BUILDING WEB APPLICATIONS IN R WITH SHINY

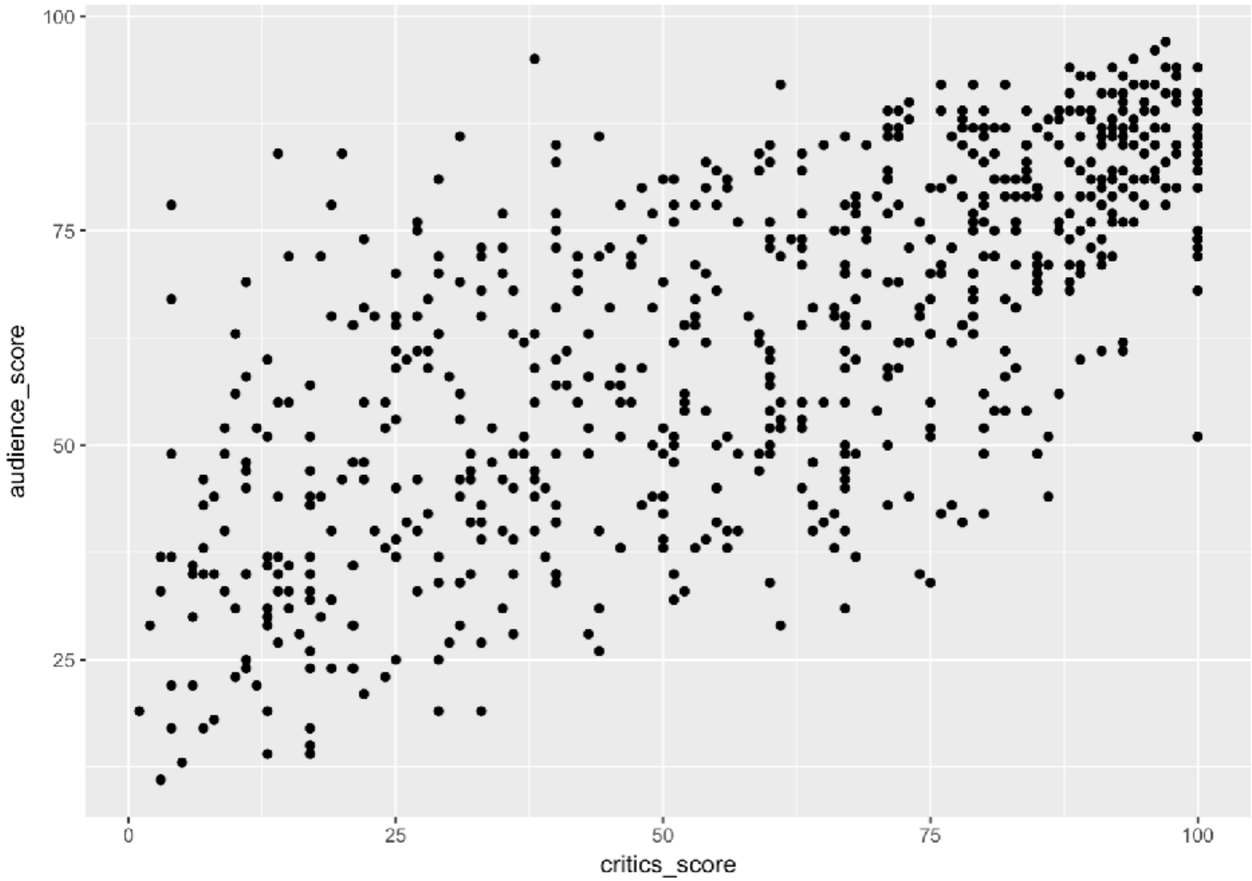
Server function

Y-axis:

audience_score

X-axis:

critics_score



```
# Define server function required to create the scatterplot
server <- function(input, output) {

  # Create scatterplot object the plotOutput function is expecting
  output$scatterplot <- renderPlot({
    ggplot(data = movies, aes_string(x = input$x, y = input$y)) +
      geom_point()
  })
}
```

```
# Define server function required to create the scatterp
server <- function(input, output) {

  # Create the scatterplot object the plotOutput function is expecting
  output$scatterplot <- renderPlot({
    ggplot(data = movies, aes_string(x = input$x, y = input$y)) +
      geom_point()
  })
}
```

