**208W1A1299 R LAB TASK 4**

**# 1. Write a R program to create a matrix taking a given vector of numbers as input. Display the matrix**

matrix1 = matrix(c(1:16),nrow=4,byrow =TRUE)

matrix1

**# 2. Write a R program to create a matrix taking a given vector of numbers as input and define the column and row names.**

# Display the matrix

matrix2 = matrix(c(1:16),nrow=4,byrow =TRUE)

colnames(matrix2) = c("col1","col2","col3","col4")

rownames(matrix2) = c("row1","row2","row3","row4")

matrix2

**# 3. Write a R program to access the element at 3rd column and 2nd row, only the 3rd row and only the 4th**

**# column of a given matrix**

matrix2[2,3]

matrix2[3,] # only 3 rd row

matrix2[,4] # only 4 th column

**# 4. Write a R program to create two 2x3 matrix and add, subtract, multiply and divide the matrices.**

print("Martix 1")

m1 = matrix(c(1:6),nrow=2,ncol=3)

m1

print("Martix 2")

m2 = array(c(1:6),dim=c(2,3))

m2

#add

m1+m2

# sub

m1-m2

# mul

m1\*m2

# div

m1/m2

**# 5. Write a R program to extract the sub matrix whose rows have column value > 7 from a given matrix.**

matrix3 = matrix(c(1:16), nrow = 4, byrow = TRUE)

row\_names = c("row1", "row2", "row3", "row4")

col\_names = c("col1", "col2", "col3", "col4")

matrix3

result = matrix3[matrix3[,3] > 7,]

result

**#6. Write a R program to convert a given matrix to a list of column-vectors**

matrix4 = matrix(1:12, ncol=3)

"Original matrix:"

matrix4

"list from the said matrix:"

l = split(matrix4, rep(1:ncol(matrix4), each = nrow(matrix4)))

l

**#7. Write a R program to find row and column index of maximum and minimum value in a given matrix**

matrix4 = matrix(c(1:16), nrow = 4, byrow = TRUE)

"Original Matrix:"

matrix4

result = which(matrix4 == max(matrix4), arr.ind=TRUE)

print("Row and column of maximum value of the said matrix:")

result

result = which(matrix4 == min(matrix4), arr.ind=TRUE)

"Row and column of minimum value of the said matrix:"

result