DS413613 Classwork4 Key

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# DS 413613 CLASSWORK4 KEY  
  
library(tidyverse)

## Warning: package 'tidyverse' was built under R version 4.0.3

## -- Attaching packages --------------- tidyverse 1.3.0 --

## v ggplot2 3.3.2 v purrr 0.3.4  
## v tibble 3.0.3 v dplyr 1.0.2  
## v tidyr 1.1.1 v stringr 1.4.0  
## v readr 1.3.1 v forcats 0.5.0

## -- Conflicts ------------------ tidyverse\_conflicts() --  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()

x <- list(26, 32, 45, 50, 65, 77, 82)  
y <- list(30, 43, 50, 58, 62, 71, 88)  
  
#1) For the lists given above, show and use R code (a map function) to iterativley   
#find:  
 #a) sums across the two vectors. (Use two methods)  
  
map2\_dbl(x,y, sum)

## [1] 56 75 95 108 127 148 170

map2\_dbl(x,y, `+`)

## [1] 56 75 95 108 127 148 170

#b) the calculation of the square of the x value minus the square root of the y  
 #value.  
   
map2\_dbl(x,y, ~.x^2 - .y^.5)

## [1] 670.5228 1017.4426 2017.9289 2492.3842 4217.1260 5920.5739 6714.6192

#c) the ratio of the common log of the x value to the natural log of the y value.  
  
map2\_dbl(x,y, ~log10(.x)/log(.y))

## [1] 0.4160221 0.4001781 0.4225979 0.4184199 0.4392669 0.4425598 0.4274447

x <- list(2, 4, 5, 9, 1)  
y <- list(8, 7, 2, 8, 3)  
z <- list(1, 8, 5, 4, 2)  
  
#2) For the lists given above, show and use R code (a map function) to iterativley   
#find the squareof the sums accross the vectors  
  
pmap\_dbl(list(x,y,z), function(first, second, third) (first + second + third)^2)

## [1] 121 361 144 441 36

tribble( ~Student, ~Gender, ~Salary,  
 "John", "Male", 65000,  
 "Alice", "Female", 73000,  
 "Juan", "Male", 66000,  
 "Beth", "Female", 71500,  
 "Denise", "Female", 82000  
) -> table  
table

## # A tibble: 5 x 3  
## Student Gender Salary  
## <chr> <chr> <dbl>  
## 1 John Male 65000  
## 2 Alice Female 73000  
## 3 Juan Male 66000  
## 4 Beth Female 71500  
## 5 Denise Female 82000

#3) Using the data table above, use and show R code that will output a statement that  
#is descriptive for all rows of the data table.  
  
#The first row is given below. Your code should produce the other specific rows.  
  
 #John who is Male, has a salary that is 65000 dollars per year.  
  
table %>%   
pmap\_chr(~ str\_glue("{..1} who is {..2}, has a salary that is {..3} dollars per year"))

## [1] "John who is Male, has a salary that is 65000 dollars per year"   
## [2] "Alice who is Female, has a salary that is 73000 dollars per year"   
## [3] "Juan who is Male, has a salary that is 66000 dollars per year"   
## [4] "Beth who is Female, has a salary that is 71500 dollars per year"   
## [5] "Denise who is Female, has a salary that is 82000 dollars per year"

#4) Write a nested loop that will produce a 5 by 5 matrix that whose matrix elements  
#are sums of the corresponding columns and rows.  
  
  
z <- matrix( nrow = 5, ncol = 5)  
for (m in 1:5) {  
 for (n in 1:5) {  
 z[m, n] <- (m + n)  
 }  
}  
print(z)

## [,1] [,2] [,3] [,4] [,5]  
## [1,] 2 3 4 5 6  
## [2,] 3 4 5 6 7  
## [3,] 4 5 6 7 8  
## [4,] 5 6 7 8 9  
## [5,] 6 7 8 9 10