

# Laboratorio\_Sem\_6.R

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```
#Laboratorio 6 Variables y datos en R  
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```

```
# bases de los vectores -----
```

```
#variables cuantitativas
```

```
wins = c(52,51,47,47,42)
```

```
losses = c(20,21,25,25,30)
```

```
win_loss_perc = wins / (wins + losses)
```

```
win_loss_perc
```

```
## [1] 0.7222222 0.7083333 0.6527778 0.6527778 0.5833333
```

```
#variables cualitativas
```

```
teams = c("UtJ", "PhS", "DnN", "LAC", "D1M")
```

```
# manipulación de vectores subconjuntos -----
```

```
# el primer elemento de la variable wins
```

```
wins[1]
```

```
## [1] 52
```

```
#el tercer elemento de la variable losses
```

```
losses[3]
```

```
## [1] 25
```

```
#último nombre en la variable teams
```

```
teams[5]
```

```
## [1] "D1M"
```

```
#length da el numero de valores
```

```
length(teams)
```

```
## [1] 5
```

```
teams[length(teams)]
```

```
## [1] "D1M"
```

```

sort(wins, decreasing = TRUE)

## [1] 52 51 47 47 42
rev(wins)

## [1] 42 47 47 51 52
# subjuntos con índices lógicos -----

# victorias de Utah Jazz
wins[teams == "UtJ"]

## [1] 52
#equipos con victorias >40
teams[wins >40]

## [1] "UtJ" "PhS" "DnN" "LAC" "DlM"
#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 vector a partir de num_vector
first_factor <- factor(num_vector)
first_factor

## [1] 1 2 3 1 2 3 2
## Levels: 1 2 3
#puede tomar el vector teams y convertirlo como factor

teams = factor(teams)
teams

## [1] UtJ PhS DnN LAC DlM
## Levels: DlM DnN LAC PhS UtJ
# secuencias -----

#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
```

```
#funcion 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 -----
```

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

```
## [1] 1 1 1 1 1
```

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

```
## [1] 1 2 1 2 1 2
```

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

```
## [1] 1 1 2 2
```

```
rep(c(1,2), length.out = 5)
```

```
## [1] 1 2 1 2 1
```

```
#some complex examples  
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 escritura tabular (data frame) -----
```

```
data = data.frame(Teams = teams,  
                  Wins = wins,  
                  Losses = losses,  
                  Wlperc = win_loss_perc)  
data
```

```
## 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 DLM 42 30 0.5833333
```

```
data$Teams
```

```
## [1] UtJ PhS DnN LAC DLM
```

```
## Levels: DLM DnN LAC PhS UtJ
```

```

data$Wins[1]

## [1] 52
data$Wins[5]

## [1] 42
# victorias del equipo Utah
data$Wins[data$Teams == "UtJ"]

## [1] 52
# equipos con victorias >40
data$Teams[data$Wins > 40]

## [1] UtJ PhS DnN LAC D1M
## Levels: D1M DnN LAC PhS UtJ
# nombre de los equipos con derrotas entre 10 y 29
data$Teams[data$Losses >=10 & data$Losses <=29]

## [1] UtJ PhS DnN LAC
## Levels: D1M DnN LAC PhS UtJ
# autoestudio -----

teams = c("UtJ","PhS","DN","LAC","DM","PTB","LAL",
          "MG","GSW","SAS","NOP","SK","MT","OCT","HT")
W = c(52,51,47,47,42,42,42,38,39,33,31,31,23,22,17)
L = c(20,21,25,25,30,30,30,34,33,39,41,41,49,50,55)
W.L.perc = c(0.722,0.708,0.653,0.653,0.583,0.583,0.583,0.528,0.542,
            0.458,0.431,0.431,0.319,0.306,0.236)
GB = c(0,1.0,5.0,5.0,10.0,10.0,10.0,14.0,13.0,19.0,21.0,21.0,29.0,30.0,35.0)
PS.G = 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)
PA.G = 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)
SRS = 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)

GB = W[1] - W

posiciones <- data.frame(Teams = teams,
                        Wins = W,
                        Losses = L,
                        WLperc = W.L.perc,
                        GamesBehind = GB,
                        PointsScored = PS.G,
                        PointsAgainst = PA.G,
                        Rating = SRS)

posiciones

##      Teams Wins Losses WLperc GamesBehind PointsScored PointsAgainst Rating
## 1    UtJ    52     20  0.722           0         116.4         107.2     8.97
## 2    PhS    51     21  0.708           1         115.3         109.5     5.67
## 3     DN    47     25  0.653           5         115.1         110.1     4.82
## 4    LAC    47     25  0.653           5         114.0         107.8     6.02

```

## 5	DM	42	30	0.583	10	112.4	110.2	2.26
## 6	PTB	42	30	0.583	10	116.1	114.3	1.81
## 7	LAL	42	30	0.583	10	109.5	106.8	2.77
## 8	MG	38	34	0.528	14	113.3	112.3	1.07
## 9	GSW	39	33	0.542	13	113.7	112.7	1.10
## 10	SAS	33	39	0.458	19	111.1	112.8	-1.58
## 11	NOP	31	41	0.431	21	114.6	114.9	-0.20
## 12	SK	31	41	0.431	21	113.7	117.4	-3.45
## 13	MT	23	49	0.319	29	112.1	117.7	-5.25
## 14	OCT	22	50	0.306	30	105.0	115.6	-10.13
## 15	HT	17	55	0.236	35	108.8	116.7	-7.50

```
sort(posiciones$PointsScored, decreasing = TRUE)
```

```
## [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(posiciones$PointsScored)
```

```
## [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
```