R 语言基础：练习(一)

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1.数组练习

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Create an array (3 dimensional) of 24 elements using the `dim()` function.

Exercise 2

Create an array (3 dimensional) of 24 elements using the `array()` function.

Exercise 3

Assign some dimnames of your choice to the array using the `dimnames()` function.

Exercise 4

Assign some dimnames of your choice to the array using the arguments of the array() function.

Exercise 5 （不做）

Instead of column-major array, make a row-major array (transpose).

Exercise 6

For this exercise, and all that follow, download this file(ex.csv), and read it into R using the `read.csv()` function, e.g.: temp Copy the column named N into a new variable `arr`.

Exercise 7

Set dimensions of this variable and convert it into a 3 * 2 * 4 array. Add dimnames.

Exercise 8

Print the whole array on the screen.

Exercise 9

Print only elements of height 2, assuming the first dimension represents height, the second rows and the third column.

Exercise 10

Print elements of height 1 and columns 3 and columns 1.

Exercise 11

Print element of height 2, column 4 and row 2.

Exercise 12

Repeat the exercises 9-11, but instead of using numbers to reference row, column and height, use `dimnames`.

2.缺失值练习

Exercise 1

If `X <- c (22,3,7,NA,NA,67)` what will be the output for the R statement `length(X)`

Exercise 2

If `X = c(NA,3,14,NA,33,17,NA,41)` write some R code that will remove all occurrences of `NA` in X.

a. X[!is.na(X)]
b. X[is.na(X)]
c. X[X==NA]= 0

Exercise 3

If `Y = c(1,3,12,NA,33,7,NA,21)` what R statement will replace all occurrences of `NA` with `11`?

a. Y[Y==NA]= 11
b. Y[is.na(Y)]= 11
c. Y[Y==11] = NA

Exercise 4

If `X = c(34,33,65,37,89,NA,43,NA,11,NA,23,NA)` then what will count the number of occurrences of `NA` in X?

a. sum(X==NA)
b. sum(X == NA, is.na(X))
c. sum(is.na(X))

Exercise 5

Consider the following vector `W <- c (11, 3, 5, NA, 6)` Write some R code that will return `TRUE` for value of W missing in the vector.

Exercise 6

Load `Orange` dataset from R using the command `data(Orange)` . Replace all values of `age=118` to `NA`.

Exercise 7

Consider the following vector `A <- c (33, 21, 12, NA, 7, 8)` Write some R code that will calculate the mean of A without the missing value.

Exercise 8

Let:

```
c1 <- c(1,2,3,NA) ;
c2 <- c(2,4,6,89) ;
c3 <- c(45,NA,66,101)
```

If `X <- rbind (c1,c2,c3, deparse.level=1)` , write a code that will display all rows with missing values.

Exercise 9

Consider the following data obtained from `df <- data.frame (Name = c(NA, "Joseph", "Martin", NA, "Andrea"), Sales = c(15, 18, 21, 56, 60), Price`

= c(34, 52, 21, 44, 20), stringsAsFactors = FALSE) Write some R code that will return a data frame which removes all rows with NA values in Name column

Exercise 10

Consider the following data obtained from df <- data.frame(Name = c(NA, "Joseph", "Martin", NA, "Andrea"), Sales = c(15, 18, 21, NA, 60), Price = c(34, 52, 33, 44, NA), stringsAsFactors = FALSE) Write some R code that will remove all rows with NA values and give the following output:

```
Name Sales Price
2 Joseph 18 52
3 Martin 21 33
```

3.字符向量练习

Exercise 1

If x <- "Good Morning! ", find out the number of characters in X

a. 1
b. 14
c. 13

Exercise 2

Consider the character vector x <- c ("Nature's", "Best "), how many characters are there in x?

a. 12
b. 13
c. 8,5

Exercise 3

If x <- c("Nature's"," At its best "), how many characters are there in x?

a. 19
b. 8, 13
c. 8, 9

Exercise 4

If fname <- "James" and lname <- "Bond", write some R code that will produce the output "James Bond".

Exercise 5

If `m <- "Capital of America is Washington"` then extract the string `"Capital of America"` from the character vector `m`.

Exercise 6

Write some R code to replace the first occurrence of the word “failed” with “failure” in the string “Success is not final, failed is not fatal”.

Exercise 7

Consider two character vectors:

```
Names <- c("John", "Andrew", "Thomas")
Designation <- c("Manager", "Project Head", "Marketing Head")
```

Write some R code to obtain the following output:

```
Names Designation
1 John Manager
2 Andrew Project Head
3 Thomas Marketing Head
```

Exercise 8

Write some R code that will initialise a character vector with fixed length of 10.

Exercise 9

Write some R code that will generate a vector with the following elements, without using loops.(提示使用 `letters` 函数)

```
"aa" "ba" "ca" "da" "ea" "ab" "bb" "cb" "db" "eb" "ac" "bc" "cc" "dc" "
ec" "ad" "bd" "cd" "dd" "ed" "ae" "be" "ce" "de" "ee"
```

Exercise 10

Let `df <- data.frame(Date = c("12/12/2000 12:11:10"))` . Write some R code that will convert the given date to character values and gives the following output: `"2000-12-12 12:11:10 CST"`

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