Shiny app for beginners

Activity #1: Start the demo app

1. Start the demo app. If you are using RStudio from your own laptop, go to **New project → New Directory → Shiny app.** If you are on Posit.cloud, go to **New Project → New RStudio project → File → New File → Shiny app**.
2. Name the app **Shiny_demo**. This will be come a name of a folder.
3. Run the app.

Activity #2: Making small changes

1. Change the application title to “Shiny demo”. Run the app to see the effect.

```
15      # Application title
16      titlePanel("Shiny Demo"),
```

2. Change the color from “darkgray” to “green”. Run the app.

```
44          hist(x, breaks = bins, col = 'green', border = 'white',
45               xlab = 'Waiting time to next eruption (in mins)',
46               main = 'Histogram of waiting times')
```

3. Swap data to mtcars

```
40          x    <- mtcars[, 'mpg']
```

Activity #3: Adding and using control widgets

1. Bring the Shiny Cheat sheet: Help → Cheat Sheets → Web application with Shiny
2. Add a color select to the UI. Add these 5 lines. Run the app. Make sure there is no errors and it looks good.

```
19      sidebarLayout(
20          sidebarPanel(
21              selectInput("select_color",
22                          "Select a color",
23                          choices = c("red", "green", "gray")
24              ),
25              sliderInput("bins",
26                          "Number of bins:",
27                          min = 1,
```

3. Change the color of the plot. Change this line and run the app.

```
47          # draw the histogram with the specified number of bins
48          hist(x, breaks = bins, col = input$select_color, border = 'white',
49               xlab = 'Waiting time to next eruption (in mins)',
```

Activity #4: Change data columns

1. Add a selectInput to select the columns. Run the app to make sure the control widget works.

```
18      # Sidebar with a slider input for number of bins
19      sidebarLayout(
20          sidebarPanel(
21              selectInput("select_column",
22                          "Select a column",
23                          choices = colnames(mtcars)
24              ),
25              selectInput("select_color",
26                          "Select a color",
27                          choices = c("red", "green", "gray")
```

2. Use the select column to plot. Run the app.

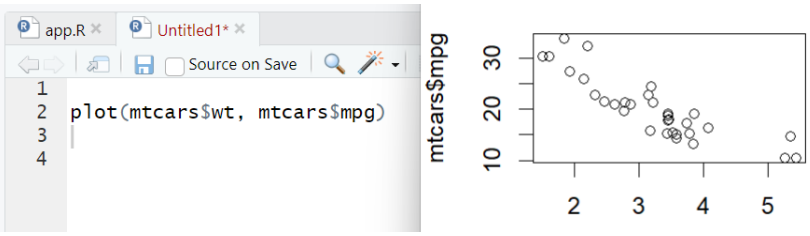
```
47          # generate bins based on input$bins from ui.R
48          x    <- mtcars[, input$select_column]
49          bins <- seq(min(x), max(x), length.out = input$bins + 1)
```

Activity 5. Add a plot.

1. First add the plotoutput in UI. Run the app.

```
37          mainPanel(
38             plotOutput("distPlot"),
39             plotOutput("sPlot")
40          )
41      )
42  )
```

2. Generate the plot in a separate R script.



3. Copy the code into the Shiny app inside a output function.

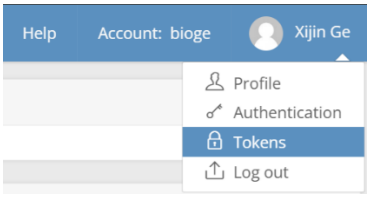
```
44  # Define server logic required to draw a histogram
45  server <- function(input, output) {
46
47      output$sPlot <- renderPlot({
48          plot(mtcars$wt, mtcars$mpg)
49      })
50
51      output$distPlot <- renderPlot({
52          # generate bins based on input$bins from ui.R
```

4. Change the code to use selected columns.

```
47      output$sPlot <- renderPlot({
48          plot(mtcars[, input$select_column], mtcars$mpg)
49      })
```

