Introduction to R Software

Vector Indexing

Shalabh

Department of Mathematics and Statistics

Indian Institute of Technology Kanpur

❑ String vector

The elements of a vector can be named.
Using these `names`, we can access the vector elements.

`names` is used for functions to get or set the names of an object

```
> z <- list(a1 = 1, a2 = "c", a3 = 1:3)
> z
$a1
[1] 1
$a2
[1] "c"
$a3
[1] 1 2 3

> names(z)
[1] "a1" "a2" "a3"
```

❑ String vector

```
R Console
> z <- list(a1 = 1, a2 = "c", a3 = 1:3)
> z
$a1
[1] 1

$a2
[1] "c"

$a3
[1] 1 2 3

> names(z)
[1] "a1" "a2" "a3"
```

❑ String vector

Suppose want to change just the name of the third element.

```
> z <- list(a1 = 1, a2 = "c", a3 = 1:3)

> names(z)[3] <- "c2"

> z

$a1

[1] 1

$a2

[1] "c"

$c2

[1] 1 2 3
```

❑ String vector

```
R Console

> z <- list(a1 = 1, a2 = "c", a3 = 1:3)
> names(z)[3] <- "c2"
> z
$a1
[1] 1

$a2
[1] "c"

$c2
[1] 1 2 3
```

❑ **String vector**

Example

`names` **is used for functions to get or set the names of an object**

```
> x <- c(water=1, juice=2, lemonade=3 )

> names(x)
[1] "water"    "juice"    "lemonade"



> x["juice"]
juice
    2
```

❑ String vector

```
R Console

> x <- c(water=1, juice=2, lemonade=3 )
> names(x)
 [1]  "water"        "juice"        "lemonade"
>
> x["juice"]
juice
    2
```

❏ Empty index

```
> x <- 1:10

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

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

```
R Console
> x <- 1:10
> x
 [1]   1   2   3   4   5   6   7   8   9  10
>
> x[]
 [1]   1   2   3   4   5   6   7   8   9  10
```

❑ **Matrices created from Lists**

List can be heterogeneous (mixed modes).

We can start with a heterogeneous list,

give it dimensions, and

thus create a heterogeneous matrix

that is a mixture of numeric and character data:

Example

```
> ab <- list(1, 2, 3, "X", "Y", "Z")

> dim(ab) <- c(2,3)

> print(ab)
     [,1] [,2] [,3]
[1,] 1    3    "Y"
[2,] 2    "X"  "Z"
```

❑ Matrices created from Lists

```
R R Console
> ab <- list(1, 2, 3, "X", "Y", "Z")
> dim(ab) <- c(2,3)
> print(ab)
      [,1] [,2] [,3]
[1,] 1     3    "Y"
[2,] 2    "X"   "Z"
```