**Assignment 9**

**Matrix Questions**

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#Matrix Questions

# 1. Create a matrix with proper row and column names, of size 2X3.

M=matrix(1:6,nrow=2,ncol=3,dimnames=list(c('R1','R2'),c('C1','C2','C3')))

print(M,quote = FALSE)

# 2. Use dimnames() on this matrix.

n=dimnames(M)

print(paste('Row names: ',n[1],' Column names: ',n[2]),quote = FALSE)

# 3. Display number of columns and number of rows.

print(paste('Number of columns: ',ncol(M)),quote = FALSE)

print(paste('Number of rows: ',nrow(M)),quote = FALSE)

# 4. Print a particular element.

print(paste('Print element at [Row 1,Column 2]',M[1,2]),quote = FALSE)

# 5. Print full matrix

print('Printing Matrix: ',quote = FALSE)

print(M)

# 6. Print a particular row

print('Printing Row 1: ',quote = FALSE)

print(M[1,],quote = FALSE)

# 7. Print a particular column

print('Printing Column 2: ',quote = FALSE)

print(M[,2],quote = FALSE)

# 8. Assign new value to an element

M[2,2]=7

print(paste('Assigned new element at [Row 2,Column 2]: ',M[2,2]),quote = FALSE)

# 9. Add new column

print('New Column: ',quote = FALSE)

M=cbind(M,C4=c(3,8))

print(M,quote = FALSE)

# 10. Add new row

print('New Row: ',quote = FALSE)

M=rbind(M,R3=c(2,5,6,7))

print(M,quote = FALSE)

# 11. Display the result of various mathematical operations on 2 matrices, another matrix should be created in row major form.

A=matrix(1:12,nrow=3,ncol=4,byrow=TRUE,dimnames=list(c('R1','R2','R3'),c('C1','C2','C3','C4')))

print('Matrix A:',quote = FALSE)

print(A,quote = FALSE)

print('M+A=',quote = FALSE)

N1=M+A

print(N1)

print('M-A=',quote = FALSE)

N2=M-A

print(N2)

print('M\*A=',quote = FALSE)

N3=M\*A

print(N3)

print('M/A=',quote = FALSE)

N4=M/A

print(N4)

B=matrix(1:16,nrow=4,ncol=4,byrow=TRUE,dimnames=list(c('R1','R2','R3','R4'),c('C1','C2','C3','C4')))

print('Matrix B:',quote = FALSE)

print(B,quote = FALSE)

print('M %\*% B =',quote = FALSE)

N5=M%\*%B

print(N5)

# 12. Check whether an object is matrix or not.

print(paste('Checking if A is matrix:',is.matrix(A)),quote = FALSE)

# 13. Display the sum of rows.

print('Sum of Rows of M: ')

print(rowSums(M),quote=FALSE)

# 14. Display the mean of a particular column.

print(paste('Mean of M[column 3]: ',mean(M[,3])),quote = FALSE)

**Output**



