

HOPR

R Packages and Help Pages

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Recap

Object

```
a <- 1
```

```
a
```

```
## 1
```

```
a + 2
```

```
## 3
```

Function

```
round(3.1415)
```

```
## 3
```

```
factorial(3)
```

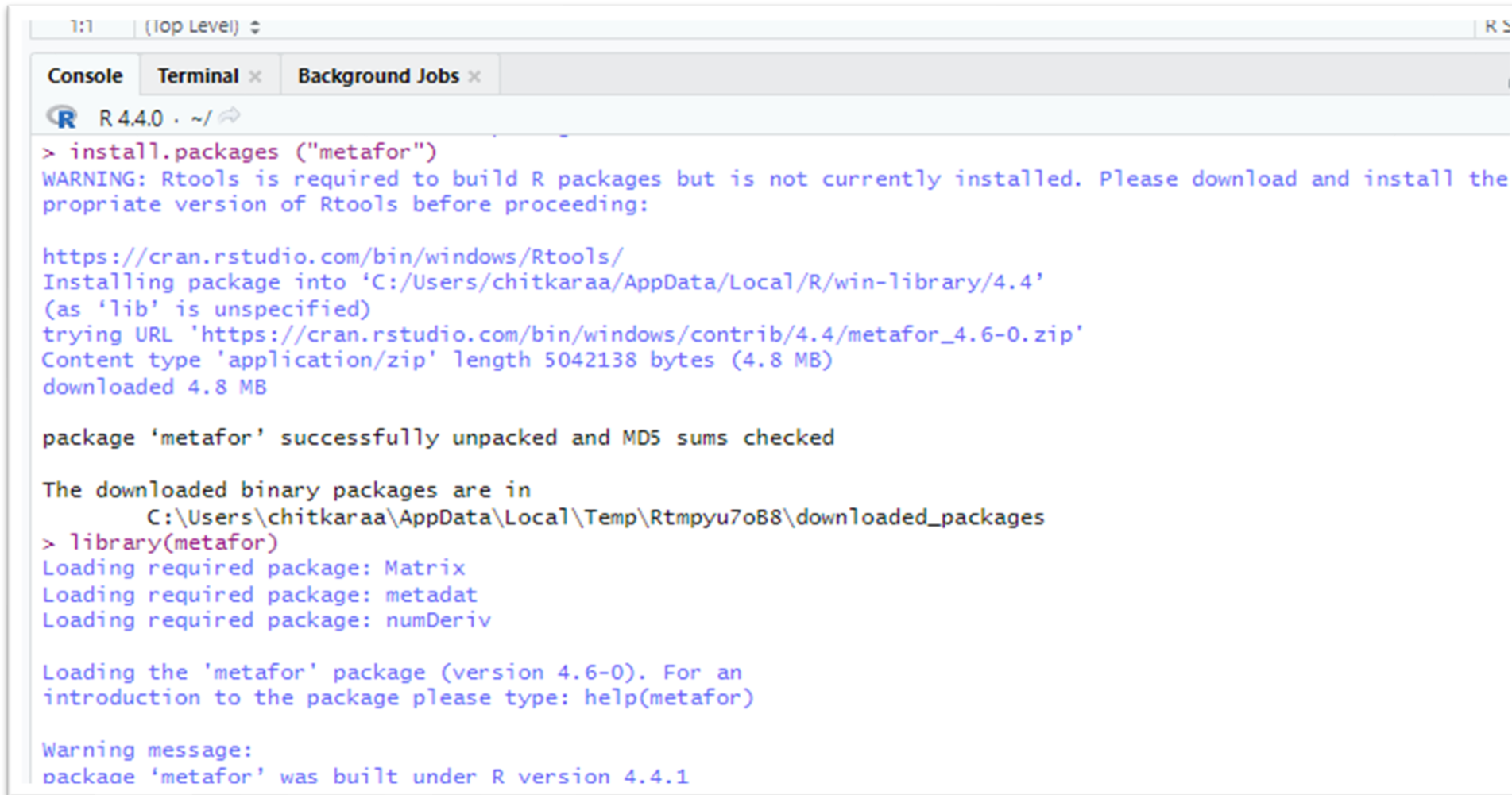
```
## 6
```

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

```
## 3.5
```

R packages

- Preassembled collections of functions and objects.
- Installation and loading of packages



```
1:1 (top Level) R 4.4.0
Console Terminal x Background Jobs x
R 4.4.0 . ~/
> install.packages ("metafor")
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the
proprate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/
Installing package into 'C:/Users/chitkaraa/AppData/Local/R/win-library/4.4'
