**R LAB – 02**

**TASK – 01 :**

Applying Different Operations Vectors

**Program :**

x <- c(1,2,3,4,5,6,7,8,9,10)

x

x + 2

x - 5

x \* 5

x / 2

x ^ 2

sqrt(x)

class(x)

1:10

10:1

-2:5

5:-2

a = 1:10

b = -5:4

a

b

a + b

a - b

a \* b

a / b

a ^ b

length(a)

length(b)

length(a + b)

z = a + b \* x / 2

z

a + c(1,2)

a + c(1,2,3)

a <= 5

a < b

a1 = 10:1

b1 = -4:5

any(a1 < b1)

all(a1 < b1)

q = c("Hockey","Football","Baseball","Curling","Rugby","Lacrosse","Basketball","Tennis","Cricket","Soccer")

q

nchar(q)

length(q)

a1[1]

a1[1:3]

a1[c(1,4)]

d1 = c(One = "x", Two = "Y", Three = "Z")

d1

w = 1:3

w

names(w) = c("col1","col2","col3")

w

q2 = c(q,"Hockey","Lacrosse","Hockey","Waterpolo","Hockey","Lacrosee")

q2fact = as.factor(q2)

q2fact

as.numeric((q2fact))

abs(-356)

ceiling(3.56)

floor(3.56)

round(3.56)

**Output :**

> x <- c(1,2,3,4,5,6,7,8,9,10)

> x

[1] 1 2 3 4 5 6 7 8 9 10

> x + 2

[1] 3 4 5 6 7 8 9 10 11 12

> x - 5

[1] -4 -3 -2 -1 0 1 2 3 4 5

> x \* 5

[1] 5 10 15 20 25 30 35 40 45 50

> x / 2

[1] 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

> x ^ 2

[1] 1 4 9 16 25 36 49 64 81 100

> sqrt(x)

[1] 1.000000 1.414214 1.732051 2.000000 2.236068 2.449490 2.645751 2.828427 3.000000 3.162278

> class(x)

[1] "numeric"

> 1:10

[1] 1 2 3 4 5 6 7 8 9 10

> 10:1

[1] 10 9 8 7 6 5 4 3 2 1

> -2:5

[1] -2 -1 0 1 2 3 4 5

> 5:-2

[1] 5 4 3 2 1 0 -1 -2

> a = 1:10

> b = -5:4

> a

[1] 1 2 3 4 5 6 7 8 9 10

> b

[1] -5 -4 -3 -2 -1 0 1 2 3 4

> a + b

[1] -4 -2 0 2 4 6 8 10 12 14

> a - b

[1] 6 6 6 6 6 6 6 6 6 6

> a \* b

[1] -5 -8 -9 -8 -5 0 7 16 27 40

> a / b

[1] -0.2 -0.5 -1.0 -2.0 -5.0 Inf 7.0 4.0 3.0 2.5

> a ^ b

[1] 1.000000e+00 6.250000e-02 3.703704e-02 6.250000e-02 2.000000e-01 1.000000e+00 7.000000e+00 6.400000e+01

[9] 7.290000e+02 1.000000e+04

> length(a)

[1] 10

> length(b)

[1] 10

> length(a + b)

[1] 10

> z = a + b \* x / 2

> z

[1] -1.5 -2.0 -1.5 0.0 2.5 6.0 10.5 16.0 22.5 30.0

> a + c(1,2)

[1] 2 4 4 6 6 8 8 10 10 12

> a + c(1,2,3)

[1] 2 4 6 5 7 9 8 10 12 11

Warning message:

In a + c(1, 2, 3) :

longer object length is not a multiple of shorter object length

> a <= 5

[1] TRUE TRUE TRUE TRUE TRUE FALSE FALSE FALSE FALSE FALSE

> a < b

[1] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE

> a1 = 10:1

> b1 = -4:5

> any(a1 < b1)

[1] TRUE

> all(a1 < b1)

[1] FALSE

> q = c("Hockey","Football","Baseball","Curling","Rugby","Lacrosse","Basketball","Tennis","Cricket","Soccer")

> q

[1] "Hockey" "Football" "Baseball" "Curling" "Rugby" "Lacrosse" "Basketball" "Tennis"

[9] "Cricket" "Soccer"

> nchar(q)

[1] 6 8 8 7 5 8 10 6 7 6

> length(q)

[1] 10

> a1[1]

[1] 10

> a1[1:3]

[1] 10 9 8

> a1[c(1,4)]

[1] 10 7

> d1 = c(One = "x", Two = "Y", Three = "Z")

> d1

One Two Three

"x" "Y" "Z"

> w = 1:3

> w

[1] 1 2 3

> names(w) = c("col1","col2","col3")

> w

col1 col2 col3

1 2 3

> q2 = c(q,"Hockey","Lacrosse","Hockey","Waterpolo","Hockey","Lacrosee")

> q2fact = as.factor(q2)

> q2fact

[1] Hockey Football Baseball Curling Rugby Lacrosse Basketball Tennis Cricket

[10] Soccer Hockey Lacrosse Hockey Waterpolo Hockey Lacrosee

12 Levels: Baseball Basketball Cricket Curling Football Hockey Lacrosee Lacrosse Rugby Soccer ... Waterpolo

> as.numeric((q2fact))

[1] 6 5 1 4 9 8 2 11 3 10 6 8 6 12 6 7

> abs(-356)

[1] 356

> ceiling(3.56)

[1] 4

> floor(3.56)

[1] 3

> round(3.56)

[1] 4