> x <- -3

>

> if (x>0) {

+ print("x is positive")

+ } else{

+ print("x is not positive")

+ }

[1] "x is not positive"

> x <- 0

> if (x > 0){

+ print("x is positive")

+ } else if (x < 0){

+ print("x is negative")

+ } else {

+ print("x is zero")

+ }

[1] "x is zero"

> x <- c(1,3,0,5,99)

> ifelse(x>90, "Yes", "No")

[1] "No" "No" "No" "No" "Yes"

> ## Vectorized version ####

>

> x <- c(1,3,0,5,99)

> ifelse(x>90, "Yes", "No")

[1] "No" "No" "No" "No" "Yes"

> x <- c(1,3,0,5,99)

> ifelse(x>90, "Yes", "No")

[1] "No" "No" "No" "No" "Yes"

> ifelse(x>90, "Yes", ifelse(x==0, "zero", "No"))

[1] "No" "No" "zero" "No" "Yes"

> operation <- "square"

> val <- 9

>

> switch(operation,

+ "square" = val^2,

+ "root" = sqrt(val),

+ "Invalid operation"

+ )

[1] 81

> operation <- "root"

> val <- 9

>

> switch(operation,

+ "square" = val^2,

+ "root" = sqrt(val),

+ "Invalid operation"

+ )

[1] 3

> operation <- "dot"

> val <- 9

>

> switch(operation,

+ "square" = val^2,

+ "root" = sqrt(val),

+ "Invalid operation"

+ )

[1] "Invalid operation"

> numbers <- c(2,4,6,8)

> for (i in numbers){

+ print(paste("square of", i, "is", i^2))

+ }

[1] "square of 2 is 4"

[1] "square of 4 is 16"

[1] "square of 6 is 36"

[1] "square of 8 is 64"

> ## while loop ####

>

> count <- 5

> while (count > 0) {

+ print(count)

+ count <- count - 1

+ }

[1] 5

[1] 4

[1] 3

[1] 2

[1] 1

> repeat{

+ print("This is an infinite loop. Press ESC to stop.")

+ Sys.sleep(1)

+ }

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."

> # stop when counter exceeds 5

> counter <- 1

> repeat {

+ print(counter)

+ counter <- counter + 1

+ if (counter > 5){

+ break

+ }

+ }

[1] 1

[1] 2

[1] 3

[1] 4

[1] 5

> #alternative way

> cumsum(1:10)

[1] 1 3 6 10 15 21 28 36 45 55

> # user input

>

> readline()

[1] ""

> x <- as.interger(readline("Enter your number"))

Error in as.interger(readline("Enter your number")) :

could not find function "as.interger"

> # Corrected code

> x <- as.integer(readline("Enter your number: "))

Enter your number: repeat {

Warning message:

NAs introduced by coercion

> input <- as.integer(readline(prompt = "Enter a number between 1 and 10: "))

Enter a number between 1 and 10: if (!is.na(input) && input >= 1 && input <= 10) {

Warning message:

NAs introduced by coercion

> print(paste("You entered:", input))

[1] "You entered: NA"

> break

Error: no loop for break/next, jumping to top level

> ## Apply functions ####

> mat <- matrix(1:9, nrow = 3, byrow = TRUE)

> mat

[,1] [,2] [,3]

[1,] 1 2 3

[2,] 4 5 6

[3,] 7 8 9

> sum(mat)

[1] 45

> apply(mat, 1, sum) # Sum of each row

[1] 6 15 24

> apply(mat, 2, sum) # Sum of each column

[1] 12 15 18

>

> rowsum <- numeric(3)

> rowsum

[1] 0 0 0

>

> for (i in 1:nrow(mat)) {

+ rowsum[i] <- sum(mat[i, ])

+ }

> rowSums <- numeric(3)

> # tapply performs operations on subsets of the object of interest

> df <- data.frame(age = c(22, 20, 24, 19, 23),

+ gender = c("M", "M", "F", "M", "F"),

+ location = c("Rural", "Urban", "Urban", "Rural", "Rural"),

+ stringsAsFactors = TRUE)

>

> df

age gender location

1 22 M Rural

2 20 M Urban

3 24 F Urban

4 19 M Rural

5 23 F Rural

>

> tapply(X = df$age, INDEX = df$gender, FUN = mean)

F M

23.50000 20.33333

> tapply(X = df$age, INDEX = list(df$gender, df$location), FUN = mean)

Rural Urban

F 23.0 24

M 20.5 20

> ## tapply performs operations on subsets of the object of interest

> df <- data.frame(age = c(22, 20, ,NA,24, 19, 23),

+ gender = c("M", "M", "F", "M", "F"),

+ location = c("Rural", "Urban", "Urban", "Rural", "Rural"),

+ stringsAsFactors = TRUE)

Error in c(22, 20, , NA, 24, 19, 23) : argument 3 is empty

> ls3 <- list(id = c(1,2,3), age = c(24,23,19), df = df1)

Error: object 'df1' not found

> source("D:/RProgramming/Class4/Class4(inclass).R")

[1] "Hello"

[1] "Hello"

[1] "Hello"

[1] "x is not positive"

[1] "x is zero"

[1] "x is negative"

[1] "square of 2 is 4"

[1] "square of 4 is 16"

[1] "square of 6 is 36"

[1] "square of 8 is 64"

[1] 5

[1] 4

[1] 3

[1] 2

[1] 1

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."

[1] "This is an infinite loop. Press ESC to stop."