**R Programming Lab**

1. Write a R program to create a sequence of numbers from 20 to 50 and find the mean of numbers from 20 to 60 and sum of numbers from 51 to 91.

print("Sequence of numbers from 20 to 40:")

print(seq(20,40))

print("Mean of numbers from 20 to 60:")

print(mean(20:60))

print("Sum of numbers from 51 to 91:")

print(sum(51:91))

2. Write a R program to create three vectors to store numeric data, character data and logical data. Display the content of the vectors and their type.

a = c(1, 2, 5, 3, 4, 0, -1, -3)

b = c("Red", "Green", "White")

c = c(TRUE, TRUE, TRUE, FALSE, TRUE, FALSE)

print(a)

print(typeof(a))

print(b)

print(typeof(b))

print(c)

print(typeof(c))

3. Write a R program to perform matrix computations.

# Matrix Computations in R

# Define two matrices

matrix1 <- matrix(c(1, 2, 3, 4), nrow = 2, ncol = 2)

matrix2 <- matrix(c(5, 6, 7, 8), nrow = 2, ncol = 2)

# Display the matrices

print("Matrix 1:")

print(matrix1)

print("Matrix 2:")

print(matrix2)

# Matrix Addition

addition\_result <- matrix1 + matrix2

print("Matrix Addition Result:")

print(addition\_result)

# Matrix Multiplication

multiplication\_result <- matrix1 %\*% matrix2

print("Matrix Multiplication Result:")

print(multiplication\_result)

# Matrix Inversion

# Note: Inversion is only possible for square matrices with a non-zero determinant

if (det(matrix1) != 0) {

inverse\_matrix1 <- solve(matrix1)

print("Inverse of Matrix 1:")

print(inverse\_matrix1)

} else {

print("Matrix 1 is not invertible.")

}

4. Write a R program to manipulate the elements in the list.

thislist <- list("apple", "banana", "cherry", "mango", "jackfruit")

print(thislist)

print("Access the list elements")

x=thislist[1:3]

print(x)

print("Update the list elements")

x=thislist[1] <- "blueberry"

print(x)

print(thislist)

print("length of the list")

x=length(thislist)

print(x)

print("add items in the list")

x=append(thislist, "orange")

print(x)

print("Check the item exist in the list")

x="apple" %in% thislist

print(x)

print("remove the item from the list")

x = thislist[5]=NULL

print(x)

print(thislist)

5. Write a R program to create a data frames which contain details of 5 employees and display the details.

Employees = data.frame(Name=c("Ram","Rani","Rithvikk", "Sabi","Neethu"),

Gender=c("M","F","M","M","F"),

Age=c(23,22,25,26,32),

Designation=c("Clerk","Manager","Exective","CEO","ASSISTANT"),

Employee\_id=c("E11","E12","E13","E14","E15")

)

print("Details of the employees:")

print(Employees)