List of experiment

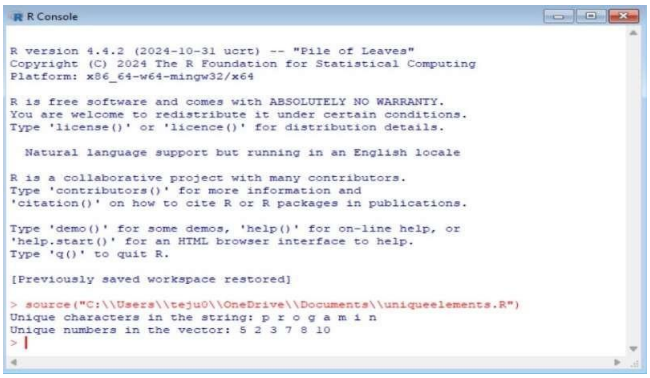
Unit-2

1.Write a R program to get the unique elements of a given string and unique numbers of vector

Code:

```
get_unique_chars <- func on(input_string)
{
unique_chars <- unique(strsplit(input_string,
NULL)[[1]])     return(unique_chars)
}
get_unique_numbers <- func on(input_vector) {
unique_numbers <- unique(input_vector)  # Extrac ng
unique numbers from the vector   return(unique_numbers)
}
input_string <- "programming"
unique_chars <- get_unique_chars(input_string)
cat("Unique characters in the string:", unique_chars, "\n")
input_vector <- c(5, 2, 3, 3, 5, 7, 8, 8, 10)
unique_numbers <- get_unique_numbers(input_vector)
cat("Unique numbers in the vector:", unique_numbers,
"\n")
```

output:



2.Write a R program to create three vectors a,b,c with 3 integers. Combine the three vectors to become a 3×3 matrix where each column represents a vector. Print the content of the matrix.

Code:

```
a <- c(1, 4, 7)

b <- c(2, 5, 8)

c <- c(3, 6, 9)

matrix_combined <- cbind(a, b, c)

cat("The 3x3 matrix formed by combining vectors a, b, and c is:\n")

print(matrix_combined)
```

output:

```
> source("C:\\Users\\teju0\\OneDrive\\Documents\\three vectors.R")
The 3x3 matrix formed by combining vectors a, b, and c is:
     a b c
[1,] 1 2 3
[2,] 4 5 6
[3,] 7 8 9
>
```

3.Write a R program to create a list of random numbers in normal distribution on and count occurrences of each value.

Code:

```
random_numbers <- rnorm(100)
occurrences <- table(random_numbers)
print(occurrences)
```

output:

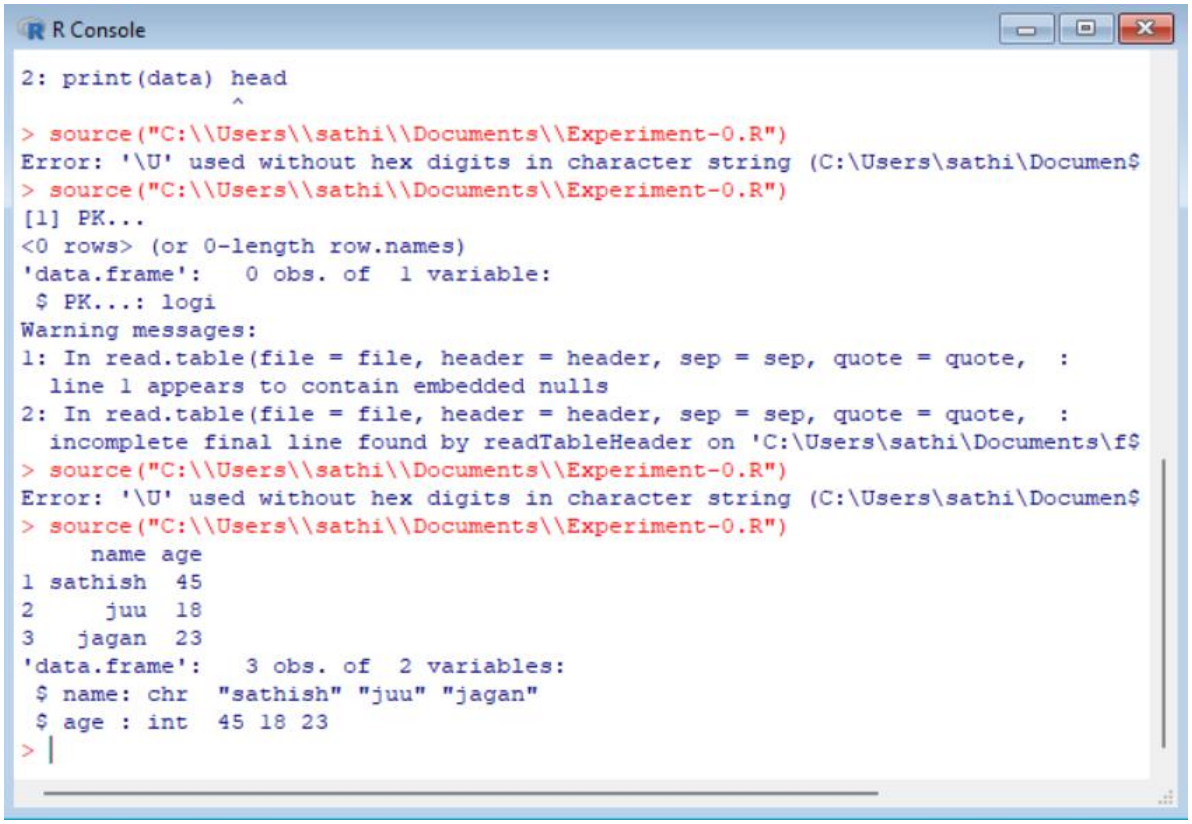
```
> source("C:\\Users\\teju0\\OneDrive\\Documents\\random number.R")
random_numbers
 -1.80394797419443 -0.676782109865056 -0.387697589471712 -0.154100225834817
                 1                  1                  1                  1
 0.190473111209614  0.232757187078284  0.340090192331851  0.385760582726031
                 1                  1                  1                  1
 0.517656992124836   1.24613607781684
                 1                  1
>
```

