Assignment 2.3

Create an m x n matrix with replicate(m, rnorm(n)) with m=10 column vectors of n=10 elements each,

constructed with rnorm(n), which creates random normal numbers.

Then we transform it into a dataframe (thus 10 observations of 10 variables) and perform an algebraic

operation on each element using a nested for loop: at each iteration, every element referred by the two

indexes is incremented by a sinusoidal function, compare the vectorized and non-vectorized form of creating

the solution and report the system time differences.

set.seed(50)

m = 10; n = 10

matrix <- replicate(m, rnorm(n))

matdf < - data.frame(matrix)

# Vectorised Form of the solution of changing the elements of the data frame “matdf” by incrementing them by a sinusoidal function using a direct function on the data frame.

System.time(matdf<-matdf + 10\*sin(0.75\*pi))

user system elapsed

0 0 0

# Non vectorised Form of the solution of changing the elements of the data frame “matdf” by incrementing them by sinusoidal function using a for loop

system.time(for (i in 1:m)

{for (j in 1:n)

{matdf [i,j] <- matdf[i,j] + 10\*sin(0.75\*pi)

}

}

)

user system elapsed

0.01 0.00 0.01