

Foundations of R Software

Lecture 27

Sequences of Dates and Alphabets

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Sequences

The regular sequences can be generated in R.

Syntax

`seq()`

```
seq(from = 1, to = 1,  
by = ((to - from)/(length.out - 1)),  
length.out = NULL, along.with = NULL, ...)
```

Sequences

Generating sequences of dates

Usage

```
seq(from, to, by, length.out = NULL, along.with  
= NULL, ...)
```

Arguments

from starting date (Required)

to end date (Optional)

by increment of the sequence. "day", "week",
"month", "quarter" or "year".

length.out integer, optional. Desired length of the sequence.

along.with take the length from the length of this argument. ³

Sequences

Generating sequences of dates

Sequence of first day of years

```
> seq(as.Date("2010-01-01"), as.Date("2017-01-01"), by = "years")
```

```
[1] "2010-01-01" "2011-01-01" "2012-01-01" "2013-01-01"
```

```
[5] "2014-01-01" "2015-01-01" "2016-01-01" "2017-01-01"
```

 R Console

```
> seq(as.Date("2010-01-01"),  
+ as.Date("2017-01-01"), by = "years")  
[1] "2010-01-01" "2011-01-01" "2012-01-01" "2013-01-01"  
[5] "2014-01-01" "2015-01-01" "2016-01-01" "2017-01-01"
```

Sequences

Generating sequences of dates

Sequence of days

```
> seq(as.Date("2017-01-01"), by = "days",  
length = 6)
```

```
[1] "2017-01-01" "2017-01-02" "2017-01-03" "2017-01-04"  
[5] "2017-01-05" "2017-01-06"
```

R Console

```
> seq(as.Date("2017-01-01"), by = "days", length = 6)  
[1] "2017-01-01" "2017-01-02" "2017-01-03" "2017-01-04"  
[5] "2017-01-05" "2017-01-06"
```

Sequences

Generating sequences of dates

Sequence of months

```
> seq(as.Date("2017-01-01"), by = "months",  
length = 6)
```

```
[1] "2017-01-01" "2017-02-01" "2017-03-01" "2017-04-01"  
[5] "2017-05-01" "2017-06-01"
```

R Console

```
> seq(as.Date("2017-01-01"), by = "months", length = 6)  
[1] "2017-01-01" "2017-02-01" "2017-03-01" "2017-04-01"  
[5] "2017-05-01" "2017-06-01"
```

Sequences

Generating sequences of dates

Sequence by years

```
> seq(as.Date("2017-01-01"), by = "years",  
length = 6)
```

```
[1] "2017-01-01" "2018-01-01" "2019-01-01" "2020-01-01"  
[5] "2021-01-01" "2022-01-01"
```

R Console

```
> seq(as.Date("2017-01-01"), by = "years", length = 6)  
[1] "2017-01-01" "2018-01-01" "2019-01-01" "2020-01-01"  
[5] "2021-01-01" "2022-01-01"
```

Sequences

Generating sequences of dates

To find sequence with defining start and end dates

```
> startdate = as.Date("2016-1-1")
```

```
> enddate = as.Date("2017-1-1")
```

```
> out = seq(enddate, startdate, by = "-1 month")  
[1] "2017-01-01" "2016-12-01" "2016-11-01" "2016-10-01"  
[5] "2016-09-01" "2016-08-01" "2016-07-01" "2016-06-01"  
[9] "2016-05-01" "2016-04-01" "2016-03-01" "2016-02-01"  
[13] "2016-01-01"
```

Sequences

Generating sequences of dates

R Console

```
> startdate = as.Date("2016-1-1")
> enddate = as.Date("2017-1-1")
>
> out = seq(enddate, startdate, by = "-1 month")
> out
[1] "2017-01-01" "2016-12-01" "2016-11-01"
[4] "2016-10-01" "2016-09-01" "2016-08-01"
[7] "2016-07-01" "2016-06-01" "2016-05-01"
[10] "2016-04-01" "2016-03-01" "2016-02-01"
[13] "2016-01-01"
> |
```

Sequences

Generating sequences of alphabets

letters is used to find sequence of lowercase alphabets

```
> letters
```

```
[1] "a" "b" "c" "d" "e" "f" "g" "h" "i" "j" "k" "l" "m" "n"  
[15] "o" "p" "q" "r" "s" "t" "u" "v" "w" "x" "y" "z"
```

