

R Programming

Basics

ML Day#1

Snigdha Cheekoty

Concepts

Code

01

Vector



Variable assignment

Datatypes

Integer
Numeric
Logical
Character

class()
function

gives the **datatype** of the object

Vector

- Store data of same type
- 1D arrays
- Created using combine **c()** function

Naming a vector

Using **names()** function - Gives names to the elements of the vector

Arithmetic Calculations over vectors

Comparison operations in vectors

Selecting elements of vectors

Combining several vectors into one vector

```
> apple <- 12
> apple
[1] 12
```

```
> a <- 1200
> b <- TRUE
> c <- "Snigdha"
> d <- 23.67888
```

```
> class(a)
[1] "numeric"
> class(b)
[1] "logical"
> class(c)
[1] "character"
> class(d)
[1] "numeric"
```

```
boolean_vector <- c(TRUE, TRUE, FALSE)
integer_vector <- c(23,45,89,90)
character_vector <- c("Snigdha","Rohitha","Shashank")
```

```
number <- c(12,13,34)
fruits <- c("apples", "oranges","grapes")
names(number) <- fruits
```

```
a <- c(0,1,1)
b <- c(1,1,2)
a+b
a-b
a*b
a/b
a%%b
```

```
a <- c(0,1,1)
b <- c(1,1,2)
a > b
a < b
a >= b
a != b
a == b
```

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

```
a <- c(10,20,30,40,50)
a[1] # first element of the vector
a[2] #second element of the vector
a[5] #fifth element of the vector
```

```
a[c(2,3)]
a[1:3]
```

```
a <- c(0,1,2,3)
b <- c(3,4,5)
c <- c(8,9)
combined <- c(a,b,c)
combined
```

```
[1] 0 1 2 3 3 4 5 8 9
```

02

Matrix



Definition:
Matrix

- Two dimensional way of storing the data.
- Contains elements of the SAME type.

Storing data in the matrix

Naming the rows and columns

Calculating row and column totals

Adding columns and rows

Selecting matrix elements

```
matrix(1:9, byrow = TRUE, nrow = 3)
```

```
> new
      [,1] [,2] [,3]
[1,]    1    2    3
[2,]    4    5    6
[3,]    7    8    9
```

```
colnames(new) <- c("FirstColumn","SecondColumn","ThirdColumn")
rownames(new) <- c("FirstRow","SecondRow","ThirdRow")
```

	FirstColumn	SecondColumn	ThirdColumn
FirstRow	1	2	3
SecondRow	4	5	6
ThirdRow	7	8	9

```
rowSums(new)
colSums(new)
```

```
#adding by column
all <- cbind(matrix_A,matrix_B, vector_A)
#adding by row
all2 <- rbind(matrix_A, matrix_B, vector_A)
```

```
matrix_B[1,3]
matrix_B[1:2,3]
matrix_B[1:2, 1:3]
```