
TP No. 3

1. Creating a Matrix

```
matrix(1:20, nrow = 5, ncol = 4)
matrix(c(1,2,3,4,5,6,7,8,9,10,11,12), nrow = 3, ncol = 4)
matrix(c(1,2,3,4,5,6,7,8,9,10,11,12), nrow = 3, ncol = 4, byrow =
      TRUE)
mat1 <- matrix(1:9, nrow = 3, byrow = TRUE)
mat2 <- matrix(c(1,1,1,0,1,1,0,0,1), nrow = 3, byrow = TRUE)
```

2. Matrix Operations

```
nrow(mat1)    ncol(mat1)    dim(mat1)    dim(mat2)
diag(mat1)    diag(mat2)    mode(mat1)

rowSums(mat1)  colSums(mat1)  rowMeans(mat1)  colMeans(mat1)

mat1 + 10      mat1 - 10      mat1 * 10      mat1 / 10
mat1 + mat2    mat1 - mat2    mat1 * mat2    mat1 / mat2
```

3. Extracting Data from a Matrix

```
mat1
mat1[c(1,3), 2]
mat1[2, ]
mat1[, 2]
```

4. Modifying Matrix Data

```
mat1[1, 3] <- 5
diag(mat1) <- 0
mat1[3, ] <- 6
mat1[, 3] <- 8
```

5. Naming Rows and Columns

```
rownames(mat1) <- c("A", "B", "C")  
colnames(mat1) <- c("a", "b", "c")
```

6. Matrix Inverse

Note: You need to load the MASS package to use the generalized inverse.

```
library(MASS)  
ginv(mat1)
```