ITA0443-Statistics with R programming

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EXERCISE-1

1.Write the Commands To Perform Basic Arithmetic In R.

Program:

a <- 16

b <- 3

add <- a + b

sub = a - b

multi = a \* b

division = a / b

Integer\_Division = a %/% b

exponent = a ^ b

modulus = a %% b

print(paste("Addition of a and b:", add))

print(paste("Subtracting Number a and b: ", sub))

print(paste("Multiplication of a and b: ", multi))

print(paste("Division of a and b: ", division))

print(paste("Integer Division of a and b: ", Integer\_Division))

print(paste("Exponent of a and b: ", exponent))

print(paste("Modulus of a and b: ", modulus))

Output:

> print(paste("Addition of a and b:", add))

[1] "Addition of a and b: 19"

> print(paste("Subtracting Number a and b: ", sub))

[1] "Subtracting Number a and b: 13"

> print(paste("Multiplication of a and b: ", multi))

[1] "Multiplication of a and b: 48"

> print(paste("Division of a and b: ", division))

[1] "Division of a and b: 5.33333333333333"

> print(paste("Integer Division of a and b: ", Integer\_Division))

[1] "Integer Division of a and b: 5"

> print(paste("Exponent of a and b: ", exponent))

[1] "Exponent of a and b: 4096"

> print(paste("Modulus of a and b: ", modulus))

[1] "Modulus of a and b: 1"

2. Display a String on R Console.

To display a string on R Console by using a cat() and print() function.The cat() function combines multiple items into a continuous print output.

Program:

mes<-"Welcome!"

cat("R is Easy.\n",mes)

Output:

R is Easy.

Welcome!

3. Declare Variables In R And Also Write The Commands For Retrieving The Value Of The Stored Variables In R Console.

The variables can be assigned values using leftward, rightward and equal to operator. The values of the variables can be printed using print() and cat() function. The cat() function combines multiple items into a continuous print output.

Program:

# Assignment using equal operator.

var1= c(0,1,2,3)

# Assignment using leftward operator.

var2<- c("learn","R")

# Assignment using rightward operator.

c(2,1) -> var3

print(var1)

print(var2)

print(var3

Output:

> print(var1)

[1] 0 1 2 3

> print(var2)

[1] "learn" "R"

> print(var3)

[1] 2 1

4. Write R script to calculate the area of Rectangle.

Program:

height=3

width=3

area=height\*width

print(area)

Output:

[1] 9

5.Write Commands In R Console To Determine The Type Of Variable

We can use of the typeof() and class() function to check the datatype of a program.

Program:

a<-2

b<-"Set"

c<-TRUE

d<-as.integer(a)

typeof(a)

typeof(b)

typeof(c)

typeof(d)

Output:

> typeof(a)

[1] "double"

> typeof(b)

[1] "character"

> typeof(c)

[1] "logical"

> typeof(d)

[1] "integer"

6.Enumerate The Process To Check Whether A Given Input Is Numeric , Integer , Double, Complex in R.

Program: for integer

var=readline();

var=as.integer(var)

typeof(var)

Output:

> var=readline();

125

> var=as.integer(var)

> typeof(var)

[1] "integer"

For numeric

var=readline();

var=as.numeric(var)

typeof(var)

Output:

> var=readline();

2.5

> var=as.numeric(var)

> typeof(var)

[1] "double"

For complex

var=readline();

var=as.complex(var)

typeof(var)

Output:

> var=readline();

3+4i

> var=as.complex(var)

> typeof(var)

[1] "complex"

7. Illustration of Vector Arithmetic.

Program:

Output:

> vec1+vec2

[1] 4 7 7 6 11

> vec1-vec2

[1] -2 -3 -1 2 -1

> vec1\*vec2

[1] 3 10 12 8 30

> vec1/vec2

[1] 0.3333 0.4000 0.7500 2.0000 0.8333

8. Write an R Program to Take Input From User.

Input name as “Jack” and age as 17.

The program should display the output as

“Hai , Jack next year you will be 18 years old”

Program:

name <- readline(prompt="Enter name: ")

age <- readline(prompt="Enter age: ")

age <- as.integer(age)

print(paste("Hai,",name,"next year you will be",age+1,"years old."))

Output:

> name <- readline(prompt="Enter name: ")

Enter name: Jack

> age <- readline(prompt="Enter age: ")

Enter age: 17

> age <- as.integer(age)

> print(paste("Hai,",name,"next year you will be",age+1,"years old."))

[1] "Hai, Jack next year you will be 18 years old."