

Introduction to R

What is R?

R is a programming language and free software environment for statistical computing and graphics supported by the R Core Team and the R Foundation for Statistical Computing. It is widely used among statisticians and data miners for developing statistical software and data analysis.

Introduction

The purpose of this experiment is to learn the input and various arithmetic operations of dataset in R

Procedure

Step by step procedure to conduct the required experiment –

1. Input and creation of dataset using R
2. Perform various arithmetic operations on the dataset using R

Code and Results

```
# Generate data
1:10

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

seq(1:10)

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

# Generate the data with step size 2
seq(1,10,2)

## [1] 1 3 5 7 9

# Generate the data about 20 elements
seq(1,10,length=20)

## [1] 1.000000 1.473684 1.947368 2.421053 2.894737 3.368421 3.842105
## [8] 4.315789 4.789474 5.263158 5.736842 6.210526 6.684211 7.157895
## [15] 7.631579 8.105263 8.578947 9.052632 9.526316 10.000000

# Generate the random collection
sample(1:10,5)

## [1] 3 8 4 6 5
```

```

# Generate the random collection with repetition
sample(1:10,20,replace=TRUE)

## [1] 5 4 5 1 5 7 6 9 9 2 5 2 9 3 1 7 2 5 1 1

# Assign variable name to the value
X=10; X<-10; 10->X;
# To combine numeric values into a vector
c(1,2,5)

## [1] 1 2 5

#Arithmetic operations of vectors are performed member wise.
a = c(1, 3, 5, 7)
b = c(2, 4, 6, 8)
#addition
a+b

## [1] 3 7 11 15

#subtraction
a-b

## [1] -1 -1 -1 -1

#constant multiplication
5*a

## [1] 5 15 25 35

#product
a*b

## [1] 2 12 30 56

#division
a/b

## [1] 0.5000000 0.7500000 0.8333333 0.8750000

# character object is used to represent string values in R
X=as.character(5.2)
X

## [1] "5.2"

#Concatenation of strings
paste("Baa", "Baa", "Black", "Sheep")

## [1] "Baa Baa Black Sheep"

```