

# Packages

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# Packages

- **package**: user-written R code and functions to solve a specific problem
- Packages are submitted to **CRAN** (official repository for R packages)
- R has a huge number of external packages (>= 17,000 on CRAN)
- Browse packages at [r-pkg.org](https://r-pkg.org)

# Popular Packages

Package	Usage	Documentation
dplyr	Data management	<a href="#">dplyr</a>
ggplot2	Data visualization	<a href="#">ggplot2</a>
stringr	Working with string (text) data	<a href="#">stringr</a>
forcats	Working with categorical variables	<a href="#">forcats</a>
lubridate	Working with date and time data	<a href="#">lubridate</a>
tidymodels	A collection of packages for modeling and machine learning	<a href="#">tidymodels</a>
shiny	Build dashboards and interactive data products	<a href="#">shiny</a>

# Installing packages

- Install a package with  
`install.packages("package_name")`
- Normally, package installation is done once
- You can update a package within the Packages pane in RStudio or with `update.packages()`

```
install.packages("dplyr")
```

# Loading packages

- We can use the functions in a package by loading a package into our environment
- Load a package with `library("package_name")`

```
library(dplyr)
```

# Using functions from a package

- After loading a package into your environment, you can use the functions in the package
- You can use functions from a package just as usual: `function_name(arg1 = val1, arg2 = val2, ...)`

```
library(dplyr)

df <- data.frame(a = c(1,2,3),
                 b = c(4,5,6),
                 c = c(7,8,9))

# select columns from a data frame
select(df, a, c)
#>   a c
#> 1 1 7
#> 2 2 8
#> 3 3 9
```

# Using functions from a package

- Alternatively, use the `package_name::package_function()` syntax to be explicit which function the package belongs to

```
library(dplyr)
df <- data.frame(a = c(1,2,3),
                 b = c(4,5,6),
                 c = c(7,8,9))

# select columns from a data frame
dplyr::select(df, a, c)
#>   a c
#> 1 1 7
#> 2 2 8
#> 3 3 9
```