

TAREA-4-LAB-6.R

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# Laboratorio 6: Variables y Datos en R

# Bases de Los vectores -----
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wins = c(52, 51, 47, 47, 42)
losses = c(20, 21, 25, 25, 30)
win_loss_perc = wins/(wins + losses)
win_loss_perc # variables cuantitativas

## [1] 0.7222222 0.7083333 0.6527778 0.6527778 0.5833333

teams = c("UtJ", "PhS", "DnN", "LAC", "DIM")
# VECTOR de caracteres (variable cualitativa)

# Manipulación de vectores: subconjuntos -----
--

# extraer elementos de un vector utilizando corchetes []
# para acceder a los elementos de un vector.
# Dentro de los corchetes puede especificar uno o más valores numéricos
# que correspondan a la(s) posición (es) de los elementos del vector

# PRIMER ELEMENTO DE "wins"
wins[1]

## [1] 52

# TERCER ELEMENTO DE "losses"
losses[3]

## [1] 25

# ÚLTIMO NOMBRE EN "teams"
teams[5]

## [1] "DIM"

length(teams) # da el número de valores
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## [1] 5
teams[length(teams)]
## [1] "DIM"
sort(wins, decreasing = T) # ordena los valores de forma creciente o
decreciente
## [1] 52 51 47 47 42
rev(wins) # invierte los valores
## [1] 42 47 47 51 52

# Subconjuntos con índices lógicos -----
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# para los subconjuntos lógicos se utiliza un vector lógico
# es un tipo particular de vector que toma los valores especiales
VERDADERO y FALSO, así como NA(No disponible).

# VICTORIA DE Utah Jazz
wins[teams == "UtJ"]
## [1] 52

# EQUIPOS CON VICTORIAS > 40
teams[wins > 40]

## [1] "UtJ" "PhS" "DnN" "LAC" "DIM"

# NOMBRE DE LOS EQUIPOS CON DERROTAS ENTRE 10 Y 29
teams[losses >= 10 & losses <= 29]

## [1] "UtJ" "PhS" "DnN" "LAC"

# Factores y variables cualitativas -----
--

# VECTOR NUMÉRICO
num_vector <- c(1, 2, 3, 1, 2, 3, 2)
# CREAR UN FACTOR A PARTIR DE num_vector
first_factor <- factor(num_vector)
first_factor

## [1] 1 2 3 1 2 3 2
## Levels: 1 2 3

# tomar el vector teams y convertirlo como factor
teams = factor(teams)
teams

```

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## [1] UtJ PhS DnN LAC DIM
## Levels: DIM DnN LAC PhS UtJ

# Secuencias -----
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# OPERADOR DOS PUNTOS :
1:5

## [1] 1 2 3 4 5

1:10

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

-3:7

## [1] -3 -2 -1 0 1 2 3 4 5 6 7

10:1

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

# FUNCIÓN SECUENCIA
seq(from = 1, to = 10)

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

seq(from = 1, to = 10, by = 1)

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

seq(from = 1, to = 10, by = 2)

## [1] 1 3 5 7 9

seq(from = -5, to = 5, by = 1)

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

# Vectores repetidos -----
--

rep(1, times = 5) # repetir 1 cinco veces

## [1] 1 1 1 1 1

rep(c(1, 2), times = 3) # repetir 1 y 2 tres veces

## [1] 1 2 1 2 1 2

rep(c(1, 2), each = 2)

## [1] 1 1 2 2

```

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rep(c(1, 2), length.out = 5)
## [1] 1 2 1 2 1

rep(c(3, 2, 1), times = 3, each = 2)
## [1] 3 3 2 2 1 1 3 3 2 2 1 1 3 3 2 2 1 1

# De vectores a estructura tabular (data frame) -----
--

dat = data.frame(
  Teams = teams,
  Wins = wins,
  Losses = losses,
  WLperc = win_loss_perc
)
dat

##   Teams Wins Losses   WLperc
## 1  UtJ   52    20 0.7222222
## 2  PhS   51    21 0.7083333
## 3  DnN   47    25 0.6527778
## 4  LAC   47    25 0.6527778
## 5  DIM   42    30 0.5833333

# extraer los valores en la columna teams usando $
dat$Teams

## [1] UtJ PhS DnN LAC DIM
## Levels: DIM DnN LAC PhS UtJ

# utilizar la notación de corchetes en la columna extraída como con
cualquier tipo de vector
dat$Wins[1]

## [1] 52

dat$Wins[5]