4.Write a R program to read the .csv file and display the content

Code:

```
data <-read.csv("C:\\Users\\sathi\\Documents\\file2.csv")

print(data)

head(data)

str(data)
```

output:

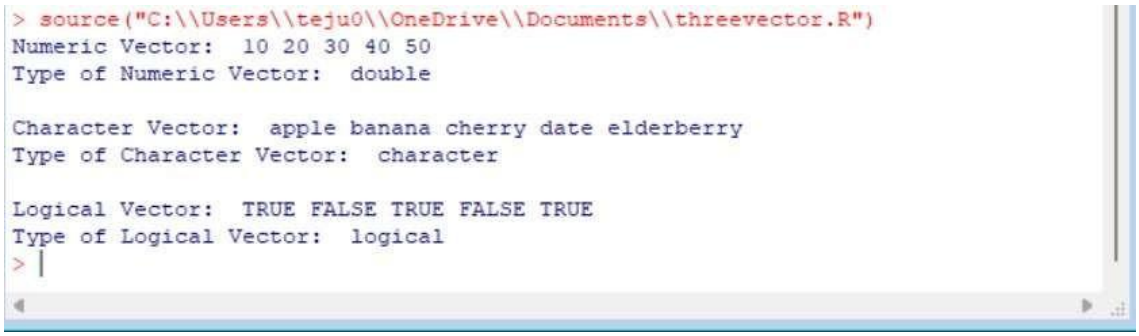


5.Write a R program to create three vectors numeric data, character data and logical data. Display the content of the vectors and their type

Code:

```
numeric_vector <- c(10, 20, 30, 40, 50)

char_vector <- c("apple", "banana", "cherry", "date",
"elderberry")

logical_vector <- c(TRUE, FALSE, TRUE, FALSE, TRUE)

cat("Numeric Vector: ", numeric_vector, "\n") cat("Type of

Numeric Vector: ", typeof(numeric_vector),

"\n\n")

cat("Character Vector: ", char_vector, "\n")

cat("Type of Character Vector: ", typeof(char_vector), "\n\n")

cat("Logical Vector: ", logical_vector, "\n")

cat("Type of Logical Vector: ", typeof(logical_vector), "\n")
```

output:

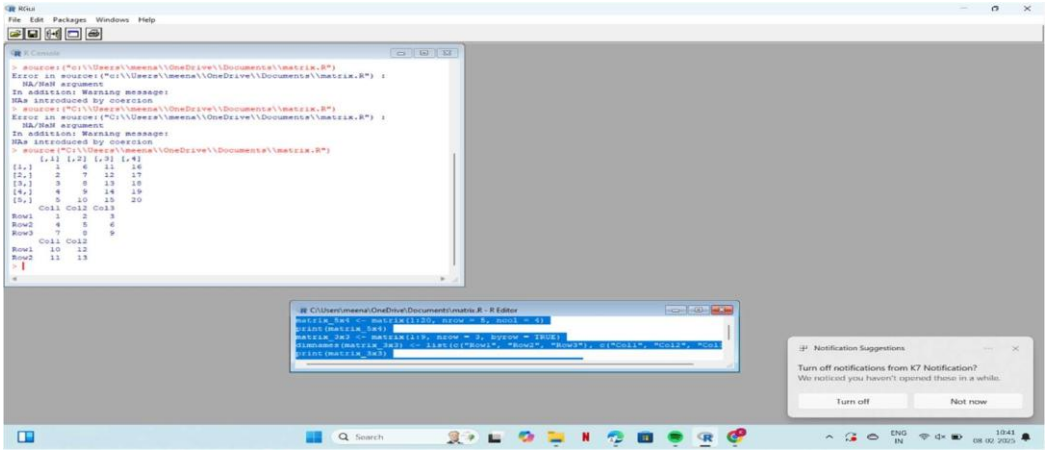


6.Write a R program to create a 5 x 4 matrix, 3 x 3 matrix with labels and fill the matrix by rows and 2 × 2 matrix with labels and fill the matrix by columns.

