LAB WEEK 6

SEP 2025 SEMESTER

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BACHELOR OF COMPUTER SCIENCE

DATA SCIENCE

TEB2164

Contents

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Code

Activity 1

```
#Activity 1
age <- c(55, 57, 56, 52, 51, 59, 58, 53, 59, 55, 60, 60, 60, 60, 52, 55, 56, 51,
60, 52, 54, 56, 52, 57, 54, 56, 58, 53, 53, 50, 55, 51, 57, 60, 57, 55, 51, 50,
57, 58)

print(age)

table(age)
age_group <- ifelse(age <= 52, "50-52",
                    ifelse(age <= 54, "52-54",
                           ifelse(age <= 56, "54-56",
                                  ifelse(age <= 58, "56-58", "58-60"))))

table(age_group)
```

Conclusion:

Individuals aged from 50 to 52 are the majority in the dataset provided by 10 people. In addition, individuals aged from 52 to 54 are the least in the dataset by 5 people.

Activity 2

```
#Activity 2
#Matrix 1
V1 <- c(2, 3, 1, 5, 4, 6, 8, 7, 9)

Matrix1 <- matrix(V1, nrow = 3, ncol = 3)

#assign row column
rownames(Matrix1) <- c("Row1", "Row2", "Row3")
colnames(Matrix1) <- c("Col1", "Col2", "Col3")

print("Matrix-1:")
print(Matrix1)

#Matrix 2
Matrix2 <- t(Matrix1)

#assign row column
rownames(Matrix2) <- c("Row1", "Row2", "Row3")
colnames(Matrix2) <- c("Col1", "Col2", "Col3")

print("Matrix-2 (Transpose of Matrix-1):")
print(Matrix2)

#Operations
addition <- Matrix1 + Matrix2
subtraction <- Matrix1 - Matrix2
multiplication <- Matrix1 %*% Matrix2 #Multiply
division <- Matrix1 / Matrix2  #Division

#Output
print("Addition (Matrix-1 + Matrix-2):")
print(addition)

print("Subtraction (Matrix-1 - Matrix-2):")
print(subtraction)

print("Multiplication (Matrix-1 %*% Matrix-2):")
print(multiplication)

print("Division (Matrix-1 / Matrix-2):")
print(division)
```

Activity 3

```
#Activity 3
Array1_data <- c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18,
19, 20, 21, 22, 23, 24)
Array2_data <- c(25, 28, 26, 29, 27, 30, 31, 34, 32, 35, 33, 36, 37, 40, 38, 41,
39, 42, 43, 46, 44, 47, 45, 48, 49, 52, 50, 53, 51, 54)

#Create Array 1
#Dimension: Row Column, Number of Table
Array1 <- array(Array1_data, dim = c(2, 4, 3))

#Create Array 2
Array2 <- array(Array2_data, dim = c(3, 2, 5))

#Print Arrays
print("Array1:")
print(Array1)

print("Array2:")
print(Array2)

#Second Row Second Matrix Array 1
second_row_second_matrix <- Array1[2, ,2]
print("Elements of second row of the second matrix of Array1:")
print(second_row_second_matrix)

#Third Row Second Column Array 2 of Matrix 1
third_row_second_col_first_matrix <- Array2[3, 2, 1]
print("Elements of 3rd row and 2nd column of the 1st matrix of Array2:")
print(third_row_second_col_first_matrix)
```