RWorksheet\_Gonzales#4

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library(readxl)  
library(dplyr)

##   
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':  
##   
## filter, lag

## The following objects are masked from 'package:base':  
##   
## intersect, setdiff, setequal, union

library(readr)

Worksheet-4 in R Worksheet for R Programming Instructions: • Use RStudio or the RStudio Cloud accomplish this worksheet. • Save the R script as RWorksheet\_lastname#4.R. • On your own GitHub repository, push the R script, the Rmd file, as well as this pdf worksheet to the repo you have created before. • Do not forget to comment your Git repo on our VLE • Accomplish this worksheet by answering the questions being asked and writing the code manually.

1. The table below shows the data about shoe size and height. Create a data frame..
2. Describe the data.

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")  
ShoeStore <- data.frame(Shoe\_Size, Height, Gender)  
ShoeStore

## Shoe\_Size Height Gender  
## 1 6.5 66.0 F  
## 2 9.0 68.0 F  
## 3 8.5 64.5 F  
## 4 8.5 65.0 F  
## 5 10.5 70.0 M  
## 6 7.0 64.0 F  
## 7 9.5 70.0 F  
## 8 9.0 71.0 F  
## 9 13.0 72.0 M  
## 10 7.5 64.0 F  
## 11 10.5 74.5 M  
## 12 8.5 67.0 F  
## 13 12.0 71.0 M  
## 14 10.5 71.0 M  
## 15 13.0 77.0 M  
## 16 11.5 72.0 M  
## 17 8.5 59.0 F  
## 18 5.0 62.0 F  
## 19 10.0 72.0 M  
## 20 6.5 66.0 F  
## 21 7.5 64.0 F  
## 22 8.5 67.0 M  
## 23 10.5 73.0 M  
## 24 8.5 69.0 F  
## 25 10.5 72.0 M  
## 26 11.0 70.0 M  
## 27 9.0 69.0 M  
## 28 13.0 70.0 M

1. Find the mean of shoe size and height of the respondents. Copy the codes and results.

ShoeHeight\_Mean <- colMeans(ShoeStore[sapply(ShoeStore, is.numeric)])  
ShoeHeight\_Mean

## Shoe\_Size Height   
## 9.410714 68.571429

1. Is there a relationship between shoe size and height? Why?

* Yes, the shoe size of a person depends on what their height is to keep them balance.

Factors A nominal variable is a categorical variable without an implied order. This means that it is impossible to say that ‘one is worth more than the other’. In contrast, ordinal variables do have a natural ordering. Example: Gender <- c(“M”,“F”,“F”,“M”) factor\_Gender <- factor(Gender) factor\_Gender ## [1] M F F M ## Levels: F M

1. Construct character vector months to a factor with factor() and assign the result to factor\_months\_vector. Print out factor\_months\_vector and assert that R prints out the factor levels below the actual values. Consider data consisting of the names of months: “March”,“April”,“January”,“November”,“January”, “September”,“October”,“September”,“November”,“August”, “January”,“November”,“November”,“February”,“May”,“August”, “July”,“December”,“August”,“August”,“September”,“November”,“February”,“April”)

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 <- factor(Months)  
factor\_Months

## [1] March April January November January September October   
## [8] September November August January November November February   
## [15] May August July December August August September  
## [22] November February April   
## 11 Levels: April August December February January July March May ... September

1. Then check the summary() of the months\_vector and factor\_months\_vector. | Interpret the results of both vectors. Are they both equally useful in this case?

summary(Months)

## Length Class Mode   
## 24 character character

summary(factor\_Months)

## April August December February January July March May   
## 2 4 1 2 3 1 1 1   
## November October September   
## 5 1 3

1. Create a vector and factor for the table below. Direction Frequency East 1 West 4 North 3 Note: Apply the factor function with required order of the level. new\_order\_data <- factor(factor\_data,levels = c(“East”,“West”,“North”)) print(new\_order\_data)

factor\_data <- c(1,4,3)  
new\_order\_data <- factor(factor\_data,levels = c("East","West","North"))  
print(new\_order\_data)

## [1] <NA> <NA> <NA>  
## Levels: East West North

1. Enter the data below in Excel with file name = import\_march.csv Figure 1: Excel File
2. Import the excel file into the Environment Pane using read.table() function. Write the code.

getwd()

## [1] "/cloud/project"

read.table("import\_march.xlsx", header = TRUE, sep=",")