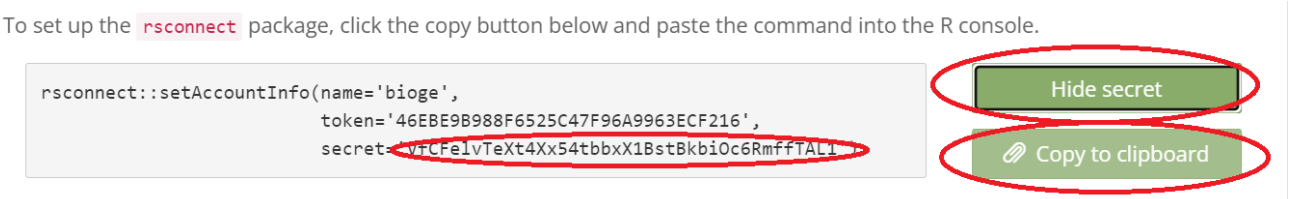
Activity 6: Publishing the app on Shinyapp.io

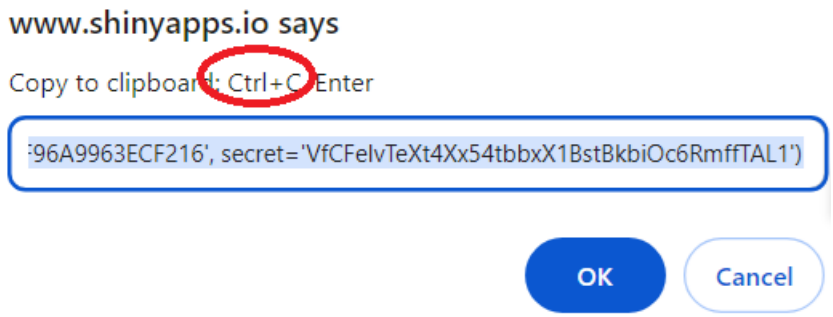
1. Log into Shinyapps.io
2. Click on the top right corner (your name). Then select Tokens.



3. Click on 

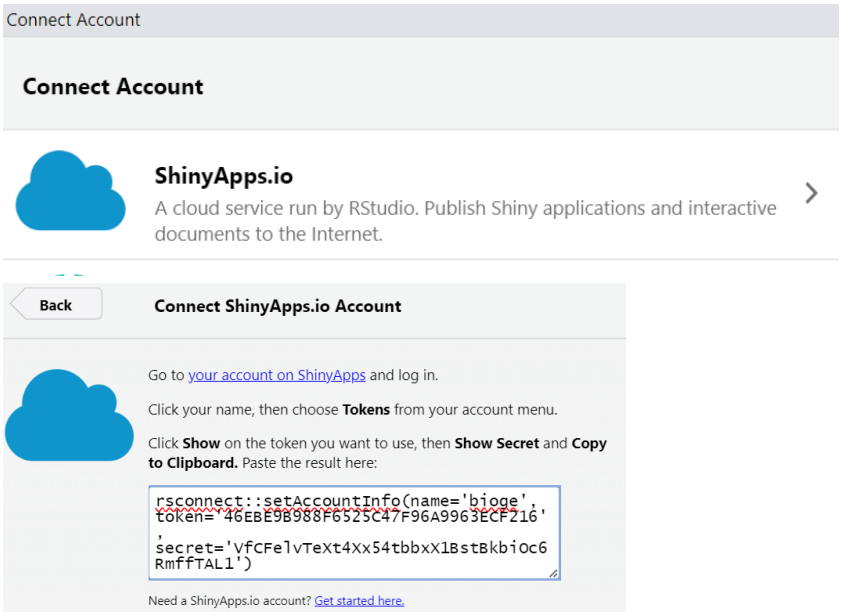
4. Click on Show Token and the **Show Secret**. Copy to clipboard.





5. Go back to RStudio. Run the app. Click the Publish button on the top right.

6. Connect to Shinyapps.io by pasting the secret.



Activity 7. Interacting with ChatGPT through API

1. Start a new R script file. Save a ChatGPT.R. https://github.com/irudnyts/openai

```
install.packages("remotes")
remotes::install_github("irudnyts/openai", ref = "r6")

Sys.setenv(
  OPENAI_API_KEY = 'sk-proj-XEFD_g86’
)

library(openai)
client <- OpenAI()
completion <- client$chat$completions$create(
  model = "gpt-3.5-turbo",
  messages = list(list("role" = "user", "content" = "What's up?"))
)

completion$choices[[1]]$message$content
```