(as 'lib' is unspecified)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.4/metafor_4.6-0.zip'
Content type 'application/zip' length 5042138 bytes (4.8 MB)
downloaded 4.8 MB

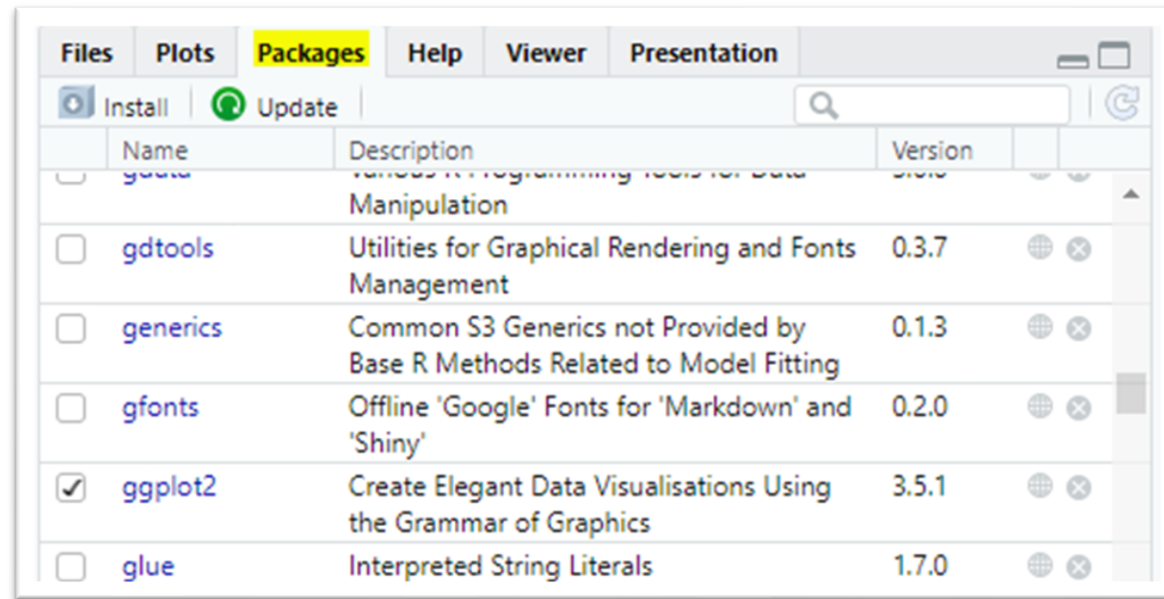
package 'metafor' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\chitkaraa\AppData\Local\Temp\Rtmpyu7oB8\downloaded_packages
> library(metafor)
Loading required package: Matrix
Loading required package: metadat
Loading required package: numDeriv

Loading the 'metafor' package (version 4.6-0). For an
introduction to the package please type: help(metafor)

Warning message:
package 'metafor' was built under R version 4.4.1
```

R packages



```
qplot  
## Error: object 'qplot' not found
```

Now load the ggplot2 package:

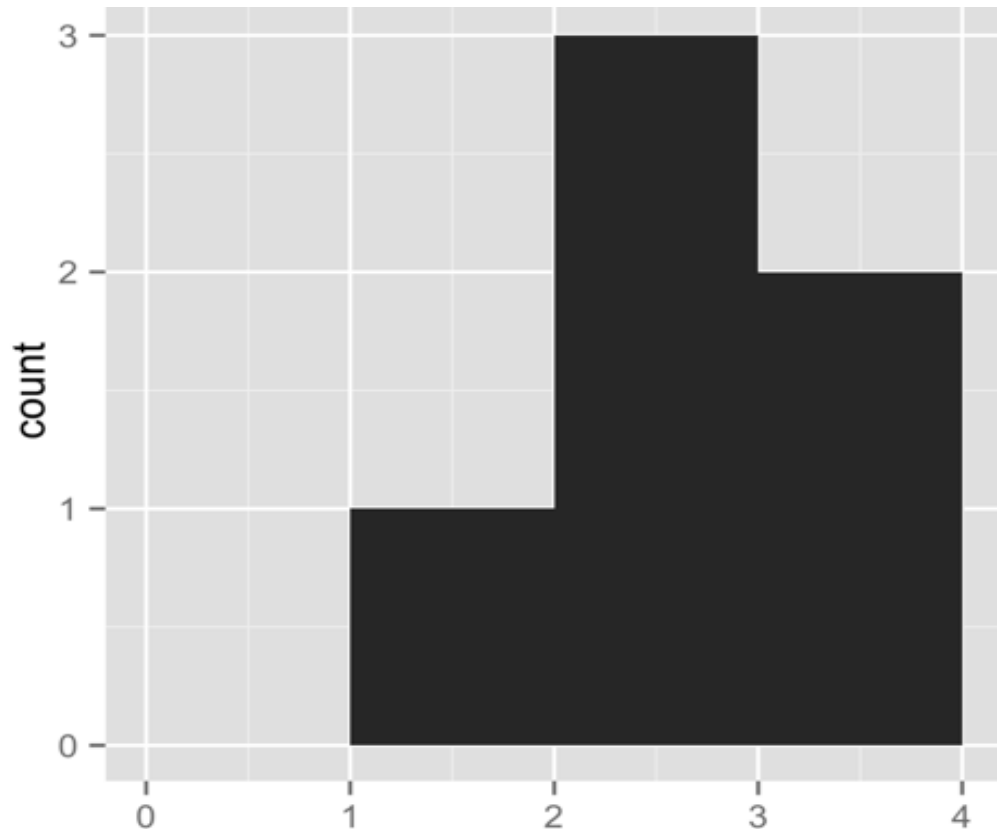
```
library("ggplot2")  
  
qplot  
## (quite a bit of code)
```

