Cheatography

# R Programming Cheat Sheet

by Ann Santhosh via cheatography.com/67113/cs/16795/

## Utility Functions

| | |
|---|---|
| **getwd()** | Find the working dir. |
| **setwd("C:/file/path")** | Set the working dir. |
| **ls()** | List variables |
| **rm(object)** | Delete object |
| **str(object)** | Displays internal structure of R object |
| **help.start()** | Launch help console |
| **install.packages("package_name")** | Install package |
| **library(package_name)** | Load package |
| **detach(package:package_name)** | Remove package |
| **scan()** | Read data values |

## Lists

| | |
|---|---|
| **list(x=1:5, y=c('a', 'b'))** | Create list |
| **is.list()** Check if the arg is a list | **as.list()** Force the arg to list |

**lapply(list_name, function)**
Apply function over a list and return as list

**sapply(list_name, function)**
Return as suitable data structure(vector)

## Strings

| | |
|---|---|
| **c("String1","String2")** | Create a string vector |
| **toString(x)** | Convert to string |
| **noqutoe(string)** | Print string w/o quote |
| **sprintf()** | Print text & var values |
| **cat()** | Concatenate & print |
| **toupper(string)** | Convert to uppercase |
| **tolower(string)** | Convert to lowercase |
| **substr(string,n,m)** | Extract substrings in a string from n to m |
| **strsplit(string," ")** | Split elements of string |
| **paste(c("a","b"),"c")** Concatenate vectors | **paste0(c("a","b"),"c")** Concat w/o separator |

## Probability Distributions

| | |
|---|---|
| **rbinom(n, size, prob)** | Binomial |
| **rpois(n, lambda)** | Poisson |
| **runif(n, min=0, max=1)** | Uniform |
| **rnorm(n, mean=0, sd=1)** | Normal |
| **rexp(n, rate=1)** | Exponential |

## Vectors

| | |
|---|---|
| **c(2, 4, 6)** | Numeric vector |
| **c("one","two","thr")** | Character vector |
| **c(TRUE,FALSE)** | Logical vector |
| **rep(1:2,times=3)** | Repeat a vector |
| **rep(1:2,each=3)** | Repeat the elements |
| **which.min()** Index of the min | **which.max()** Index of the max |

## Data Frames

| | |
|---|---|
| **data.frame(x=1:2, y=c('a', 'b'))** | Create data frame |
| **View(df_name)** | See full dataframe |
| **head(df_name)** | See first 6 rows |
| **tail(df_name)** | See last 6 rows |
| **df_name[cond, ]** | Row filter |
| **df_name[c("column")]** | Column filter |

**df_name[cond1, ][ ,cond2]**
Row and Column filter

## Functions

```
function_name <- function(var){
Do something
return(new_variable)}
```

**args(function_name)** - Arguments of func
**body(function_name)** - Body of func

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## Flow Control

**If Statement -**

```
if (condition){
Do something
} else {
Do something different}
```

---

**Ifelse Statement -**

```
ifelse(condition, Do something, Do something different)
```

---

**Switch Statement -**

```
switch("beta","alpha=1,beta=2,gamma=3,4)
```

## Loops

**For Loop -**

```
for (var in sequence){Do something}
```

**While Loop -**

```
while (condition){ Do something}
```

## Visualizations

| | | |
|---|---|---|
| barplot() | plot() | qqnorm() |
| pie() | plot(density()) | qplot() |
| mosaicplot() | pairs() | boxplot() |
| hist() | matplot() | ggplot() |

## Arrays

**array(1:24, dim=c(4,3,2), dimnames=.....)**

Create array with 4 rows, 3 cols and 2 groups

## Matrices

**m1 <- matrix(1:12, now=4, ncol=3, dimnames=....)**

Create a matrix with 4 rows and 3 columns

| | |
|---|---|
| **t(m)** | Transpose of matrix |
| **rbind(m1,m2)** Combine by row | **cbind(m1,m2)** Combine by column |

*The following applies to arrays also:*

| | | |
|---|---|---|
| **dimnames(m)** | **dim(m)** | **colnames(m)** |
| **rownames(m)** | **nrow(m)** | **ncol(m)** |

## Descriptive Statistics

| | |
|---|---|
| **summary(object)** | Summary of object |
| **class(object)** | Find class of an R object |
| **length(object)** | Get length of an object |
| **quantile(x)** | Find quantiles |
| **rowMeans(x)/ colMeans(x)** | **rowSums(x)/ colSums(x)** |
| **table(x)** | Build a contingency table |
| **describe(object)** | Description of object |
| **subset(x,cond)** | Create subsets |

## Hypothesis Testing

**t.test(data, mu=3)**

One sample two-sided t-test

**t.test(data, mu=3, alternative='greater')**

One sample one-sided t-test

**t.test(data1, data2, mu=0.5)**

Two sample two-sided t-test

**t.test(data1, data2, mu=0.5, alternative='less')**

Two sample one-sided t-test

**t.test(post_data, pre_data, paired=TRUE)**

Paired test

**wilcox.test(data, mu=8, alt='less')**

Wilcoxen test

| | |
|---|---|
| **cor.test(data1, data2)** Correlation test | **chisq.test(data)** Chi-square test |
| **ks.test(data1, data2)** If both are frm same distn | **shapiro.test(data)** Normality test |
| **aov(data1~ data2)** ANOVA | **lm(data1~ data2)** Regression |

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