

R Data Types

Young W. Lim

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1 Introduction

- References
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- Numeric Data
- Character Data
- Dates
- Logical Data
- Double Precision Numbers

"R for Everyone - Advanced Analytics and Graphic" J. P. Lander

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- Numeric Data
- Character Data
- Dates
- Logical Data

Numeric Data

```
is.numeric(x)
i <- 5L
i
is.integer(i)
is.numeric(i)
class(4L)
class(2.8)
4L * 2.8
class(4L * 2.8)
class(5L)
class(2L)
5L/2L
class(5L/2L)
```

Converting into a CSV file

```
x<- "data"  
x  
y <- factor("data")  
nchar("hello")  
nchar(3)  
nchar(422)  
nchar(y)
```

```
date1 <- as.Date("2012-06-02")
date1
class(date1)
as.numeric(date1)
date2<- as.POSIXct("2012-06-02 11:32")
date2
class(date2)
as.numeric(date2)
class(date1)
class(as.numeric(date1))
```

Logical Data

```
TRUE * 5
FALSE * 6
k <- TRUE
class(k)
is.logical(k)
TURE
T
class(T)
T <- 7
T
class(T)
2 == 3
2 != 3
2 < 3
2 > 3
2 >= 3
"data" == "stats"
```


Double (1)

- Create, coerce to or test for a double-precision vector.
- `double(length = 0)`
- `as.double(x, ...)`
- `is.double(x)`
- `single(length = 0)`
- `as.single(x, ...)`
- `length`: A non-negative integer specifying the desired length. Double values will be coerced to integer: supplying an argument of length other than one is an error.

<https://stat.ethz.ch/R-manual/R-devel/library/base/html/double.html>

Double (2)

- `double` creates a double-precision vector of the specified length. The elements of the vector are all equal to 0. It is identical to `numeric`.
- `as.double` is a generic function. It is identical to `as.numeric`. Methods should return an object of base type "double".
- `is.double` is a test of double type.
- R has no single precision data type.

All real numbers are stored in double precision format. The functions `as.single` and `single` are identical to `as.double` and `double` except they set the attribute `Csingle` that is used in the `.C` and `.Fortran` interface, and they are intended only to be used in that context.

<https://stat.ethz.ch/R-manual/R-devel/library/base/html/double.html>

MPFR (Multiple Precision Floating-point Reliably)

```
exp(1)
print(exp(1), digits=17)

require("Rmpfr")
(one <- mpfr(1, 120))
exp(one)
ns <- 1:24; factorial(ns)

ns <- mpfr(1:24, 120); factorial(ns)
```

<https://cran.r-project.org/web/packages/Rmpfr/vignettes/Rmpfr-pkg.pdf>