## Warning in read.table("import\_march.xlsx", header = TRUE, sep = ","): line 1  
## appears to contain embedded nulls

## Warning in read.table("import\_march.xlsx", header = TRUE, sep = ","): line 2  
## appears to contain embedded nulls

## Warning in scan(file = file, what = what, sep = sep, quote = quote, dec = dec, :  
## EOF within quoted string

## Warning in scan(file = file, what = what, sep = sep, quote = quote, dec = dec, :  
## embedded nul(s) found in input

## PK...  
## 1 ?\x889L\xecҙ\025\xc8sbgٮ|\xc8l!\xf5\xf9\032USh9i\xb0b\x9er:y\_dl\xc0\xf3D\x9b\xbf\023\xfd|-N\x9c\xc8R4\022\xf82\xcfG\xc7%\xa0\xf5\177Z\xb44\xf1˝y\xc47\të\xc8\xf0ɂ\x8b\037\xa8\xde\001  
## 2 \x99Q  
## 3 C\xb9rT!\031\x8dU\u0098\xceR\xc7\xc5\xd8w2\xcasT  
## 4 f\xab\\H\xbaHA\xf6\x96\xb4\xad\xad\x84\x9f\017\177\x82\xa1q\x9b\x9d t\xb2U\xc6  
## 5 ;L\x80\*Y\026Ò\xa7\020u\xdb\035\xd7GN\177o繄\001\xd4~\x90j&s\xaa\xd9H\xe4\032\xac\xb6\xa3\xfe][UأD\x80\x89\xadk\xf6\xa7\xe4\x92\xc1\xbb\003\026\0029\xd0\xd2(\xa0\v5\xa7:\xb1J\x99\x86h\024<\xde)PX\xb5\x8fc\xa6\xd6Z\024\x8f\xef\x9cGOm\xfe\017ޣ\x91\x91\xee\x80ܚR}\xffQ:0\x93A㯹\x96\026\xdc\xcfƗ\x90\xe3\033\xfa\f\031\x87\xbaƻ\027r\006)%\xad\xa7<\x92\001yz\xed\f\xbbӮ7u\xed\xf1d<\xb1\xbd\x81\xefك\xee  
## 6 \xb3\020\0351\032\u05cc\xa6p٦9b伣T\035\x90@\xadꭼ2\xf5\x8d94\t\x9cĦ\xaf\x92\f&\016\xcc\036r\026\x93\xaa\x88\xcdc\021M\xa3\xb9\xb4LW-\xf4\xdd\036i\x99\025l\xab/\x95\xaez0\027\az\xc4Ã\016\xeey6\x9e\xb4ڶ\xd7\xed\xb9v\xd7k\xb9\xf6\xc8\033\xbb\x93v\a\x8a6l\x9b\xfa\x98\003>\xf8\037\xc7\\\xe5\xf1\xa0\xf9r\030\x96\t\x95\xfaV\xd2h  
## 7 ߛk\xb6\034R\005\x86\xaa\005\001\_\xf0c\xc3\xdai\x9e\xea\xff\005  
## 8 y  
## 9 \xcb\xf4\xeff\xe4\xc9\xc7\xd5\xdf  
## 10 z\002G\037W\037?  
## 11 \017\xc6\xee\\  
## 12 \xe0\t\022\032W\xd0\xda\xfb6g̉\0324w\x91i\xa1\xc1\x91\xcaX\xcd=\xbe\xda-s\xad\005^\006\x91V  
## 13 \x8d\xe3\005\xd3\\6t \xe4\xf6\026\x86\xa9\*)`mD\xa7\xa1\xf1\003Ă\xe2\036\xd7\xefjٺ\x91\xa6\xc5-8\xcd\xed\xaekg\xc2\xe8\026\021\033\xa9\xa4?\005(%Z\xe4/\xdb\xc6X\xbeQ\x98\xf71\x99sA\x8e\026\xef\024\x9f\xbb\xd1&|\xbfr\xd2RX\xe3L\xe5  
## 14 \xfa<\xc7  
## 15 \xff\023<\xb0\x8b\006lrx\xdd\037ݞBA\177\xb5\xa4\x84\x8aw\xca\1773\x87g\x90\xdbڣm\x86i\xf6u\x92\x97\xa758\x81\005\x8a\xc6Q\x9a\xf5Ta\024\xb0%Z\xf6\177\032\026\030?\016K\x95\xa5\xaf\xb1\xb7\x88\xd2\xfb,\xc9\0268\x9f\x88\xcey\xa3\177\x9fG\xce\xfaA\x89\a\023\x94\030\017\xa3\xf2M\001n~\020`\x9c\004\xb7Y\xe1\xce\004%\xc67\xadXH\xee?  
