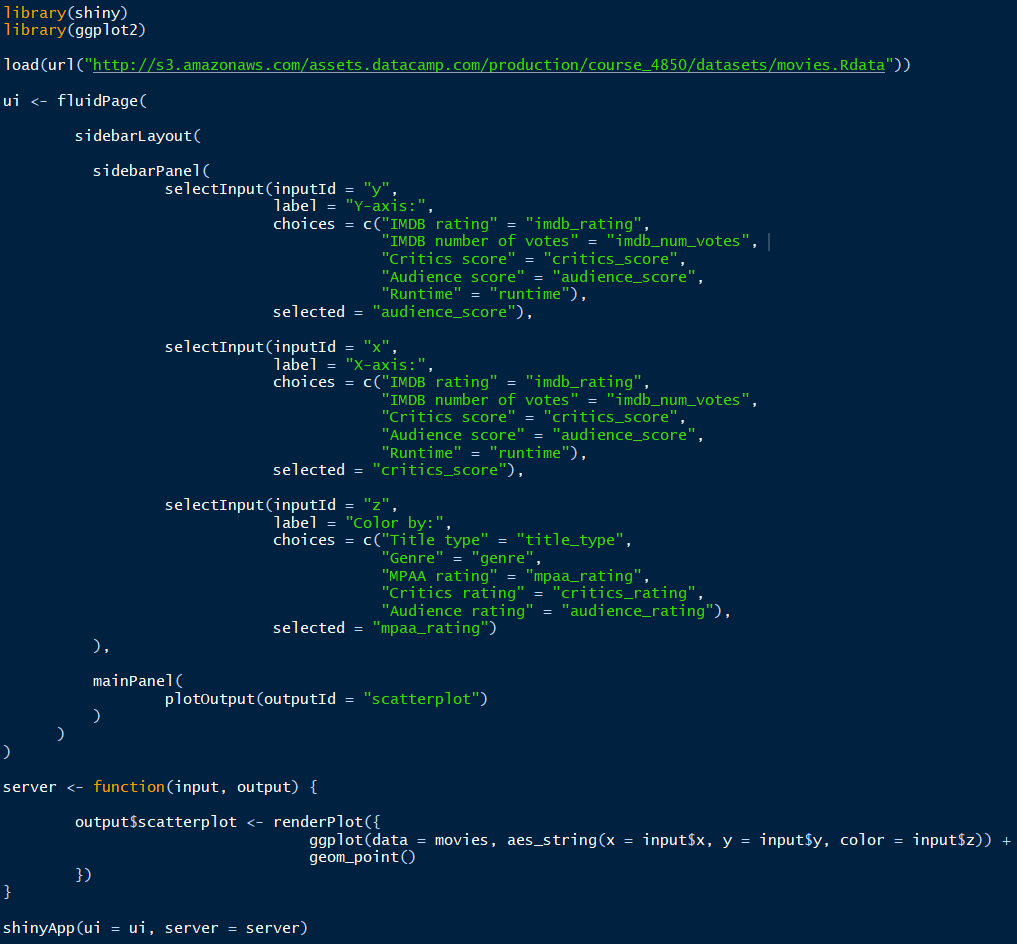
**Building Web Applications in R with Shiny**

## Resources

data loaded before ui

[www.rstudio.com/resources/cheatsheets/](http://www.rstudio.com/resources/cheatsheets/)

[www.shiny.rstudio.com/](http://www.shiny.rstudio.com/)

