Chapter 2 The Very Basics

Hendra Bunyamin

17 December 2020

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Chapter 2 dari buku **Hands-on Programming with R**. Catatan ini merupakan bagian dari proyek 1: **Weighted Dice**.

2.3 Functions

`round` function is used to round a number.

```r
round(3.1415)
```

```
## [1] 3
```

`factorial` function is used to calculate the factorial of a number.

```r
factorial(3)
```

```
## [1] 6
```

`mean` function is used to compute the mean of number(s).

```r
mean(1:6)
```

```
## [1] 3.5
```

We can combine `round` and `mean` functions as follows:

```r
round(mean(1:6))
```

```
## [1] 4
```

The `sample` function is used to sample.

```r
die <- 1:6
sample(x = die, size=1)
```

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

`args` can be used to view the arguments of a function.

```r
args(round)
```

```
## function (x, digits = 0)
## NULL
```

```r
args(sample)
```

```
## function (x, size, replace = FALSE, prob = NULL)
## NULL
```

`round` method can be accompanied with `digits`, for example:

```r
round(3.1415, digits = 2)
```

```
## [1] 3.14
```

By **default**, the `sample` function is *without replacement*.

```r
sample(die, size=2)
```

```
## [1] 3 5
```

When we want to `sample` *with replacement*, we can set `replace=TRUE` as follows:

```r
sample(die, size=2, replace = TRUE)
```

```
## [1] 1 3
```

If you want to add up the dice, you can feed your result straight into the `sum` function:

```r
dice <- sample(die, size=2, replace = TRUE)
dice
```

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

```r
sum(dice)
```

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

```r
die <- 1:6
```

2.4 Writing Your Own Functions

We are going to write a function which returns the sum of rolling two dice.
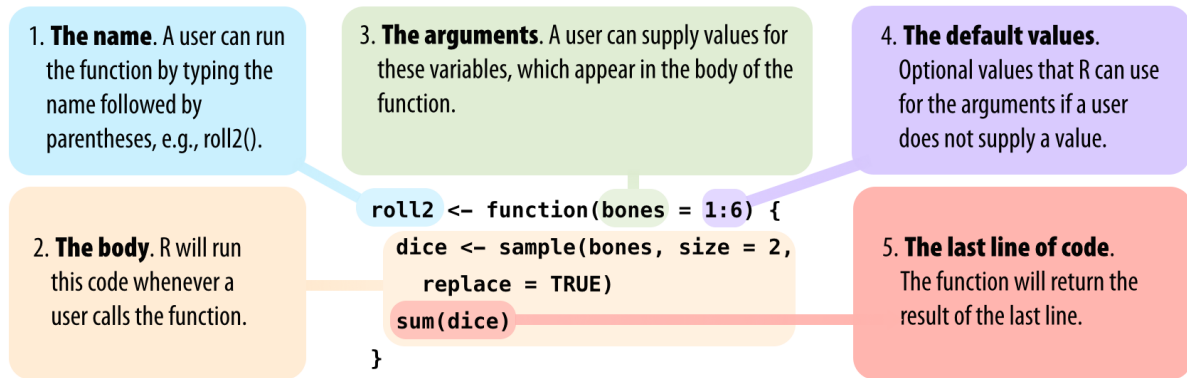
```r
roll <- function(){
  die <- 1:6
  dice <- sample(die, size=2, replace = TRUE)
  sum(dice)
}
result <-  roll()
result
```

```
## [1] 6
```

When you run a function in R, R will execute all of the code in the body and then return **the result of the last line of code**.

2.4.1 The Function Constructor

2.5 Arguments

1. **The name**. A user can run the function by typing the name followed by parentheses, e.g., roll2().

3. **The arguments**. A user can supply values for these variables, which appear in the body of the function.

4. **The default values**. Optional values that R can use for the arguments if a user does not supply a value.

2. **The body**. R will run this code whenever a user calls the function.

```
roll2 <- function(bones = 1:6) {
  dice <- sample(bones, size = 2,
    replace = TRUE)
  sum(dice)
}
```

5. **The last line of code**. The function will return the result of the last line.

2.6 Scripts