



Vector



- 1 column or row of data
- 1 type (numeric or text)

Matrix



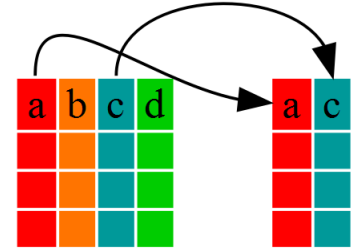
- multiple columns and/or rows of data
- 1 type (numeric or text)

Data Frame

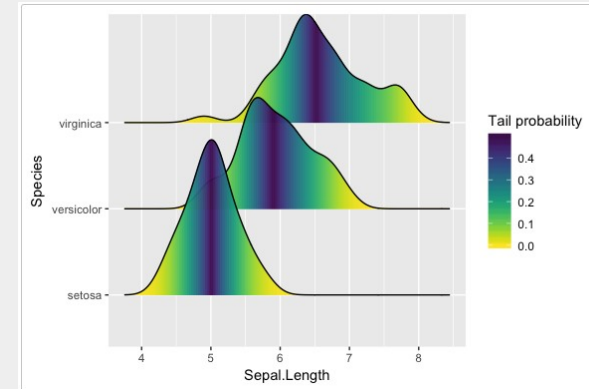
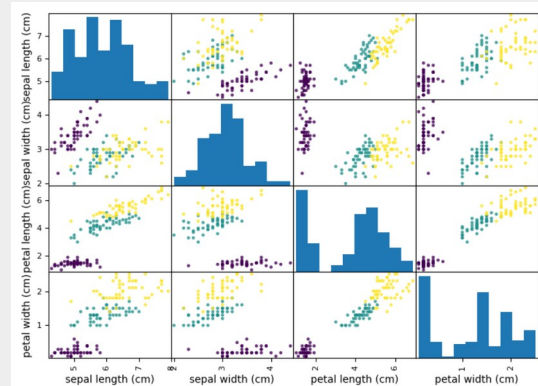
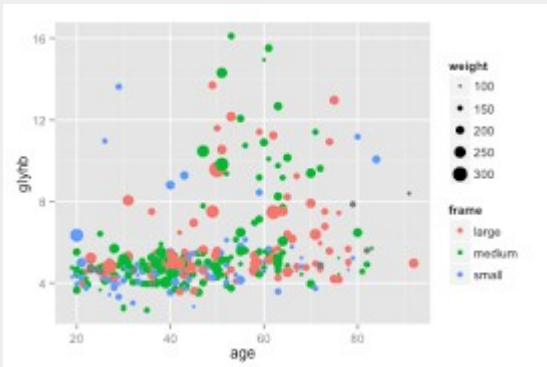