## 16 \*c\003^^\xdc5\xb8\036D\xe9B\020K\xcfW\xa3\xd8  
## 17 \xb5\006\xe0\xaa\xecK\x8b\xf0p\x91\xcc읧\v\035w\023\xa1  
## 18 ɐ\x8c\x8cB\*\x8c\xae\x90\030\xf2\xb2\xb4\021\x84T\033\xb1ٿ\xedt\031\xb5\x8d\xba\x87\x8fL$\xbc\026\x88Z\xc8\01715\xc2x\031-\004\x8am.\x87(\xa6z\xc0\xf7\x90\x88l$\017\x96\xe9X\xc7\xf5\xb9\x80L\xcf0eN\177\x829\xb7\xd9\\Oa\xbcZү\x82\xc2\xd8ӾO\x97\xb1\x89L\0059\xb4\xf9\xdcC\x8c\xe9\xc8\036;\f  
## 19 \x91\xf7\x90\a\x94lM\xf7m\x82\x8dt\x9f-\004\xb7@\\uJE\x81ȋԒ\xcb˘\x99\xef\xe3\x92N\021V\*\003\xdaoHzL\x923\xf5\xfd\x94\xb2\xfb\xff\x8c\xb2\xdb5\xfa\0344\xdd\xee\xf8]Լ\x93\022\xeb;u唆o\xc3\xfd\a\x95\xbb\x87\026\xc9\n\f/\xcb\xe6\xcc\xf5A\xb8?\b\xb7\xfb\xbf\027\xeem\xef\xf2\xf9\xcbu\xa1\xd0 \xde\xc5Z]\xad\xdc\xe3\xad\v\xf7)\xa1\xf4@,)\xde\xe3j\xed\xcea^\x9a\f\xa0Qm\*\xd4\xcer\xbd\x91\x9bGp\x99o\023\f\xdc,E\xca\xc6I\x99\xf8\x8c\x88\xe8 BsX\xe0W\xd56t\xc6s\xd73\xee\xcc\031\x87u\xbfjV\033b|ʷ\xda=,\xe2}6\xc9\xf6\xabժܛf\xe2\xc1\x91(\xda+\xfe\xba\035\xf6\032"C\a\x8db\017\xb6v\xafv\xb53\xb5W^\021\x90\xb6oBB\xeb\xcc$Q\xb7\x90h\xac\032!\v\xaf"\xa1Fv.,Z\026\026M\xe9~\x95\xaaU\026ס  
## 20 \x8a\xab~\xf6\xd1e  
## 21 \x89W7qZk\xfe\0219\xeeHA\xfc\xef\x9c\xe3\xa4\xcdĀi\x88\x97\xd5>\_\xbe\xfb\xee\xbe;{\xe9U\005z`\xa6\xe5Ze8\xba\b1b\xaa\xd4\025W\xbb\f\177\xbe+\x82\005F\xad\xa5\xaa\xa2B+\x96\xe1#k\xf1U\xfe\xfaU\xdaڣ`\xb7{\xc6,\002\b\xd5fxom\xb3"\xa4-\xf7L\xd2\xf6B7L\xc1I\xad\x8d\xa4\026\xb6fG\xda\xc60Z\xb5\xee#)H\034\x86s")W\xd8#\xacd\xf9\034\020I\xcd\xfd\xa1\tJ-\033j\xf9\x96\vn\x8f=\026F\xb2\\\xbd\xdb)m\xe8V  
## 22 \020\033)J\x9b[\xa9)\x8c\xd3  
## 23 =\x9af\030k\xa5\xcdL\027\xe22  
## 24 \xaccJ\xb0J+\xc8\xd0\036  
## 25 Z\xe4\xe7g)\xaf)\xd7\006\036\x8c\xae\xc1\xb8\022l\xe0I\xcaR^gh\xeb\\M1\xb6|\v\x92\xd9\xc8+\x94\037\xae\xb5\x91\xcc\xf9\xa3\xd9\xe0\x9a\xf17\xb6\001\x9c\xc4\xf1\fKpL0\xc7p\v\f끈\016H\xc1\ad\xfdn\xaa\016 8\x86  
## 26 $(g1\x89\b\xfe\xd6:0\xd2\xfe\xba\xd0MFJY\xba}\xed3\035\xec\x8eق\xf7\xc3A\xbd\xb3\xe5 l\x9a&j&\x9d  
## 27 \xef\x9f\xe0\x97\xd5\xfdc\0275  
## 28 U\xdb\025\a\x94\xa7\x82Sn\x809m\xf2\025\x93\xbe\035\xdcj\xf5\xc9\*\xdfԝ\x89R<\022\xb4eV̺\x95\xef}]\x82\xb8\xda\xff\xb1s\xaa\xf3\xeft\xb1\xfa\xc7@\004\xde(\xedc\035'ϓ\xeb\x9bb\x89\xf2$&\xd30\x9e\x85\xf1\xb4 sJ.h\022\xbf\xb66~\xec\xb7\xc6\xfb\vy0\xf3/1IBB\xc2dR\020BcB\x93\xcb\021\xf1\b\xc8S|\xf2Y\xf2/

1. View the dataset. Write the code and its result.

import\_march <- read\_excel("import\_march.xlsx")  
import\_march

## # A tibble: 6 × 4  
## Students `Strategy 1` `Strategy 2` `Strategy 3`  
## <chr> <dbl> <dbl> <dbl>  
## 1 Male 8 10 8  
## 2 <NA> 4 8 6  
## 3 <NA> 0 6 4  
## 4 Female 14 4 15  
## 5 <NA> 10 2 12  
## 6 <NA> 6 0 9