R Console

```
> letters  
[1] "a" "b" "c" "d" "e" "f" "g" "h" "i" "j" "k" "l" "m" "n"  
[15] "o" "p" "q" "r" "s" "t" "u" "v" "w" "x" "y" "z"
```

Sequences

Generating sequences of alphabets

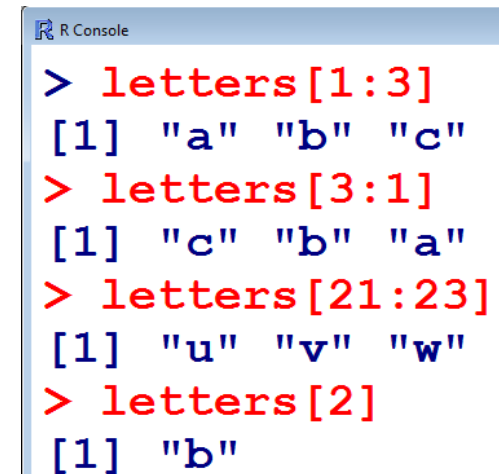
`letters[from_index:to_index]` is used to find sequence of lowercase alphabets from a particular index to a specified index.

```
> letters[1:3]  
[1] "a" "b" "c"
```

```
> letters[3:1]  
[1] "c" "b" "a"
```

```
> letters[21:23]  
[1] "u" "v" "w"
```

```
> letters[2]  
[1] "b"
```

A screenshot of an R console window showing the execution of several R commands. The commands and their outputs are: 1. > letters[1:3] returns [1] "a" "b" "c". 2. > letters[3:1] returns [1] "c" "b" "a". 3. > letters[21:23] returns [1] "u" "v" "w". 4. > letters[2] returns [1] "b".

```
R Console  
> letters[1:3]  
[1] "a" "b" "c"  
> letters[3:1]  
[1] "c" "b" "a"  
> letters[21:23]  
[1] "u" "v" "w"  
> letters[2]  
[1] "b"
```

Sequences

Generating sequences of alphabets

LETTERS is used to find sequence of uppercase alphabets

> LETTERS

```
[1] "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K" "L" "M" "N"  
[15] "O" "P" "Q" "R" "S" "T" "U" "V" "W" "X" "Y" "Z"
```

R Console

> LETTERS

```
[1] "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K" "L" "M" "N"  
[15] "O" "P" "Q" "R" "S" "T" "U" "V" "W" "X" "Y" "Z"
```

Sequences

Generating sequences of alphabets

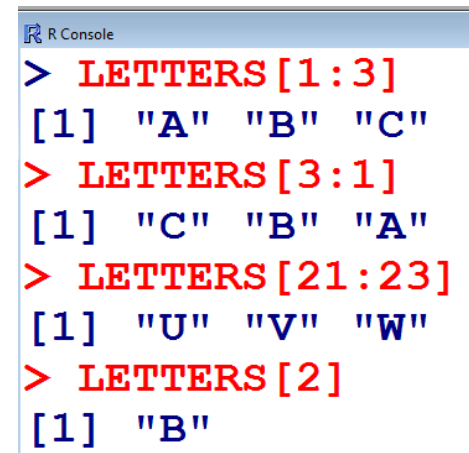
LETTERS[from_index:to_index] is used to find sequence of uppercase alphabets from a particular index to a specified index.

```
> LETTERS[1:3]  
[1] "A" "B" "C"
```

```
> LETTERS[3:1]  
[1] "C" "B" "A"
```

```
> LETTERS[21:23]  
[1] "U" "V" "W"
```

```
> LETTERS[2]  
[1] "B"
```

A screenshot of an R console window with a blue header bar containing the R logo and the text "R Console". The console displays a series of commands and their outputs in a monospaced font. The commands are color-coded: the prompt character ">" is blue, and the command text is red. The output text is blue.

```
> LETTERS[1:3]  
[1] "A" "B" "C"  
> LETTERS[3:1]  
[1] "C" "B" "A"  
> LETTERS[21:23]  
[1] "U" "V" "W"  
> LETTERS[2]  
[1] "B"
```