## [1] 42

# Del mismo modo, puede hacer subconjuntos lógicos:

# Victorias del equipo Utah
dat$Wins[dat$Teams == 'UtJ']

## [1] 52

# equipos con victorias > 40
dat$Teams[dat$Wins > 40]

```

```
## [1] UtJ PhS DnN LAC DIM
## Levels: DIM DnN LAC PhS UtJ

# nombre de Los equipos con derrotas entre 10 y 29
dat$Teams[dat$Losses >= 10 & dat$Losses <= 29]

## [1] UtJ PhS DnN LAC
## Levels: DIM DnN LAC PhS UtJ

# Tu Turno -----
--

Teams = teams = c("UtJ", "PhS", "DnN", "LAC", "DIM", "PTB", "LAL", "MeG",
                  "GSW", "SAS", "NOP", "SaK", "MiT", "OCT", "HoR")
Teams = factor(Teams)
Wins = c(52, 51, 47, 47, 42, 42, 42, 38, 39, 33, 31, 31, 23, 22, 17)
Losses = c(20, 21, 25, 25, 30, 30, 30, 34, 33, 39, 41, 41, 49, 50, 55)
Win_Loss_perc = Wins / (Wins + Losses)
Games_Behind = Wins[1] - Wins
Points_Scored = c(116.4, 115.3, 115.1, 114.0, 112.4, 116.1, 109.5, 113.3,
113.7, 111.1, 114.6, 113.7, 112.1, 105.0, 108.8)
Points_Against = c(107.2, 109.5, 110.1, 107.8, 110.2, 114.3, 106.8,
112.3, 112.7, 112.8, 114.9, 117.4, 117.7, 115.6, 116.7)
Rating = c(8.97, 5.67, 4.82, 6.02, 2.26, 1.81, 2.77, 1.07, 1.10, -1.58, -
0.20, -3.45, -5.25, -10.13, -7.50)

Basquet = data.frame(
  Teams = Teams,
  W = Wins,
  L = Losses,
  W_L = Win_Loss_perc,
  GB = Games_Behind,
  PS_G = Points_Scored,
  PA_G = Points_Against,
  SRS = Rating)
Basquet

##      Teams  W  L      W_L GB  PS_G  PA_G    SRS
## 1    UtJ 52 20 0.7222222  0 116.4 107.2  8.97
## 2    PhS 51 21 0.7083333  1 115.3 109.5  5.67
## 3    DnN 47 25 0.6527778  5 115.1 110.1  4.82
## 4    LAC 47 25 0.6527778  5 114.0 107.8  6.02
## 5    DIM 42 30 0.5833333 10 112.4 110.2  2.26
## 6    PTB 42 30 0.5833333 10 116.1 114.3  1.81
## 7    LAL 42 30 0.5833333 10 109.5 106.8  2.77
## 8    MeG 38 34 0.5277778 14 113.3 112.3  1.07
## 9    GSW 39 33 0.5416667 13 113.7 112.7  1.10
## 10   SAS 33 39 0.4583333 19 111.1 112.8 -1.58
## 11   NOP 31 41 0.4305556 21 114.6 114.9 -0.20
## 12   SaK 31 41 0.4305556 21 113.7 117.4 -3.45
## 13  MiT 23 49 0.3194444 29 112.1 117.7 -5.25
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```
## 14   OCT 22 50 0.3055556 30 105.0 115.6 -10.13
## 15   HoR 17 55 0.2361111 35 108.8 116.7  -7.50

sort(Basquet$PS_G)

##  [1] 105.0 108.8 109.5 111.1 112.1 112.4 113.3 113.7 113.7 114.0 114.6
115.1
## [13] 115.3 116.1 116.4

sort(Basquet$PS_G, decreasing = T)

##  [1] 116.4 116.1 115.3 115.1 114.6 114.0 113.7 113.7 113.3 112.4 112.1
111.1
## [13] 109.5 108.8 105.0

sort(Points_Scored)

##  [1] 105.0 108.8 109.5 111.1 112.1 112.4 113.3 113.7 113.7 114.0 114.6
115.1
## [13] 115.3 116.1 116.4

sort(Points_Scored, decreasing = T)

##  [1] 116.4 116.1 115.3 115.1 114.6 114.0 113.7 113.7 113.3 112.4 112.1
111.1
## [13] 109.5 108.8 105.0
```