A picture containing shape, arrow

Description automatically generated**Module – 4**

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**Problem 1**: Divide 743 by 2 and obtain the result such that the output gives us a value without the decimal point.

Ans:- print(743%/%2) >>>371

**Problem 2:** Print a 3\*4 array of three dimensions, which has the input of vectors sequencing from 13554:13590 **and index the second row and third column element of third dimension of the array**.

**Ans:-**

ar <- array(c(13554:13590),dim = c(3,4,3))

print(ar)

ar[2,3,3] >>> 13585

, , 1

[,1] [,2] [,3] [,4]

[1,] 13554 13557 13560 13563

[2,] 13555 13558 13561 13564

[3,] 13556 13559 13562 13565

, , 2

[,1] [,2] [,3] [,4]

[1,] 13566 13569 13572 13575

[2,] 13567 13570 13573 13576

[3,] 13568 13571 13574 13577

, , 3

[,1] [,2] [,3] [,4]

[1,] 13578 13581 13584 13587

[2,] 13579 13582 13585 13588

[3,] 13580 13583 13586 13589

**Problem 3:** What is the command to install a package in R and how do you invoke it?

Ans:-

install.packages("package\_name")

library(package\_name)

**Problem 4:** Create an if statement that prints the name of the team that won.

* Where Team A scored 678 (out of 700), Team B scored 666 (out of 700).

Ans:-

A <- 678

B <- 666

if(A>B)

print("Team A");

if (A<B)

print("Team B");

if (A==B)

print("Team A and Team B")

**Problem 5:** Check whether the given number is positive and divisible by 5 or not using conditional statements. (**Hint:** Use both if and else statements)

Given number: 468

Ans:-

num <-as.numeric(readline("enter number :")) #reading the number form console

#if else statement

if(num>0){

print("number is positive") #checking positivity of number

if(num %% 5 == 0){ #checking reminder of number

print("divisible by 5")

}else{

print("not divisible by 5")

}

}else{

print("number is negative")

if(num %% 5 == 0){

print("divisible by 5")

}else{

print("not divisible by 5")

}

}

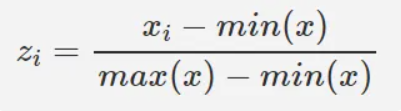
Num<- 468

Output

"number is positive"

"not div by 5"

**Problem 6:** Given is a formula of Normalization.



Create a user defined function ‘z’ such that you define the given formula within it.

Where, using **max(x)** and **min(x)** in R gives you the minimum and maximum value of x.

Ans:-

**z <- function(x)** #declaring function z with argument x

**{**

**a <- ((x-min(x))/(max(x)-min(x)))** #calculating value

**return(a)** #returning value

**}**

**Problem 7:** If ‘a’ is the given vector. What is the output when you apply the user defined Normalizing function ‘z ()’ to it? [**Hint:** This question is the continuation of **Problem 6]**

**a<-c(33,434,242,434354,545,54,56,56,4534,5342,24,5,65,65,767,8,78,79,79,64,635,3,4,35,57,678,5,86,86,457,546,34,345,34,3,4,65,6,57, ,347)**

**Ans:-**

a <- c(33,434,242,434354,545,54,56,56,4534,5342,24,5,65,65,767,8,78,79,79,64,635,3,4,35,57,678,5,86,86,457,546,34,345,34,3,4,65,6,57,347)

norm\_1 <- z(a)

print(norm\_1)

output

[1] 6.906856e-05 9.922850e-04 5.502462e-04 1.000000e+00 1.247839e-03 1.174166e-04 1.220211e-04

[8] 1.220211e-04 1.043166e-02 1.229190e-02 4.834800e-05 4.604571e-06 1.427417e-04 1.427417e-04

[15] 1.758946e-03 1.151143e-05 1.726714e-04 1.749737e-04 1.749737e-04 1.404394e-04 1.455044e-03

[22] 0.000000e+00 2.302285e-06 7.367314e-05 1.243234e-04 1.554043e-03 4.604571e-06 1.910897e-04

[29] 1.910897e-04 1.045238e-03 1.250141e-03 7.137085e-05 7.873816e-04 7.137085e-05 0.000000e+00

[36] 2.302285e-06 1.427417e-04 6.906856e-06 1.243234e-04 7.919862e-04

**Problem 8:** Achieve a Boxplot, Histogram and scatter plot on a given data ‘Q1’. Use any column/columns to get the respective outputs.

Ans:-

q1 <- read.csv("C:\\Users\\admin\\Desktop\\D.S-360\\2.R Programming\\R- Assignment\\Q1.csv")

install.packages("ggplot2")

library(ggplot2)

#Boxplot for all 3 variables

plot1 <- boxplot(q1$datasrno)

plot2 <- boxplot(q1$workex)

plot3 <- boxplot(q1$gmat)

#Histogram for all 3 variables

his1 <- hist(q1$datasrno)

his2 <- hist(q1$workex)

his3 <- hist(q1$gmat)

#Scatter plot using ggplot

scr1 <- ggplot(q1,aes(datasrno,workex,color = gmat)) + geom\_point()

scr1

#scatter plot using qplot

scr2 <- qplot(datasrno,workex,data = q1,color = gmat,geom = "point")

scr2

**Note:** Use R to solve the given problems in the above. After you do so, cut and paste your input and output from R to Word, else you can submit your code file along with the question and the question number. If you are sending it in a word file add numbering in Word to identify each part of each problem. (Do this for every problem from now on.)