RWorksheet_Pineda#4a.Rmd

2023-10-25

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

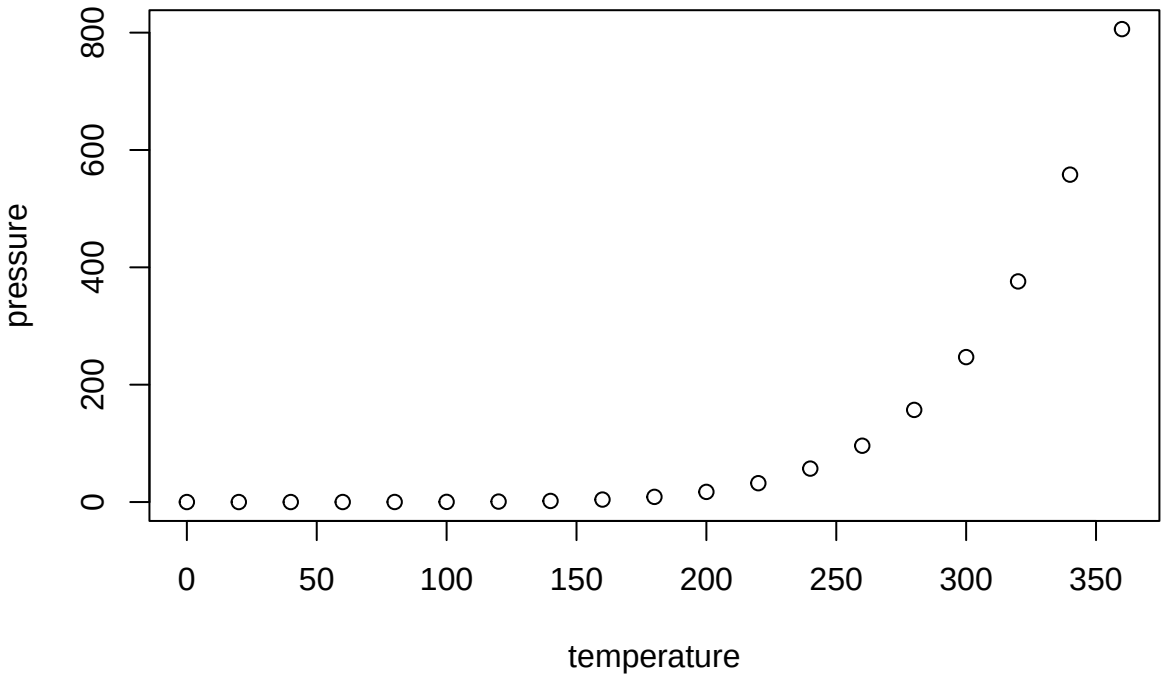
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed           dist
##  Min.   : 4.0   Min.   :  2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

#1 Data_Household <- data.frame(Shoe_Size = c(6.5, 9.0, 8.5, 8.5, 10.5, 7.0, 9.5, 9.0, 13.0, 7.5, 10.5, 8.5, 12.0, 10.5, 13.0, 11.5, 8.5, 5.0, 10.0, 6.5, 7.5, 8.5, 10.5, 8.5, 10.5, 11.0, 9.0, 13.0),

Height = c(66.0, 68.0, 64.5, 65.0, 70.0, 64.0, 70.0, 71.0, 72.0, 64.0, 74.5, 67.0, 71.0, 71.0, 77.0, 72.0, 59.0, 62.0, 72.0, 66.0, 64.0, 67.0, 73.0, 69.0, 72.0, 70.0, 69.0, 70.0),

Gender = c("F", "F", "F", "F", "M", "F", "F", "F", "M", "F", "M","F", "M", "M", "M", "M", "F", "F", "M", "F", "F", "M", "M", "F", "M", "M", "M", "M")) Data_Household

#1.a #There are three varibales which are the shoe size, height, and gender. #There are 28 observations

#1.b females <- Data_Household[Data_Household$Gender == "F",] females

males <- Data_Household[Data_Household$Gender == "M",] males

#1.c mean_Shoe_Size <- mean(Data_Household$Shoe_Size) mean_Shoe_Size

mean_Height <- mean(Data_Household$Height) mean_Height

#1.d #The shoe size is proportional to the height.

#2 Vec_Months <- c("March", "April", "January", "November", "January", "September", "October", "September", "November", "August", "January", "November", "November", "February", "May", "August", "July", "December", "August", "August", "September", "November", "February", "April") Vec_Months

factor_Vec_Months <- factor(Vec_Months) factor_Vec_Months

#3 summary(Vec_Months) summary(factor_Vec_Months)

#The summary of Vec_Months shows the number of observations, class and character. #The summary of factor_Vec_Months shows the frequency of each months. #Both summary ae useful in different cases where the number of observations, class, character, or frequency is needed.

