Writing R functions

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Statistical Modeling in R
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Outline

Functions
arguments, function body, output, coding style

Objects
atomic elements, arrays, composite objects, class

Control flow
if, for, apply

Documentation
header comments, roxygen, help pages

Anatomy of a function

```
## Comment header
twice <- function(x)
{
  out <- 2 * x
  out
}
```

Arguments, function body, output, scope, coding style

Objects in R

Atomic

integer

numeric (double)

character

logical

Arrays

vector

matrix

array

Composite

list

data.frame

special class

if

If construct

```
if (cond) {
  ...
}


if (cond) {
  ...
}
else {
  ...
}
```

Conditions

```
pi == 3
pi != 3
pi < 3
pi <= 3

A && B
A || B
!A

is.na
is.null
```

for, apply

For loops

```
for (i in 1:10) {
  ...
}
```

Apply

```
apply(tab, 2, mean)

sapply(list, mean)

tapply(vec, grp, mean)

aggregate(vec ~ grp, mean)
```

Documentation

Header comments

```
## Purpose
## Input
## Output
foo <- function(...)
```

Roxygen comments

```
#' Title
#' Description
#' @param
#' @return
#' @examples
foo <- function(...)
```

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