

Problem 1

Yufei Yin

Question 1

Add text boxes (numericInput) to specify the x limits of the histogram, as below (5 marks). Also: modify the title and axis labels of the histogram to be correct (1 mark).

ui.R

```
library(shiny)

# Define UI for application that draws a histogram
shinyUI(fluidPage(

  # Application title
  titlePanel("Population Data"),
  # Include radio buttons (Only one of these can be selected)
  # These radioButtons are used in the server as an input variable called
  # 'dataSource'
  radioButtons("dataSource", "",
    c("Data Source 2006" = "DataFile2006",
      "Data Source 2011" = "DataFile2011")),
  # Sidebar with a slider input for number of bins
  sidebarLayout(
    sidebarPanel(
      # This is a slider for the number of bins
      #The value determined here will be used as an input in server.R
      #The minimum is 1
      #The max is 50
      #It starts at a value of 30
      #by default it will grow by 1 but here I specify that it will step by 2
      #
      # The format is
      #sliderInput(VariableName, Stuff2WriteInTheWebPage, MinimumValue,MaxValue,Default,StepIncrement,
      sliderInput("bins", #This is the variable name, the value of which is determined by the slider
        "Number of bins:",#Label on the html page
        min = 1,#minimum for the slider
        max = 50,#maximum for the slider
        value = 30,#default value
        step=2),#slider increments

      # Question 1
      numericInput("minx", "x-axis minimum:", value = 1000),
      numericInput("maxx", "x-axis maximum:", value = 1000000),
```

```

    # Question 2
    checkboxInput("density", "Add density plot?", value = FALSE)),

# Show a plot of the generated distribution
mainPanel(

    # Question 3
    tabsetPanel(type = "tabs",
                tabPanel("Population", plotOutput("distPlot1")),
                tabPanel("Private Dwellings", plotOutput("distPlot2")))
    )
#   plotOutput("distPlot")
)
))
)

```

server.R

```

#
# This is the server logic of a Shiny web application. You can run the
# application by clicking 'Run App' above.
#
# Find out more about building applications with Shiny here:
#
#   http://shiny.rstudio.com/
#

library(shiny)

# Define server logic required to draw a histogram
shinyServer(function(input, output) {

  output$distPlot1 <- renderPlot({

    #Use those radioButtons to select the data to use
    #Note that the input was called "dataSource" in the ui.R file
    #Here it is an element from a list.
    #I extract it using input$nameOfThing
    if (input$dataSource == "DataFile2006") {
      x = read.csv("pop2006.csv")
      main = "Histogram of Canada population 2006" # Question 1
    } else {
      if(input$dataSource == "DataFile2011"){
        x = read.csv("pop2011.csv")
        main = "Histogram of Canada population 2011" # Question 1
      }else{
        #This means do not use any data. This will break things.
        x=NULL
      }
    }
  })
}

```

```

#I didn't need to use if{}else{}if{}else{}
# but I do so to show how to use multiple if else statements.

# generate bins based on input$bins from ui.R
x   <- x[-1, 3]
bins <- seq(min(x), max(x), length.out = input$bins + 1)

# # draw the histogram with the specified number of bins
# hist(x, breaks = bins, col = 'darkgray', border = 'white',
#      xlab = "Population", # Question 1
#      main = main)         # Question 1

# Question 2 density
if (input$density) {
  hist(x, breaks = bins, col = 'darkgray', border = 'white',
       xlab = "Population", # Question 1
       main = main,         # Question 1
       probability = TRUE)  # Question 2

  dens <- density(x)
  lines(dens, col = "red")
}else
{
  hist(x, breaks = bins, col = 'darkgray', border = 'white',
       xlab = "Population", # Question 1
       main = main)         # Question 1
}

})

# Question 3
output$distPlot2 <- renderPlot({
  if (input$dataSource == "DataFile2006") {
    x = read.csv("pop2006.csv")
    main = "Histogram of Private Dwellings in 2006"
  } else {
    if(input$dataSource == "DataFile2011"){
      x = read.csv("pop2011.csv")
      main = "Histogram of Private Dwellings in 2011"
    }else{
      x=NULL
    }
  }
})

x   <- x[-1, 4]
bins <- seq(min(x), max(x), length.out = input$bins + 1)

if (input$density) {

