),
    mainPanel("main panel")
  )
))
```

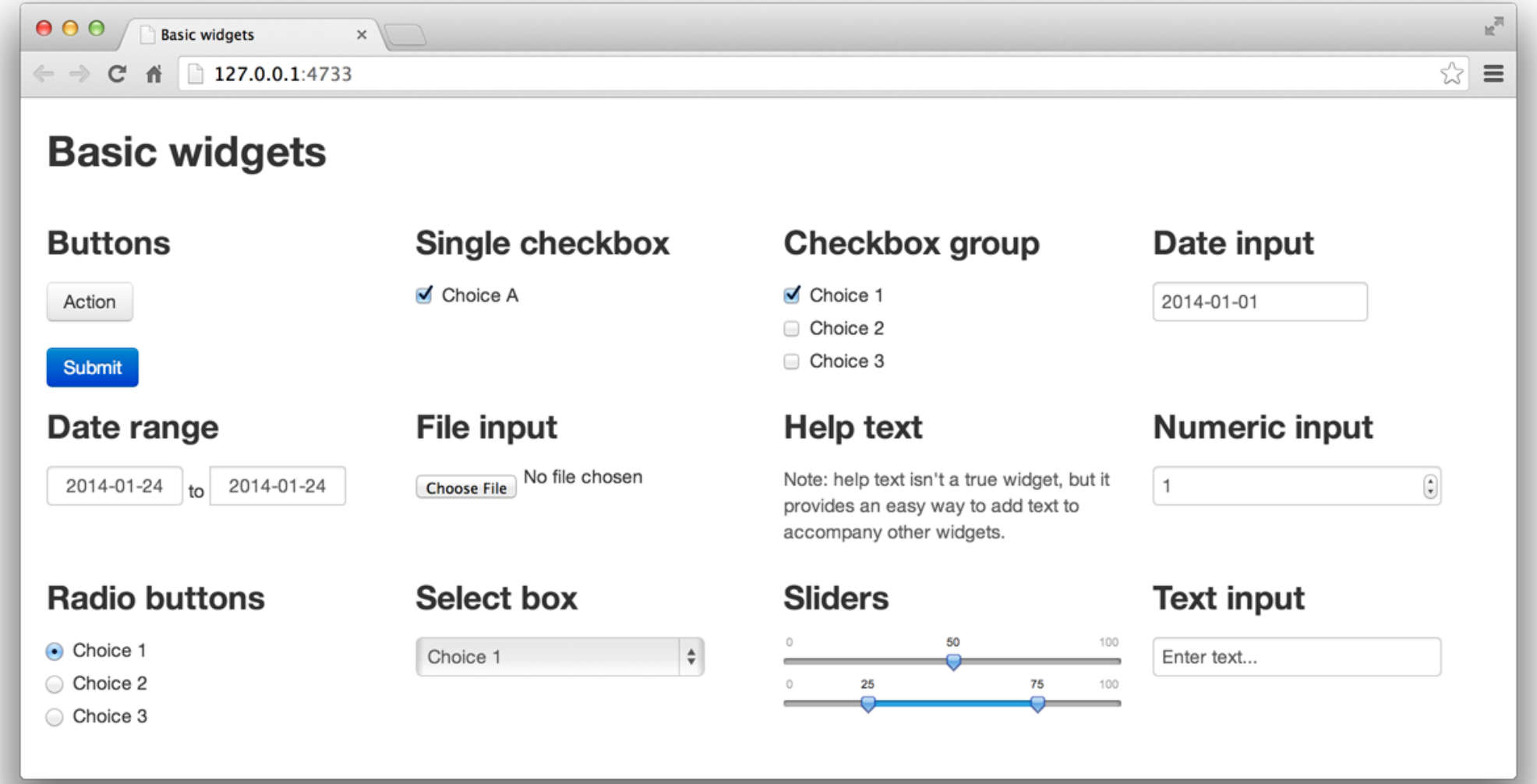
Inside each of the panel commands we can use html text
see http://shiny.rstudio.com/tutorial/lesson2/ for more details.

server.r

In server.r all of the input parameter are evaluated to make the output elements. Each output element has to be rendered

```
# server.R

shinyServer(function(input, output) {

  }
)
```

adding widgets



see http://shiny.rstudio.com/tutorial/lesson3/

input parameters: widgets

actionButton	Action Button
checkboxGroupInput	A group of check boxes
checkboxInput	A single check box
dateInput	A calendar to aid date selection
dateRangeInput	A pair of calendars for selecting a date range
fileInput	A file upload control wizard
helpText	Help text that can be added to an input form
numericInput	A field to enter numbers
radioButtons	A set of radio buttons
selectInput	A box with choices to select from

sliderInput