Code:

```
matrix_5x4 <- matrix(1:20, nrow = 5, ncol =
4)
print(matrix_5x4)
matrix_3x3 <- matrix(1:9, nrow = 3, byrow = TRUE)
dimnames(matrix_3x3) <- list(c("Row1", "Row2",
"Row3"), c("Col1", "Col2", "Col3")) print(matrix_3x3)
matrix_2x2 <- matrix(10:13, nrow = 2, byrow = FALSE)
dimnames(matrix_2x2) <- list(c("Row1", "Row2"), c("Col1",
"Col2"))
print(matrix_2x2)
```

output:

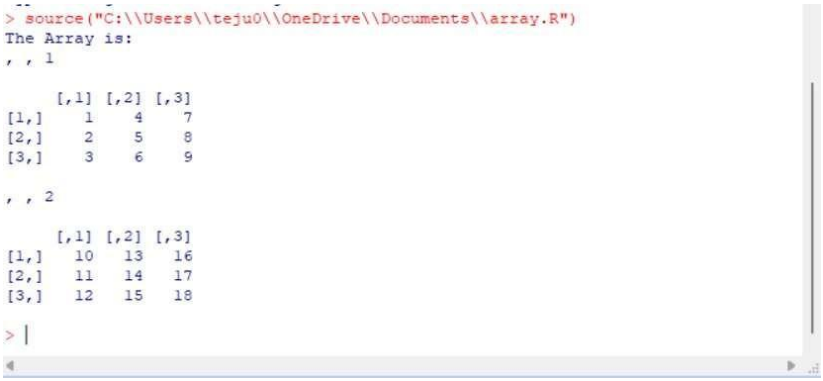


7.Write a R program to create an array, passing in a vector of values and a vector of dimensions. Also, provide names for each dimension

Code:

```
my_array <- array(1:24, dim = c(2, 3, 4),
dimnames = list(Row = c("Row1", "Row2"),
                Column = c("Col1", "Col2",
"Col3"),                Matrix = c("M1", "M2",
"M3", "M4"))) print(my_array)
```

output:

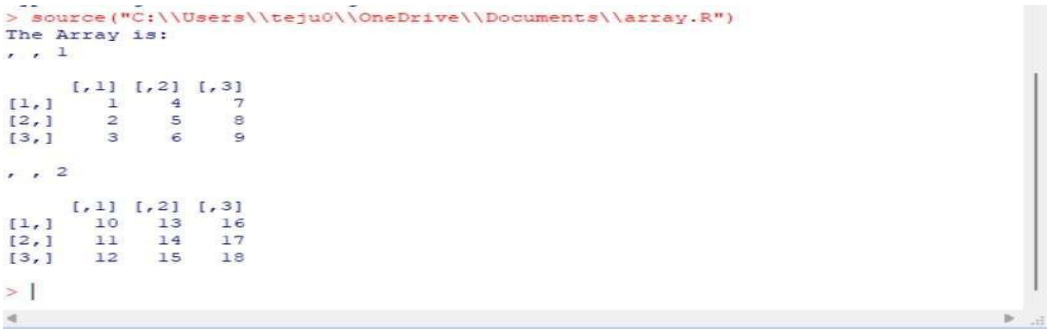


8. Write an R program to create an array with three columns, three rows, and two "tables", taking two vectors as input to the array. Print the array.

Code:

```
vector1 <- c(1, 2, 3, 4, 5, 6, 7, 8, 9) vector2 <- c(10, 11,
12, 13, 14, 15, 16, 17, 18) array_data <-
array(c(vector1, vector2), dim = c(3, 3, 2)) cat("The
Array is: \n") print(array_data)
```

output:



9.Write a R program to create a list of elements using vectors, matrices and a function. Print the content of the list

Code:

```
vec <- c(1, 2, 3) mat <-
matrix(1:4, nrow = 2) add_fn
<- func on(x, y) x + y my_list
<- list(vec, mat, add_fn)
print(my_list)
```

output:

10.Write a R program to draw an empty plot and an empty plot specify the axes limits of the graphic

Code:

```
plot(1, type = "n")
plot(1, type = "n", xlim = c(0, 10), ylim = c(0, 20))
```

output: