Fall 2017

CSCI 0360 Introduction to Statistics with R

Assignment weight: 100 points

Assignment 4 - Advanced Data Visualization

1. Save your R scipt file using the following format: **assignment4_lastnameFirstname.R**
2. Use comments to display your name and the assignment number at the top of the script file.

3. Create a vector called **dayvec** that contains the following values: **3, 7, 8, 15, 20, 22, 25**.

4. Use the **pie()** function to create a pie chart for **dayvec**, do not set any of the parameters.

5. Use the **pie()** function again to create a pie chart for **dayvec**, but this time set the following parameters:
   Chart Title: “Days of the week”
   Color: rainbow(length(dayvec))
   Labels: "Mon", "Tue","Wed","Thu","Fri","Sat","Sun"

6. Create a **chartcolors** vector with the following colors: "green", "yellow", "orange", "red", "hotpink","purple", "blue"

7. Calculate the percentage for each day, using one decimal place:
   percentlabels <- round(100*dayvec/sum(dayvec), 1)

8. Add a ‘%’ sign to each percentage value using the paste command.
   piechartlabels <- paste(percentlabels, "%", sep="")

9. Create a pie chart for **dayvec** using the **pie()** function with the following parameters:
   Chart Title: “Improved Pie Chart”
   Color: set the color to the **chartcolors** vector you created in step 6.
   Labels: set the labels to the **piechartlabels** vector you created in step 8.

10. Create a legend for the pie chart using the following command:
    legend("topright", days , fill=chartcolors, cex=0.5)

11. Create a vector called **ogivevec** containing the following values:
    6, 10, 10, 17, 7, 12, 7, 11, 6, 16, 3, 8, 13, 8, 7, 12, 6, 5, 10, 9

12. Create a histogram of **ogivevec** using the hist() function. Assign the histogram to a variable called **ogivehist.**

13. Replace the cell freq.s by cumulative freq.s using the following command:
    ogivehist$counts <- cumsum(ogivehist$counts)

14. Plot a cumulative histogram of **ogivehist** using the **plot()** function.

15. Create a scatterplot of **ogivevec** using the following command:
    plot(sort(ogivevec), 1:length(ogivevec)) # plot rank on value of ogivevec

16. Create a stem and leaf plot for the **islands** dataset using the function **stem().**

17. Create a stem and leaf plot for the **weight** variable of the **ChickWeight** dataset using the **stem()** function with following parameters:
    scale = 2
    width = 100

18. Create a box-whisker plot for the **mpg** variable of the **mtcars** dataset using the **boxplot()** function.

19. Create a box-whisker plot for the **Temp** variable of the **airquality** dataset using the **boxplot()** function with the following parameters:
    Chart Title: "Maximum daily temperature"
    X-Axis Label: "Degrees"
    Y-Axis Label: “Temp”
    Color: “orange”
    border = “brown”
    horizontal = TRUE
    notch = TRUE

20. Upload the script file to Blackboard under Assignment 4.