```
sliderInput(inputId, label, min, max, value, step = NULL, round = FALSE,
  format = NULL, locale = NULL, ticks = TRUE, animate = FALSE,
  width = NULL, sep = ",", pre = NULL, post = NULL)
```

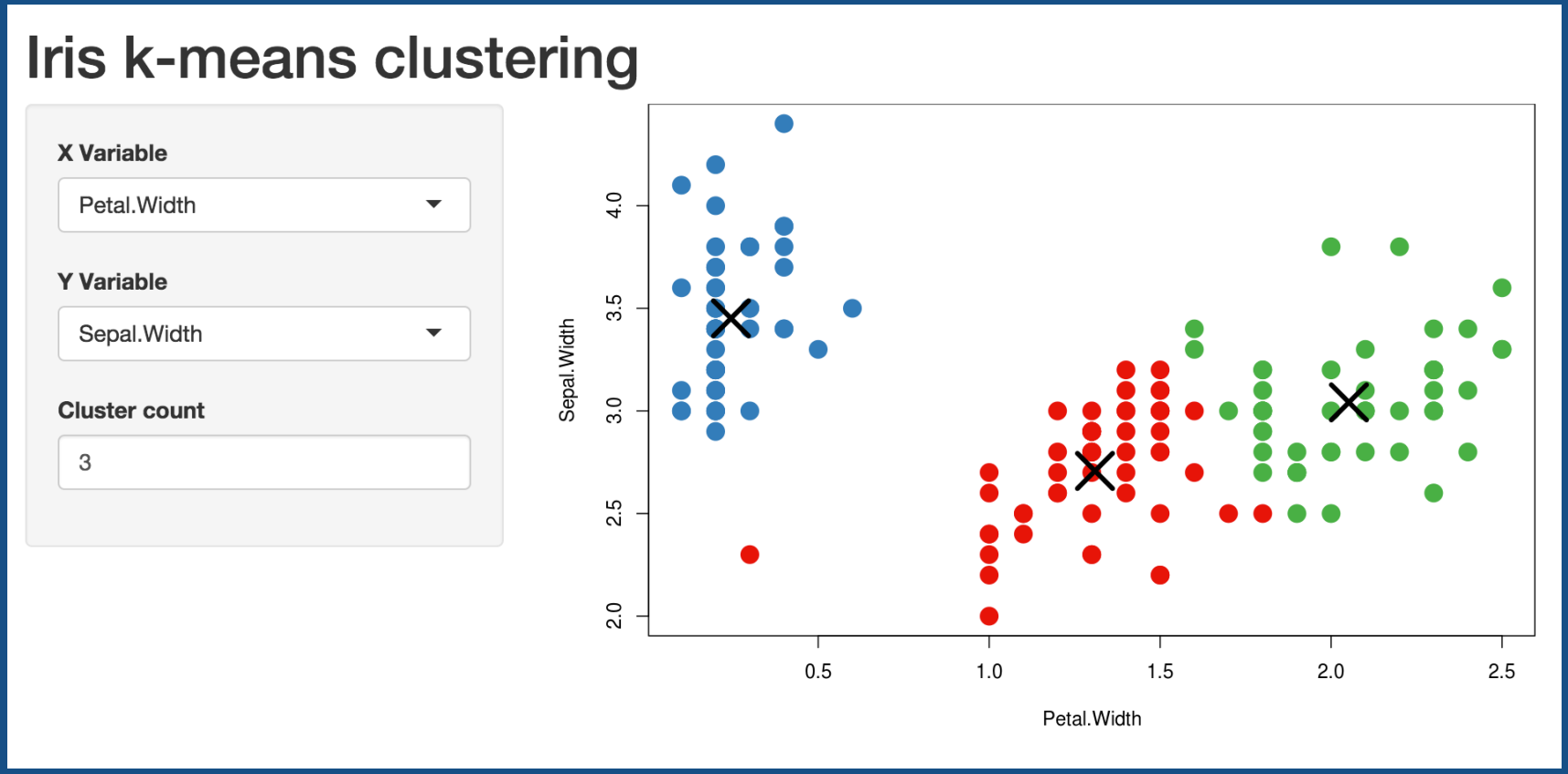
- e.g.:

  sliderInput("nbins", "number of bins”, min=1, max=50, range=10)

  sliderInput("range", "range of X", min=43, max=96, range=c(43, 96))

Your Turn

- For a dataset of your choice, set up a folder for a shiny App and start building the interface shown below (input values only)



output parameters (usually in mainPanel)

Output function	creates
htmlOutput	raw HTML
imageOutput	image
plotOutput	plot
tableOutput	table
textOutput	text
uiOutput	raw HTML
verbatimTextOutput	text

server.r

