Homework0226

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library(tidyverse)

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

## v ggplot2 3.3.2 v purrr 0.3.4  
## v tibble 3.0.5 v dplyr 1.0.2  
## v tidyr 1.1.2 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()

## Question 1A

nrow(iris)

## [1] 150

## Question 1B

length(iris)

## [1] 5

## Question 2

z <- matrix( nrow = 3, ncol = 5)  
for (m in 1:3) {  
 for (n in 1:5) {  
 z[m, n] <- -1\*(m - n)  
 }  
}  
print(z)

## [,1] [,2] [,3] [,4] [,5]  
## [1,] 0 1 2 3 4  
## [2,] -1 0 1 2 3  
## [3,] -2 -1 0 1 2

## Question 3A

f1 <- list(12, 14, 15, 18, 19)  
Mean <- list(8, 14, 20, 22, 30)  
sd <- list(10, 18, 28, 34, 40)

pmap\_dbl(list(f1,Mean,sd),max)

## [1] 12 18 28 34 40

## map 2 is for only 2 vectors, multiple we uses pmap

## Question 3B

pmap\_dbl(list(f1,Mean,sd), function(first, second, third) ((first - second) / third))

## [1] 0.4000000 0.0000000 -0.1785714 -0.1176471 -0.2750000

## Question 3C

pmap\_dbl(list(f1,Mean,sd), function(first, second, third) (first - second) \* sqrt(3) / third)

## [1] 0.6928203 0.0000000 -0.3092948 -0.2037707 -0.4763140

## Question 4a

V = c(10,15,17,22,32,38,42)

keep(V, ~ .x < 20)

## [1] 10 15 17

## grabbing values from vector that are less than 20

## Question 4B

discard(V, ~ .x > 20)

## [1] 10 15 17

## Question 5

U = list(10,15,"mary",22,32,"james",42)  
 map(U, safely(~ .x + 15))

## [[1]]  
## [[1]]$result  
## [1] 25  
##   
## [[1]]$error  
## NULL  
##   
##   
## [[2]]  
## [[2]]$result  
## [1] 30  
##   
## [[2]]$error  
## NULL  
##   
##   
## [[3]]  
## [[3]]$result  
## NULL  
##   
## [[3]]$error  
## <simpleError in .x + 15: non-numeric argument to binary operator>  
##   
##   
## [[4]]  
## [[4]]$result  
## [1] 37  
##   
## [[4]]$error  
## NULL  
##   
##   
## [[5]]  
## [[5]]$result  
## [1] 47  
##   
## [[5]]$error  
## NULL  
##   
##   
## [[6]]  
## [[6]]$result  
## NULL  
##   
## [[6]]$error  
## <simpleError in .x + 15: non-numeric argument to binary operator>  
##   
##   
## [[7]]  
## [[7]]$result  
## [1] 57  
##   
## [[7]]$error  
## NULL

## The safely function is a function that wraps functions so instead of generating side effects that are printed outputs, warnings, messages, and errors, are returned to enhance the output. In addition, they are all adverbs that are outputed because they modify the action of the verb. The verb in action is a function.There is a list above, and a list is used to index by position and name at different levels. If there is a component not present, the value of .default will be returned, as one can see below when