R

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Vectors of numbers and defining variables

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1.1.1 Introduction

1.1.2 Filter

Filter()

subsetting vectors eg x[!is.na(x)].

slices

1.1.3 Reduce and length

Reduce()

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1.1.4 Map

Map()

1.1.5 Type checking

is.[x]

typeof

1.1.6 Random numbers

random numbers

set.seed

1.1.7 Sorting vectors

1.1.8 Factors on vectors

factors in r: ordered, unordered

1.1.9 Casting between types

as.name

as.[x]

1.1.10 Defining variables

c function is concatenate

```
a =  c(1, 2, 3)
a <- c(1, 2, 3)
```

defining using eg 1L to get variable types

nested vector just a vector

```
y <- c(  1, 2 , 3)
y <- c(c(1, 2), 3)
```

y ¡- c(x, 1).

complex numbers, other number types in r

getting sequences, 1:30 etc

seq() function rep() function

1.1.11 Using variables on the right hand side

is R copy on write? what happens if you set y = x? copies or just two pointers?

```
a <- c(1, 2, 3)
b <- c(a, 1)
```

```
a <- c(1, 2, 3)
b <- a + 1
```

1.1.12 Substituting by conditions

substituting by conditions. eg

```
y[y<0]<-0
```

1.1.13 Arithmetic

1.1.14 Logic

and or in R

1.1.15 SORT

what happens when make anything? all on heap with variable just being pointer?

infinity in R

inf eg 1/0 (-inf?)

+ most simple is a vector + arithmetic page: * does stuff for each entry in vector eg x + 2 * summary stuf for vector. sum, min, max, len etc + null, na etc in R + nan

+ see what name points to: * eg if x ¡- c(1,2,3) * y ¡- x * addresses are same * if modify, addresses are different * only creates copy when needs to * aka copy on modify * r objects generally immutable * tra

overflows of numbers in r. eg what happens if int gets too big

dates and times in base R (other data types, int log etc)

Chapter 2

Matrices and linear algebra

2.1 Introduction

2.1.1 Introduction

t(v) to transpose

matrix function

matrix(1, nrow=3, nrow=2)

matrix(c(1,2,3,4,5,6),nrow=2)

invert M by solve(M)

mmult with

```
A %*% M
A %*% v
```

dim() on matrix?

Chapter 3

Vectors of strings

3.1 Introduction

3.1.1 Introduction

lists(vector?) of chars: global string pool

string stuff. paste function

grepl

r: paste, paste0

r strip string

Chapter 4

Lists

4.1 Introduction

4.1.1 Introduction

lists in r need not be same type.

lists stores references to values, not values

get bits of it using

```
my_list$n
or my_list[["n"]]
```

unlist

names function on lists?

Chapter 5

Control flow

5.1 Introduction

5.1.1 Introduction

warning about for loops. very slow

Chapter 6

Functions

6.1 Introduction

6.1.1 Introduction

creating functions in R.

default values

when passing functions in R, pass reference? if change in function, points to something else

pointers and side effects of functions in R (when pass lists etc? vectors? df? dt?)

passing arrays to functions. what is passed? reference ot first? length separately?

Part II

Dataframes

Chapter 7

Dataframes

7.1 Introduction

7.1.1 Introduction

head

reshape

names function:

+ how to rename + can also be applies to list/vector?

as.data.frame

data.frame function

names()? is this list instead?

sort dataframe by cols

merge

cbind/rbind

dim() on dataframe

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Part IV

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8.1.1 Introduction

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Part VI

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