Worksheet 1 in R

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1. Set up a vector named age

age <- c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25, 17, 37, 42, 53, 41, 51, 35, 24, 33, 41)

a. How many data points?

length(age) # Output: 34

2. Find the reciprocal of the values for age

reciprocalage <- 1 / age reciprocalage # Output: A vector of reciprocals

3. Assign new_age

newage <- c(age, 0, age) newage # Output: A vector containing age, 0, and age again

4. Sort the values for age

sortedage <- sort(age) sortedage # Output: Sorted age values

5. Find the minimum and maximum value for age

minage <- min(age) maxage <- max(age) minage # Output: Minimum age value maxage # Output: Maximum age value

6. Set up a vector named data

data <- c(2.4, 2.8, 2.1, 2.5, 2.4, 2.2, 2.5, 2.3, 2.5, 2.3, 2.4, 2.7)

a. How many data points?

length(data) # Output: 12

7. Generates a new vector for data where you double every value

doubleddata <- data * 2 doubleddata # Output: A vector with doubled values of data

8. Generate sequences

seq1to100 <- seq(1, 100) # 8.1 Integers from 1 to 100 seq20to60 <- seq(20, 60) # 8.2 Numbers from 20 to 60 mean20to60 <- mean(seq(20, 60)) # 8.3 Mean of numbers from 20 to 60 sum51to91 <- sum(seq(51, 91)) # 8.4 Sum of numbers from 51 to 91

a. How many data points?

length(seq1to100) # Output: 100 length(seq20to60) # Output: 41 length(sum51to91) # Output: 41

b. Output of sequences

seq1to100 seq20to60 mean20to60 sum51to91

8.5 Maximum data points until 10

seq1to100max10 <- seq(1, 10) seq1to100max10 # Output: Integers from 1 to 10

9. Print a vector with integers not divisible by 3, 5, or 7

notdivisible <- Filter(function(i) { all(i %% c(3, 5, 7) != 0) }, seq(1, 100)) notdivisible # Output: A vector of filtered integers

10. Generate a sequence backwards of the integers from 1 to 100

backwardseq <- seq(100, 1) backwardseq # Output: A vector counting backward

11. List multiples of 3 or 5 below 25 and find the sum

multiples3or5 <- Filter(function(x) x %% 3 == 0 | x %% 5 == 0, seq(1, 24)) summultiples <- sum(multiples3or5) multiples3or5 # Output: A vector of multiples summultiples # Output: Sum of multiples

a. How many data points?

length(multiples3or5) # Output: Number of multiples

12. Enter the statement and describe the output

x <- {0 + x + 5 + }

Output: An error occurs because x is not defined.

13. Set up a vector named score

score <- c(72, 86, 92, 63, 88, 89, 91, 92, 75, 75, 77) x2 <- score[2] # Output: 86 x3 <- score[3] # Output: 92 x2 x3

14. Create a vector with NA

a <- c(1, 2, NA, 4, NA, 6, 7) # a. Change NA to 999 print(a, na.print="-999") # Output: Vector with -999 instead of NA

15. Special function call

name <- readline(prompt="Input your name:") age <- readline(prompt="Input your age:") print(paste("My name is", name, "and I am", age, "years old.")) print(R.version.string) # Output: R version information