```

```

hist(x, breaks = bins, col = 'darkgray', border = 'white',
     xlab = "private dwelling",
     main = main,
     probability = TRUE)

dens <- density(x)
lines(dens, col = "red")
}else
{
  hist(x, breaks = bins, col = 'darkgray', border = 'white',
       xlab = "private dwelling",
       main = main)
}

})

})

```

output screenshots

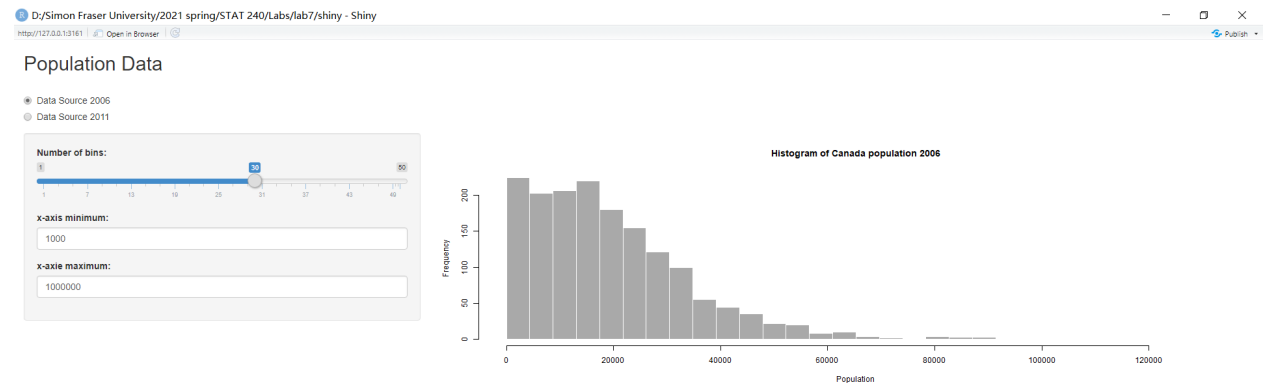


Figure 1: Population 2016

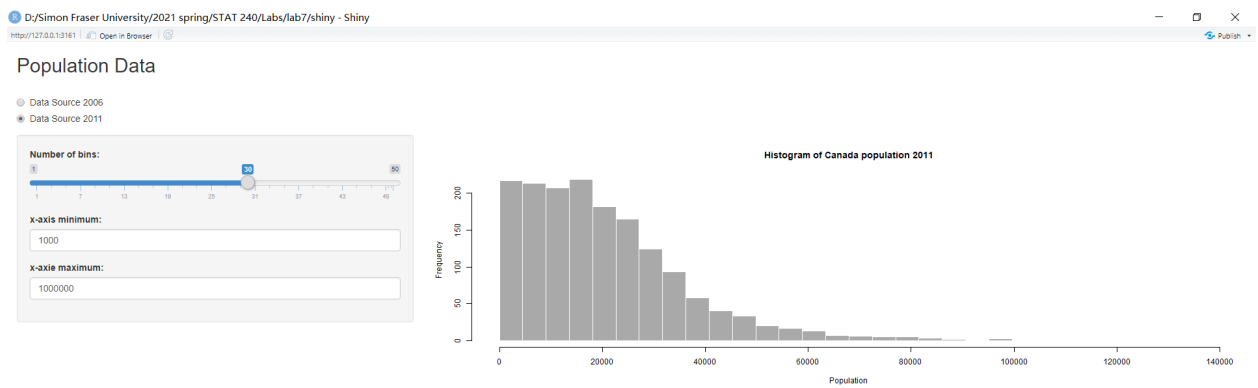


Figure 2: Population 2011