- multiple columns and/or rows of data
- multiple types

`select(data.frame,a,c)`

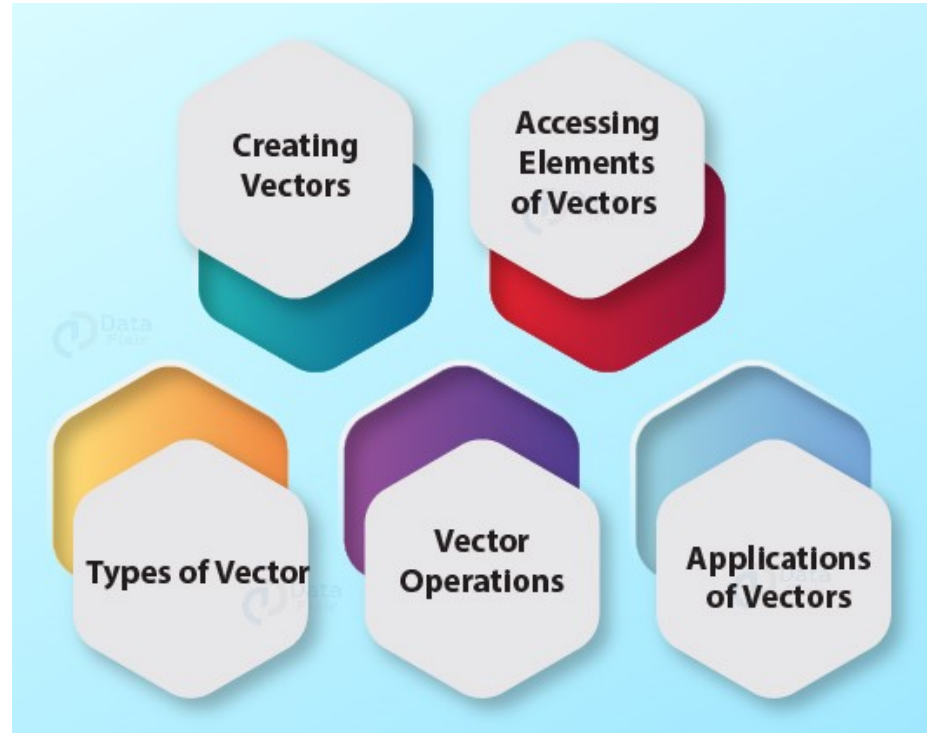


# Um guia para iniciantes em R



# Um guia para iniciantes em R

vector



# Um guia para iniciantes em R

## rep()

```
x ← rep(c(0, 0, 7), times = 4)
```

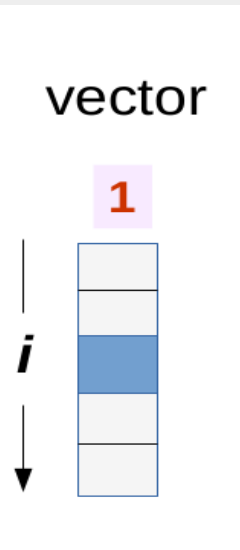
```
[1] 0 0 7 0 0 7 0 0 7 0 0 7
```

```
x ← rep(c(2, 4, 2), each = 2)
```

```
[1] 2 2 4 4 2 2
```

```
x ← rep(c(0, 7), times = c(4,3))
```

```
[1] 0 0 0 0 7 7 7
```



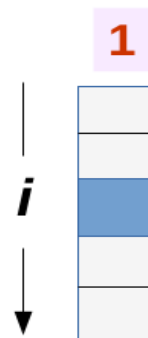
# Um guia para iniciantes em R

**rep()**

```
y ← rep(1:3,length.out=9)
```

```
[1] 1 2 3 1 2 3 1 2 3
```

vector



# Um guia para iniciantes em R

## seq()

```
y ← seq(from = 4.5, to = 3.0, by = -0.5)
```

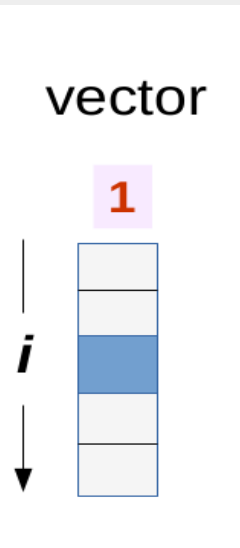
```
[1] 4.5 4.0 3.5 3.0
```

```
y ← seq(from = 4.5, to = 7.0, by = 0.5)
```

```
[1] 4.5 5.0 5.5 6.0 6.5 7.0
```

```
y ← seq(from = -2.7, to = 1.3, length.out = 9)
```

```
[1] -2.7 -2.2 -1.7 -1.2 -0.7 -0.2 0.3 0.8 1.3
```



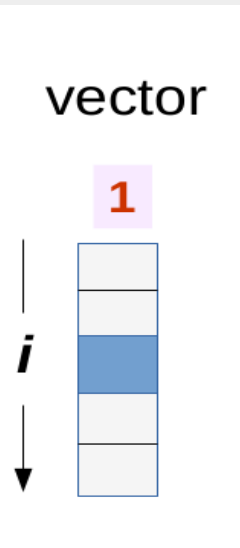
# Um guia para iniciantes em R

## Function - `any(..., na.rm=FALSE)`

`x <- 1:3` - `(1, 2, 3)`

`any(x > 5)` - `(FALSE, FALSE, FALSE)`

`any(x > 2)` - `(FALSE, FALSE, TRUE)`



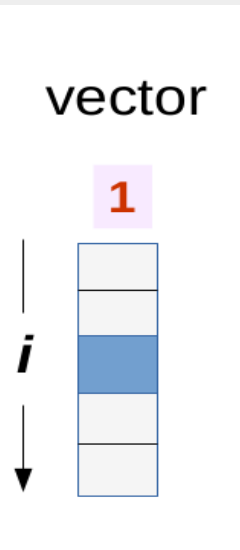
# Um guia para iniciantes em R

## Function - `all(..., na.rm=FALSE)`

`x <- 1:3` - `(1, 2, 3)`

`all(x > 5)` - `(FALSE, FALSE, FALSE)`

`all(x > 2)` - `(FALSE, FALSE, TRUE)`



# Um guia para iniciantes em R

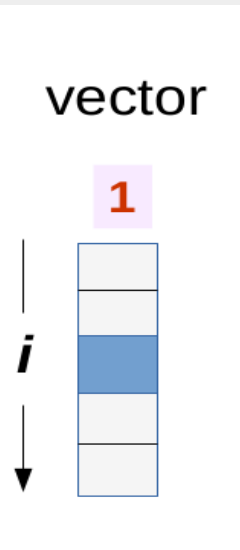
## Logical Data Type

```
A ← 3
```

```
B ← 6
```

```
G ← A > B # is a larger than b?
```

```
G
```





