

# Chapter 1

## Package installation and help resources

### 1.1 Package installation

Packages in R are modular, small pieces of software that can be loaded on demand. They extend the functionality of R, and there is thousands of packages that greatly enhance R's capabilities. To install a package: In the RStudio menu click on **Tools->Install package**, write '*packagename*' into the empty field and click **Install**. To load a package: Write `library('packagename')` at the beginning of the script.

### 1.2 Help resources

#### 1.2.1 ?

R and its packages come in general with easily accessible, high quality documentation and help texts on how to use functions. The easiest way to access the help text for a function is to type `?` followed by the name of the function. For example, the help text for the *sum* function:

```
?sum
```

Now, the help text will appear in the help tab on the right hand side (Figure ??). The text is structured into the following sections:

**Description:** Short oral description of what the functions does. **Usage:** The function and all its arguments in paranthesis. **Arguments:** A list of the arguments, each described in short. **Details:** A detailed description of what the function does and the exact behaviour. **Value:** What the function will return. **References:** Literature references that describe the methods used in the function. This is mainly relevant for complex statistical functions, such as those that run regressions. **See Also:** Other functions that are similar and maybe useful. **Examples:** Some examples on how the function can be used.

The `?` function is easiest place to check on how to use a specific function.

#### 1.2.2 Vignettes

Vignettes are more detailed documents that describe the functionality in packages. Type `browseVignettes()` to get open a list of all installed vignettes.

```
browseVignettes()
```

Vignettes can give a good idea of how the functionality, that is provided by packages, is supposed to be used. For a specific purpose, they describe what functions to use when and in what order.

### 1.2.3 Internet

The internet is the single most useful source for information on how to work with R. Google can be used to search for specific question or error messages, and chances are that results from Stackoverflow appear prominent in Google's results. Stackoverflow is a website where users asks questions and other users reply to them. Often someone already posted a solution on Stackoverflow for the same problem that might occur for you.

THE CRAN website (<https://cran.r-project.org/>) is the place from where all official R packages are distributed. Useful there may be the *Task Views* that categorize packages according to subjects, and give a short description what a package does.

Some of the bigger packages my have their own website, for example <https://www.tidyverse.org>. A lot of packages nowadays also have a github repository with helpful resource.