- Install a package - only once
- Load an installed package using library function – each time you wish to use it in a new R session

Quick plots and Replicate function

- `qplot()` function in `ggplot2` – for quick plots
- `Hist()`, `geom_hist()` functions in `ggplot2`

```
x <- c(1, 2, 2, 2, 3, 3)
qplot(x, binwidth = 1)
```



- Replicate function – To repeat an R command multiple times

```
> args(replicate)
function (n, expr, simplify = "array")
NULL
> |
```

```
replicate(3, 1 + 1)
```

```
## 2 2 2
```

```
replicate(10, roll())
```

```
## 3 7 5 3 6 2 3 8 11 7
```

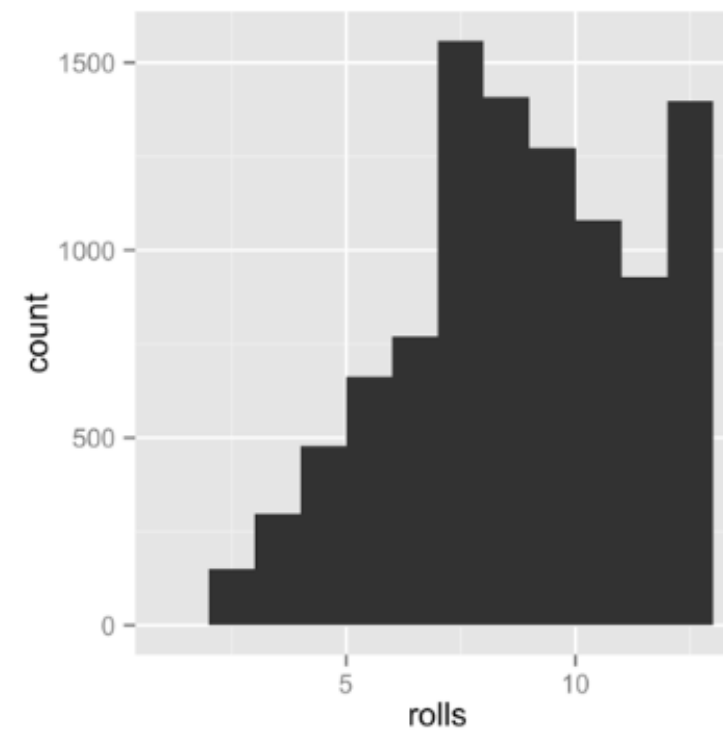
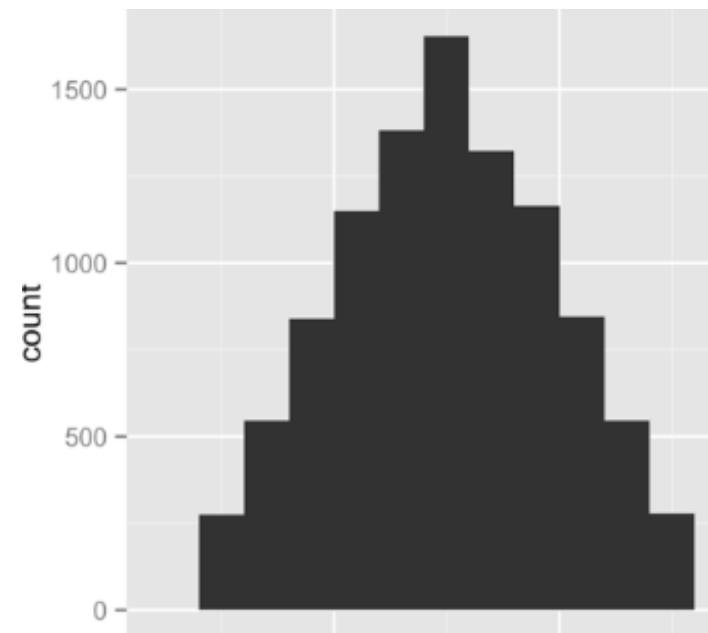
Quick plots and Replicate function