Contains instructions needed to build app

```
# Define server function required to create the scatterplot
server <- function(input, output) {

  # Create the scatterplot object the plotOutput functi
  output$scatterplot <- renderPlot({
    ggplot(data = movies, aes_string(x = input$x, y = i
      geom_point()
  })
}
```

Specifies how the plot output should be updated

```r
# Define server function required to create the scatterplot
server <- function(input, output) {

  # Create the scatterplot object the plotOutput function is expecting
  output$scatterplot <- renderPlot({
    ggplot(data = movies, aes_string(x = input$x, y = input$y)) +
      geom_point()
  })
}
```

Good ol' ggplot2 code,
with **input**s from UI

```r
ui <- fluidPage(
. . .
      # Select variable for y-axis
      selectInput(inputId = "y", label = "Y-axis:",
                  choices = c("imdb_rating", "imdb_num_votes", "critics_score", "audience_score", "runtime"),
                  selected = "audience_score"),
      # Select variable for x-axis
      selectInput(inputId = "x", label = "X-axis:",
                  choices = c("imdb_rating", "imdb_num_votes", "critics_score", "audience_score", "runtime"),
                  selected = "critics_score")
. . .
)
```

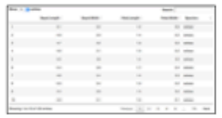
```r
server <- function(input, output) {

  # Create the scatterplot object the plotOutput function is expecting
  output$scatterplot <- renderPlot({
    ggplot(data = movies, aes_string(x = input$x, y = input$y)) +
      geom_point()
  })
}
```

Rules of server functions

1. Save objects to display to `output$xx`
2. Build objects to display with `render*()`
3. Use input values with `input$xx`

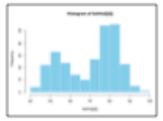
Outputs - render*() and *Output() functions work together to add R output to the UI

works with



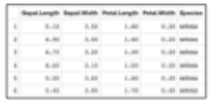
DT::**renderDataTable**(expr, options, callback, escape, env, quoted) — **dataTableOutput**(outputId, icon, …)

renderImage(expr, env, quoted, deleteFile) — **imageOutput**(outputId, width, height, click, dblclick, hover, hoverDelay, inline, hoverDelayType, brush, clickId, hoverId)



renderPlot(expr, width, height, res, …, env, quoted, func) — **plotOutput**(outputId, width, height, click, dblclick, hover, hoverDelay, inline, hoverDelayType, brush, clickId, hoverId)

renderPrint(expr, env, quoted, func, width) — **verbatimTextOutput**(outputId)

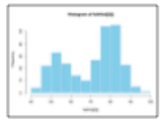


renderTable(expr,…, env, quoted, func) — **tableOutput**(outputId)

foo

renderText(expr, env, quoted, func) — **textOutput**(outputId, container, inline)

renderUI(expr, env, quoted, func) — & **uiOutput**(outputId, inline, container, …) **htmlOutput**(outputId, inline, container, …)



renderPlot(expr, width, height, res, ..., env, quoted, func)

plotOutput(outputId, width, height, click, dblclick, hover, hoverDelay, inline, hoverDelayType, brush, clickId, hoverId)

```
ui <- fluidPage(
. . .
    # Output: Show scatterplot
    mainPanel(
      plotOutput(outputId = "scatterplot")
. . .
)
```

```
server <- function(input, output) {

  # Create the scatterplot object the plotOutput function is expecting
  output$scatterplot <- renderPlot({
    ggplot(data = movies, aes_string(x = input$x, y = input$y)) +
      geom_point()
  })
}
```

Reactivity


input$x
expression()
output$y
Create your
own reactive values
*Input()
Update
Render
reactive output
render*()

Putting all the pieces together

```
# Create the Shiny app object
shinyApp(ui = ui, server = server)
```

BUILDING WEB APPLICATIONS IN R WITH SHINY

Let's practice!