controls the layout and appearance of the app

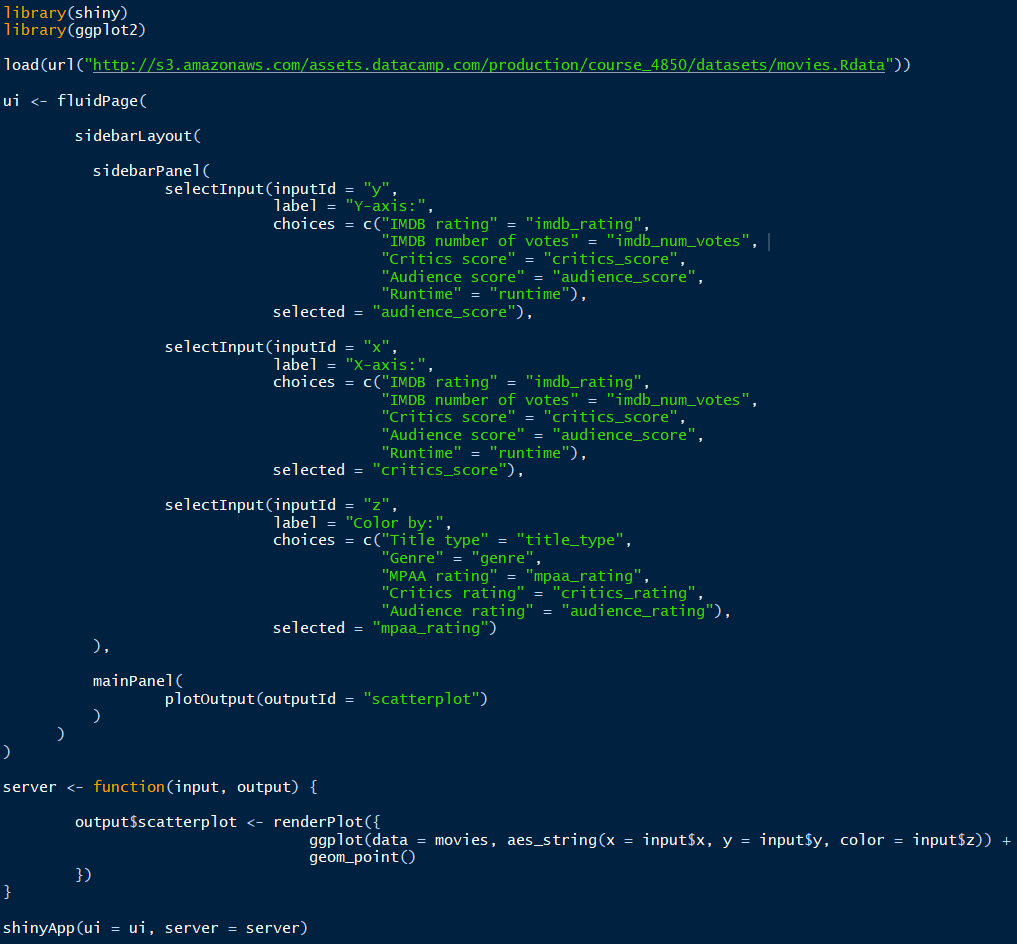
contains instructions needed to build the app

**UI**

creates the Shiny app object

Inputs are defined and laid out in the UI. Outputs are also laid out in UI.

The UI is translating everything into three languages:



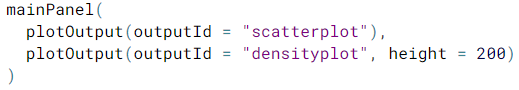
**Server**

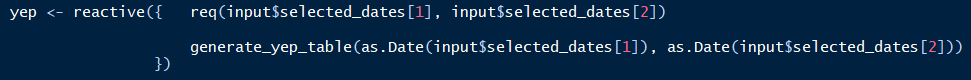
Outputs are calculated in the server. Any other calculations needed for outputs are also performed in the server. The input and output in the server function are ***named lists***.

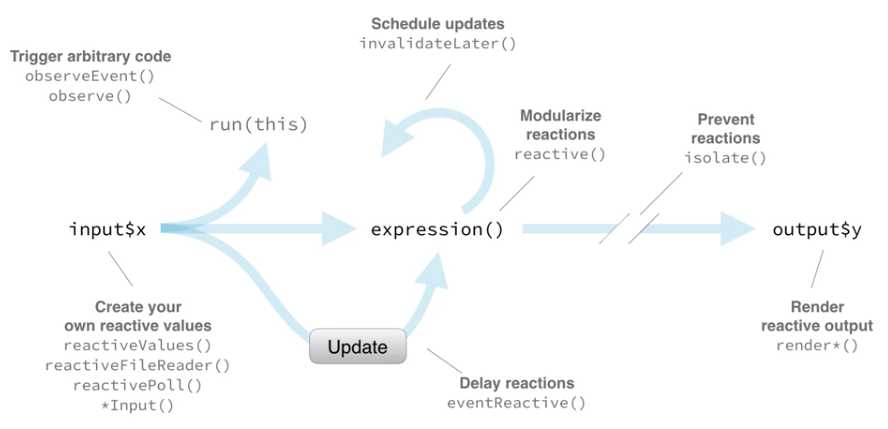
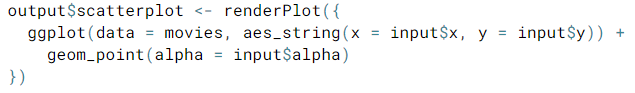
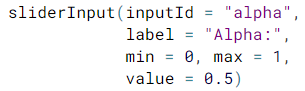
* Save objects to display to output$\*
* Build objects to display with render\*()
* Use input values with input$\*

**Reactive Flow**

**reactive expression**





**req(input$\*, input$\*, …)** is a very useful function. If any of the input$\* are not “truthy”, the operation is stopped by raising a “select” exception (neither logged by Shiny, nor displayed in the Shiny app’s ui)