RWorksheet#4_Obas

2023-10-25

household_data <- 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"))

household_data

#1.a #This data frame shows the Gender, Height and Shoe Size of each person.

#1.b

females_subset <- household_data[household_data$Gender == "F", c("Gender", "Shoe_Size", "Height")] females_subset

males_subset <- household_data[household_data$Gender == "M", c("Gender", "Shoe_Size", "Height")] males_subset

#1.c mean_shoe_size <- mean(household_data$Shoe_Size) $mean_height <- mean(household_data$Height)

mean_shoe_size mean_height

#2 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")

factor_months_vector <- factor (months) factor_months_vector

#3 summary(months) summary(factor_months_vector)

#4

Direction <- c("East", "West", "North") Direction Frequency <- c(1,4,3) Frequency

factor_data <- factor(c(Direction,Frequency)) factor_data

new_order_data <- factor(factor_data,levels = c("East","West","North")) print(new_order_data)

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

imported_table

#6 randomNum <- readline(prompt = "Enter number from 1 to 50:")

#cant knit if there is as.numeric #randomNum <- as.numeric(randomNum)

paste("The number you have chosen is", randomNum)

if (randomNum > 50) { paste("The number selected is beyond the range of 1 to 50") } else if (randomNum == 20) { paste("TRUE") } else { paste(randomNum) }

#7 minimumBills <- function(price) {

minBills <- price %/% 50 paste("The minimum no. of bills:", minBills) }

minimumBills(90)

8.a

names <- c("Annie", "Thea", "Steve", "Hanna") grade1 <- c(85,65,75,95) grade2 <- c(65,75,55,75) grade3 <- c(85,90,80,100) grade4 <- c(100,90,85,90)

mathScore <- data.frame(Name = names, Grade1 = grade1, Grade2 = grade2, Grade3 = grade3, Grade4 = grade4)

8.b

mathScore$Average <- (mathScore$Grade1 + mathScore$Grade2 + mathScore$Grade3 + mathScore$Grade4) / 4

highscorers <- mathScore[mathScore$Average > 90,] highscorers

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

8.c

firstTest <- sum(mathScore$Grade1) / nrow(mathScore) firstTest

secondTest <- sum(mathScore$Grade2) / nrow(mathScore) secondTest

thirdTest <- sum(mathScore$Grade3) / nrow(mathScore) thirdTest

fourthTest <- sum(mathScore$Grade4) / nrow(mathScore) 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 4th test was difficult.") } else { paste("No test had an average score less than 80.") }

8.d

annie scores

if (mathScore[1,2] > mathScore[1,3] && mathScore[1,2] > mathScore[1,4] && mathScore[1,2] > mathScore[1,5]) { annieHighest <- mathScore[1,2] } else if (mathScore[1,3] > mathScore[1,4] && mathScore[1,3] > mathScore[1,5]) { annieHighest <- mathScore[1,3] } else if (mathScore[1,4] > mathScore[1,5] && mathScore[1,2] > mathScore[1,5]) { annieHighest <- mathScore[1,4] } else { annieHighest <- mathScore[1,5] }

thea scores

if (mathScore[2,2] > mathScore[2,3] && mathScore[2,2] > mathScore[2,4] && mathScore[2,2] > mathScore[2,5]) { theaHighest <- mathScore[2,2] } else if (mathScore[2,3] > mathScore[2,4] && mathScore[2,3] > mathScore[2,5]) { theaHighest <- mathScore[2,3] } else if (mathScore[2,4] > mathScore[2,5] && mathScore[2,2] > mathScore[2,5]) { theaHighest <- mathScore[2,4] } else { theaHighest <- mathScore[2,5] }

steve scores

if (mathScore[3,2] > mathScore[3,3] && mathScore[3,2] > mathScore[3,4] && mathScore[3,2] > mathScore[3,5]) { steveHighest <- mathScore[3,2] } else if (mathScore[3,3] > mathScore[3,4] && mathScore[3,3] > mathScore[3,5]) { steveHighest <- mathScore[2,3] } else if (mathScore[3,4] > mathScore[3,5] && mathScore[3,2] > mathScore[3,5]) { steveHighest <- mathScore[3,4] } else { steveHighest <- mathScore[3,5] }

hanna scores

if (mathScore[4,2] > mathScore[4,3] && mathScore[4,2] > mathScore[4,4] && mathScore[4,2] > mathScore[4,5]) { hannaHighest <- mathScore[4,2] } else if (mathScore[4,3] > mathScore[4,4] && mathScore[4,3] > mathScore[4,5]) { hannaHighest <- mathScore[2,3] } else if (mathScore[4,4] > mathScore[4,5] && mathScore[4,2] > mathScore[4,5]) { hannaHighest <- mathScore[4,4] } else { hannaHighest <- mathScore[4,5] }

mathScore$HighestGrades <- c(annieHighest, theaHighest, steveHighest, hannaHighest)

above90 <- mathScore[mathScore$HighestGrades > 90,] above90

if (nrow(above90) > 0) { paste(above90$Name, "'s highest grade this semester is", above90$HighestGrade) } else { paste("No students have an average math score over 90.") }