**Create a numeric vector and perform arithmetic operations**

**Task:**  
Create a vector of 5 numbers. Add 10 to each element, then multiply all elements by 2.

**Solution:**

r

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v <- c(1, 2, 3, 4, 5)

v <- v + 10

v <- v \* 2

print(v)

**Program 2: Find the maximum, minimum, and mean of a vector**

**Task:**  
Create a vector of 6 elements and find its maximum, minimum, and mean values.

**Solution:**

r

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v <- c(12, 45, 23, 67, 89, 34)

print(max(v))

print(min(v))

print(mean(v))

**Program 3: Access and modify vector elements**

**Task:**  
Create a vector and change the third element to 100.

**Solution:**

r

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v <- c(5, 10, 15, 20)

v[3] <- 100

**Program 4:Create a matrix and Add a new row to a matrix**

Create a 2x3 matrix and add a new row c(7,8,9) to it.

**Solution:**

r

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m <- matrix(1:6, nrow=2, byrow=TRUE)

new\_row <- c(7, 8, 9)

m <- rbind(m, new\_row)

print(m)

### ****Program 3: Remove a column from a matrix****

**Task:**  
Create a 3x3 matrix and remove the second column.

**Solution:**

r

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m <- matrix(1:9, nrow=3)

m <- m[, -2] # Remove second column

print(m)

### ****Program 4: Create a list and access its elements****

**Task:**  
Create a list with a name, age, and marks vector. Print each item separately.

**Solution:**

r

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student <- list(name="Alice", age=22, marks=c(80, 85, 90))

print(student$name)

print(student$age)

print(student$marks)

### ****Program 5: Add a new element to a list****

**Task:**  
Add a new element "grade" to the existing list.

**Solution:**

r

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student$grade <- "A"

print(student)

### ****Modify an element inside a list****

**Task:**  
Change the student's age to 23.

**Solution:**

r

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student$age <- 23

print(student$age)

**Basic arithmetic operations**

**Task:**  
Take two numbers and perform addition, subtraction, multiplication, and division.

**Solution:**

r

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a <- 15

b <- 5

print(a + b)

print(a - b)

print(a \* b)

print(a / b)

**Program : Find remainder and quotient**

**Task:**  
Calculate remainder and quotient when 27 is divided by 4.

**Solution:**

r

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print(27 %% 4) # Remainder

print(27 %/% 4) # Quotient

**Program : Create a data frame and display specific columns**

**Task:**  
Create a data frame with name, age, and marks of 3 students. Display only names.

**Solution:**

r

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df <- data.frame(name=c("John", "Mary", "Tom"), age=c(20, 21, 19), marks=c(85, 90, 75))

print(df$name)

**Program : Add a new column to a data frame**

**Task:**  
Add a "grade" column to the existing student data frame.

**Solution:**

r

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df$grade <- c("A", "A+", "B")

print(df)

**Program : Access specific row and column**

**Task:**  
Print the marks of the second student.

**Solution:**

r

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print(df[2, "marks"])

**Program : Line plot of x and y values**

**Task:**  
Plot a line graph for x = 1 to 5 and y = x²

**Solution:**

r

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x <- 1:5

y <- x^2

plot(x, y, type="l", main="Line Plot", xlab="X", ylab="Y = X^2")

**Program : Bar chart of student marks**

**Task:**  
Create a bar chart for marks of 3 students.

**Solution:**

r

CopyEdit

students <- c("John", "Mary", "Tom")

marks <- c(85, 90, 75)

barplot(marks, names.arg=students, col="blue", main="Student Marks")

**Program : Histogram of random scores**

**Task:**  
Plot a histogram for a given vector of scores.

**Solution:**

r

CopyEdit

scores <- c(55, 60, 65, 70, 75, 80, 85, 90)

hist(scores, col="green", main="Score Histogram")