#4 Direction <- c("East", "West", "North") Direction

Frequency <- c(1,4,3) Frequency

DataFactor DataFactor <- c(1,4,3) new_DataOrder <- factor(DataFactor, levels = c("East", "West", "North")) print(new_DataOrder)

#5.a Table_imported <- read.table(file = "/cloud/project/RWorksheet_Pineda#4/import_march.csv", header = TRUE, sep =",")

#5.b View(import_march)

#6 NumberRandom <- readline(prompt = "Enter Number from 1 to 50:") NumberRandom <- as.numeric(NumberRandom) paste("The number you have chosen is", NumberRandom) if (NumberRandom > 50){ paste("The number selected is beyong the range of 1 to 50") }else if (NumberRandom == 20){ paste("TRUE") }else{ paste(NumberRandom) }

#7 minBills <- function(price){ minimumBills <- price %/% 50 paste("The minimum number of bills:", minimumBills) } minBills(90)

#8.a Names <- c("Annie", "Thea", "Steve", "Hanna") g1 <- c(85,65,75,95) g2 <- c(65,75,55,75) g3 <- c(85,90,80,100) g4 <- c(100,90,85,90)

Math_Score <- data.frame(Name = Names, Grade1 = g1, Grade2 = g2, Grade3 = g3, Grade4 = g4)

#8.b Math_Score$Average <- -(Math_Score$Grade1 + Math_Score$Grade2 + Math_Score$Grade3 + Math_Score$Grade4) / 4

HighScorers <- Math_Score[Math_Score$Average > 90,] HighScorers

if (nrow(HighScorers) > 0){ paste(HighScores$Name, "'s average grade this semester is", HighScorers$Average) } else { paste("No students have an average math score over 90.") }

#8.c FirstTest <- sum(Math_Score$Grade1) / nrow(Math_Score) FirstTest

SecondTest <- sum(Math_Score$Grade2) / nrow(Math_Score) SecondTest

ThirdTest <- sum(Math_Score$Grade3) / nrow(Math_Score) ThirdTest

FourthTest <- sum(Math_Score$Grade4) / nrow(Math_Score) FourthTest

if (FirstTest < 80){ paste("The 1st Test was difficult.") } else if (SecondTest < 80){ paste("The 2nd Test was difficult.") } else if (ThirdTest < 80){ paste("The 3rd Test was difficult.") } else if (FourthTest < 80){ paste("The 3rd Test was difficult.") } else if (FourthTest < 80){ paste("The 4th Test was difficult.") } else { paste("No test had an average score less than 80.") } #8.d #Annie Scores if (Math_Score[1,2] > Math_Score[1,3] && Math_Score[1,2] > Math_Score[1,4] && Math_Score[1,2] > Math_Score[1,5]){ AnnieHighest <- Math_Score[1,2] } else if (Math_Score[1,3] > Math_Score[1,4] && Math_Score[1,3] > Math_Score[1,5]){ AnnieHighest <- Math_Score[1,3] } else if (Math_Score[1,4] > Math_Score[1,5] && Math_Score[1,2] > Math_Score [1,5]){ AnnieHighest <- Math_Score[1,4] } else { AnnieHighest <- Math_Score[1,5] }

#Thea Scores if (Math_Score[2,2] > Math_Score[2,3] && Math_Score[2,2] > Math_Score[2,4] && Math_Score[2,2] > Math_Score[2,5]){ TheaHighest <- Math_Score[2,2] } else if (Math_Score[2,3] > Math_Score[2,4] && Math_Score[2,3] > Math_Score[2,5]){ TheaHighest <- Math_Score[2,3] } else if (Math_Score[2,4] > Math_Score[2,5] && Math_Score[2,2] > Math_Score[2,5]){ TheaHighest <- Math_Score[2,4] } else { TheaHighest <- Math_Score[2,5] }

#Steve Scores if (Math_Score[3,2] > Math_Score[3,3] && Math_Score[3,2] > Math_Score[3,4] && Math_Score[3,2] > Math_Score[3,5]){ SteveHighest <- Math_Score[3,2] } else if (Math_Score[3,3] > Math_Score[3,4] && Math_Score[3,3] > Math_Score[3,5]){ SteveHighest <- Math_Score[2,3] } else if (Math_Score[3,4] > Math_Score[3,5] && Math_Score[3,2] > Math_Score[3,5]){ SteveHighest <- Math_Score[3,4] } else { SteveHighest <- Math_Score[3,5] }

#Hanna Scores if (Math_Score[4,2] > Math_Score[4,3] && Math_Score[4,2] > Math_Score[4,4] && Math_Score[4,2] > Math_Score[4,5]){ HannaHighest <- Math_Score[4,2] } else if (Math_Score[4,3] > Math_Score[4,4] && Math_Score[4,3] > Math_Score[4,5]){ HannaHighest <- Math_Score[2,3] } else if (Math_Score[4,4] > Math_Score[4,5] && Math_Score[4,2] > Math_Score[4,5]){ HannaHighest <- Math_Score[4,4] } else { HannaHighest <- Math_Score[4,5] }

Math_Score$HighestGrades <- c(AnnieHighest, TheaHighest, SteveHighest, HannaHighest)

up90 <- Math_Score[Math_Score$HighestGrades > 90,] up90

if (nrow(up90) > 0){ paste(up90$Name, "'shighestgradethissemesteris", up90HighestGrades) } else { paste("No students have an average math score over 90.") }