Assignment 1.5

**1.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 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.**

m <- replicate(10, rnorm(10), simplify = "matrix") # matrix 10 x 10 with random normal numbers

m

m <- as.data.frame(m) # transforming into data frame

View(m)

library(rbenchmark)

benchmark(

vect = as.vector(m), # vecotrized form

conc = (n <- as.vector(for (i in seq(nrow(m))) {

for (j in seq(ncol(m))) { # nested for

print(2\*sin(m[i, j])) # performing algebraic function on each element

}

}))

)