# Um guia para iniciantes em R

## Como acessar elementos de vetores R??

```
X <- c ( "aa" , "bb" , "cc" , "dd" , "ee" )
```

```
X [ 3 ]
```

```
X [ -2 ]
```

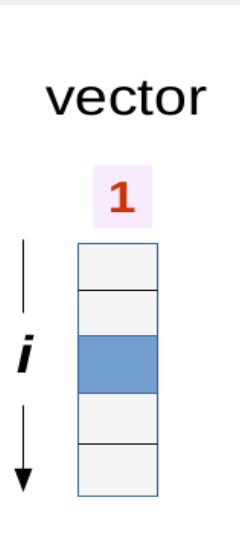
# Usando índice negativo

```
X [ 1:3 ]
```

# Índices de alcance

```
X [ c ( 2 , 1 , 3 ) ]
```

# Índices fora de ordem



# Um guia para iniciantes em R

## Como acessar elementos de vetores R??

```
x <- c ( "Um" = 1 , "Dois" = 2 , "Três" = 3 ) # forma 1
```

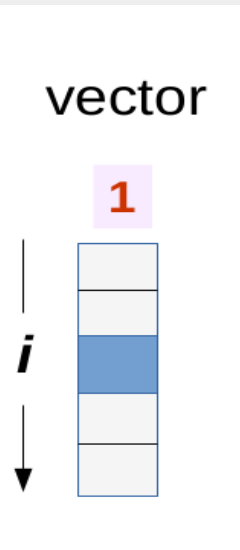
```
x [ "Dois" ]
```

```
v <- c( "Hadoop" , "Spark" ) # forma 2
```

```
names(v) <- c ( "Primeiro" , "Segundo" )
```

```
v [ "Primeiro" ]
```

```
v [c("Segundo","Primeiro")]
```



# Um guia para iniciantes em R

## Como acessar elementos de vetores R??

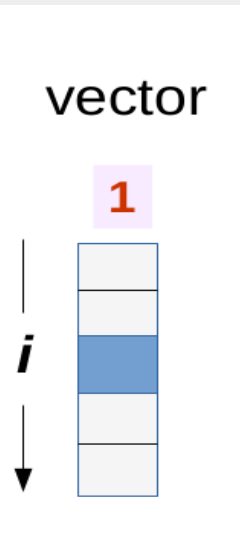
```
a <- c(1,2,3,4)
```

```
a[c(TRUE, FALSE, TRUE, FALSE)]
```

```
x<- rep(c(5, 0, 7), times = 4)
```

```
y<- c(1, 2, 5)
```

```
x[x %in% y]
```



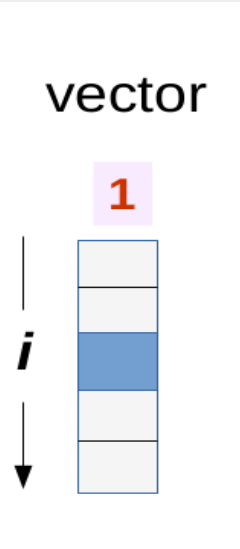
# Um guia para iniciantes em R

## Combinando Vetor em R

```
n <- c ( 1 , 2 , 3 , 4 )
```

```
s <- c ( "Hadoop" , "Spark" , "HIVE" , "Flink" )
```

```
z <- c ( n, s )
```



# Um guia para iniciantes em R

## Operações aritméticas em vetores em R

```
A ← c ( 1 , 3 )
```

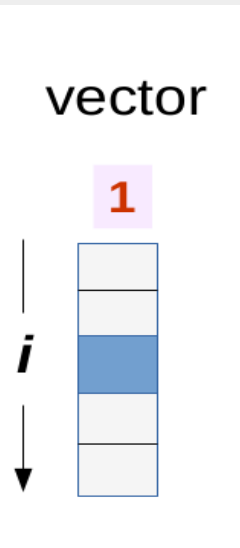
```
B ← c ( 1 , 3 )
```

```
R ← A + B
```

```
R ← A - B
```

```
R ← A / B
```

```
R ← A %% B
```



# Um guia para iniciantes em R

## Funções para vetores

```
X ← runif(30)
```

```
sort(x)
```

```
rev(x)
```

vector



# Um guia para iniciantes em R

## Funções para vetores

```
x<-sample(c("G1","G2","G3"), 10, replace = TRUE)
```

x

```
table(x)
```

```
unique(x)
```

```
length(x)
```