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

```
rolls <- replicate(10000, roll())
qplot(rolls, binwidth = 1)
```

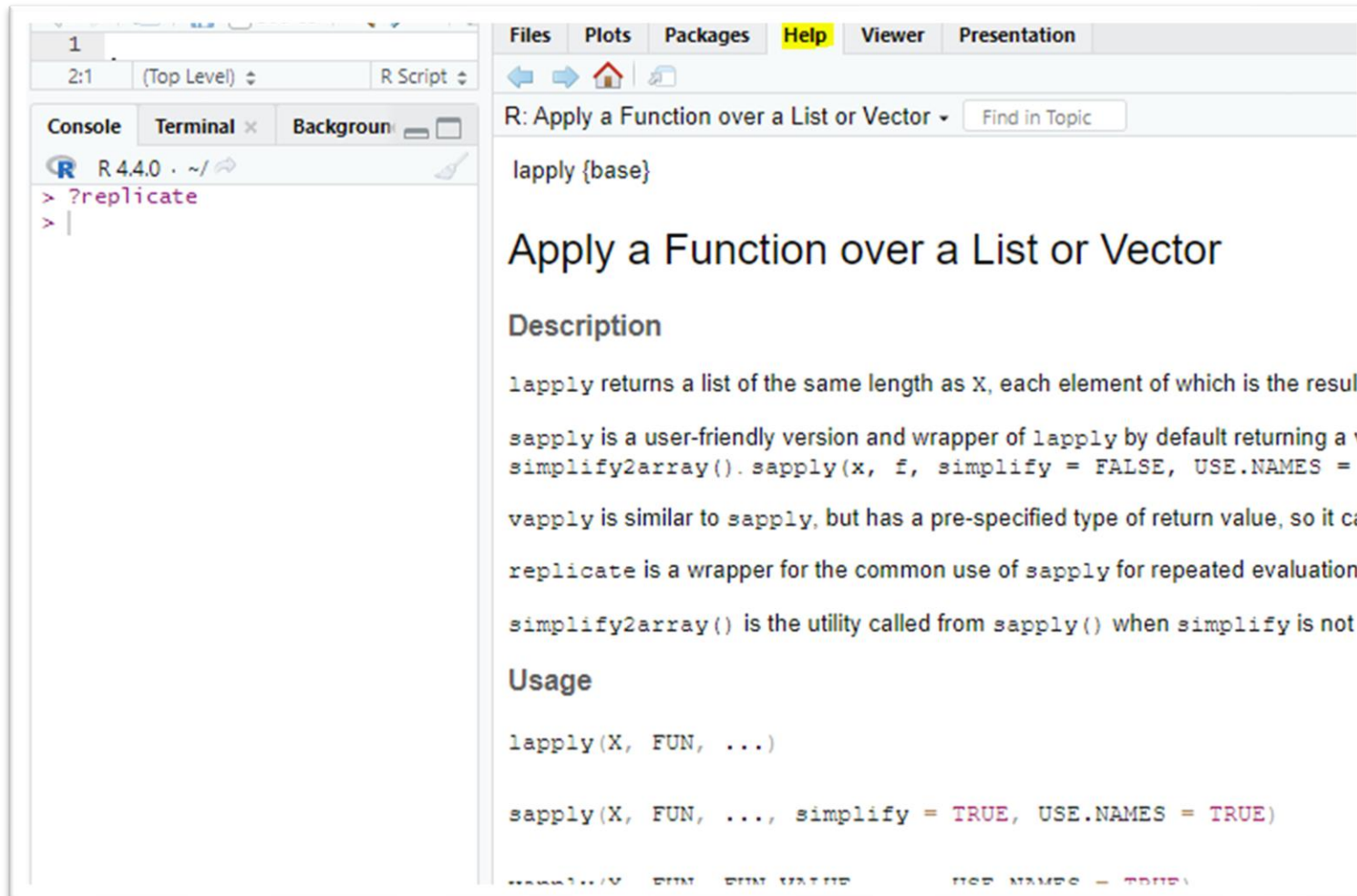
```
roll <- function() {
  die <- 1:6
  dice <- sample(die, size = 2, replace = TRUE,
    prob = c(1/8, 1/8, 1/8, 1/8, 1/8, 3/8))
  sum(dice)
}
```

```
rolls <- replicate(10000, roll())
qplot(rolls, binwidth = 1)
```



Help in R

- “?” before the function name. *R won't be able to find its help page unless the package is loaded.*
- “??” if you have forgotten the function name.



Other resources

- <http://community.rstudio.com/>
- <https://stackoverflow.com/>
- <https://stats.oarc.ucla.edu/r/>
- Book: Hands-On Programming with R by Garrett Grolemund