R code for Data Science for Beginners Day 2: Exercises ## Univeristy of Essex ## Author: Jack Jeffrey

Task 1. if. . . else function

Mary and John's family seating for movie

movies_seats <- 1:10 for (seat in movies_seats) { if (seat >= 1 && seat<= 5) { message(paste("seat", seat, "is assigned to Mary's family.")) } else if (seat >= 6 && seat <= 10) { message(paste("seat", seat, "is assigned to John's family.")) } } # movie seats have been assigned

Task 1-2.

Mixing up the family members

for (seat in movies_seats) { if (seat >= 1 && seat <= 5) { # for seats 1-5, alternate between Mary and John's family if (seat %% 2 == 1) { message(paste("seat", seat, "is assigned to Mary's family.")) } else { message(paste("seat", seat, "is assigned to John's family.")) } } else if (seat >= 6 && seat <= 10) { # for seats 6-10, alternate between John's and Mary's family if (seat %% 2 == 0) { message(paste("seat", seat, "is assigned to John's family.")) } else { message(paste("seat", seat, "is assigned to Mary's family.")) } } } # family members successfully mixed together

Task 2. loop

2-1. Printing Years from 2012 - 2022

years <- 2012:2022 for (year in years) { message(paste("year", year)) } # years from 2012 to 2022 successfully printed

2-2. Loop with complete sentence

for (year in years) { sentence <- paste("the year is", year) message(paste(sentence)) } # sentences successfully printed

2-3. Exclude 2020 and 2021 due to COVID-19

for (year in years) { #skip the years 2020 and 2021 if (year == 2020 || year == 2021) { next } sentence <- paste("The year is", year) message(paste(sentence)) } # successfully excluded the COVID-19 years from the loop

Task 3. functions

Define the function

add_ten <- function(x) { result <- x + 10 return(result) }

result <- add_ten(5) print(result)
# Should output 15

created function that always adds 10

add_ten(3) add_ten(10) # function works properly # 3.2 find missing values within a vector identify_missing_values <- function(vector) { missing_indices <- which(is.na(vector)) if (length(missing_indices) == 0) { message(paste("there are no missing values in the vector.")) } else { for (index in missing_indices) { message(paste("missing values found at position", index, "in the vector.")) } } } # set up if else function to identify missing values vector <- c(1,NA, 3, NA)
# created vector containing missing values identify_missing_values(vector) # missing values found at position 2 and position 4