In server all of the input parameter are evaluated to make the output elements. Each output element has to be rendered

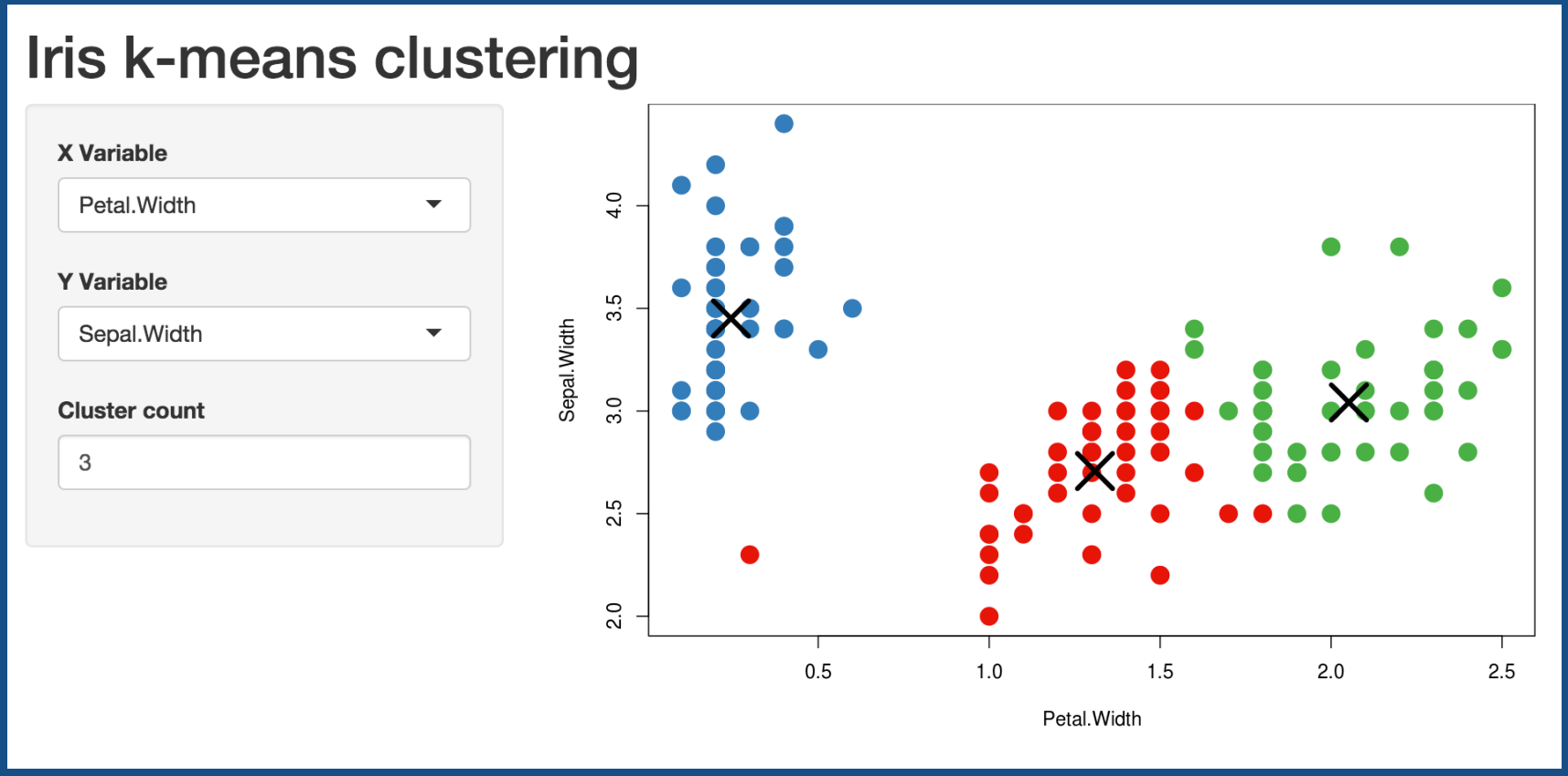
```
# server.R

shinyServer(function(input, output) {

    output$text1 <- renderText({
        "You have selected this"
    })

  }
)
```

render functions

function	object created
renderImage	images (saved as a link to a source file)
renderPlot	plots
renderPrint	any printed output
renderTable	data frame, matrix, other table like structures
renderText	character strings
renderUI	a Shiny tag object or HTML

Your Turn

- add the output elements to ui.r and work on the rendering in server.r



Congratulations

- you just built your first shiny app!
- here are more examples: http://shiny.rstudio.com/gallery/