21BDS0340

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Exploratory Data Analysis Lab

Practice Problem Set – I

**Experiment 1**

Code:

# branching with if

x = 5

if (x == 5) {

print("x is greater than 5")

}

Output:

[1] "x is greater than 5"

Code:

# branching with if... else

x = 2

if (x > 3) {

print("x is greater than 3")

} else {

print("x is less than or equal to 3")

}

Output:

[1] "x is less than or equal to 3"

Code:

# branching with if... else if... else

x = 3

if (x > 3) {

print("x is greater than 3")

} else if (x < 3) {

print("x is less than 3")

} else {

print("x is equal to 3")

}

Output:

[1] "x is equal to 3"

Code:

# looping with range

for (i in 1:5) {

print(i)

}

Output:

[1] 1

[1] 2

[1] 3

[1] 4

[1] 5

Code:

# looping through elements

names = c("abhinav", "tanush", "dinesh", "sumathi")

for (name in names) {

print(name)

}

Output:

[1] "abhinav"

[1] "tanush"

[1] "dinesh"

[1] "sumathi"

Code:

# while loop

x = 0

while (x < 5) {

print(x)

x = x + 1

}

Output:

[1] 0

[1] 1

[1] 2

[1] 3

[1] 4

Code:

# repeat loop

x = 1

repeat {

print(x)

if (x >= 5) {

break

}

x = x + 1

}

Output:

[1] 1

[1] 2

[1] 3

[1] 4

[1] 5

Code:

# branching and looping combo

for (x in 0:10) {

if (x %% 2 == 0) {

print(paste(x, "is even"))

} else {

print(paste(x, "is odd"))

}

}

Output:

[1] "0 is even"

[1] "1 is odd"

[1] "2 is even"

[1] "3 is odd"

[1] "4 is even"

[1] "5 is odd"

[1] "6 is even"

[1] "7 is odd"

[1] "8 is even"

[1] "9 is odd"

[1] "10 is even"

**Experiment 2**

Code:

# vectors

num\_vec = c(1:5)

char\_vec = c("a", "b", "c")

logi\_vec = c(TRUE, FALSE, TRUE)

print(num\_vec)

print(num\_vec[2])

print(char\_vec)

print(char\_vec[3])

print(logi\_vec)

Output:

> # vectors

> num\_vec = c(1:5)

> char\_vec = c("a", "b", "c")

> logi\_vec = c(TRUE, FALSE, TRUE)

>

> print(num\_vec)

[1] 1 2 3 4 5

> print(num\_vec[2])

[1] 2

> print(char\_vec)

[1] "a" "b" "c"

> print(char\_vec[3])

[1] "c"

> print(logi\_vec)

[1] TRUE FALSE TRUE

Code:

# lists

l = list(

numbers = c(1:3),

names = c("abhinav", "papaya"),

is\_list = TRUE

)

print(l)

print(l$names)

Output:

> # lists

> l = list(

+ numbers = c(1:3),

+ names = c("abhinav", "papaya"),

+ is\_list = TRUE

+ )

> print(l)

$numbers

[1] 1 2 3

$names

[1] "abhinav" "papaya"

$is\_list

[1] TRUE

> print(l$names)

[1] "abhinav" "papaya"

Code:

# matrices

m = matrix(

c(1:6),

nrow = 3,

ncol = 2

)

print(m)

print(m[3,2])

Output:

> # matrices

> m = matrix(

+ c(1:6),

+ nrow = 3,

+ ncol = 2

+ )

> print(m)

[,1] [,2]

[1,] 1 4

[2,] 2 5

[3,] 3 6

> print(m[3,2])

[1] 6

Code:

# data frame

df = data.frame(

id = 1:3,

fruit = c("pineapple", "papaya", "mango"),

age = c(1, 2, 1)

)

print(df)

print(df$age)

print(df[df$age > 1, ])

Output:

> # data frame

> df = data.frame(

+ id = 1:3,

+ fruit = c("pineapple", "papaya", "mango"),

+ age = c(1, 2, 1)

+ )

> print(df)

id fruit age

1 1 pineapple 1

2 2 papaya 2

3 3 mango 1

> print(df$age)

[1] 1 2 1

> print(df[df$age > 1, ])

id fruit age

2 2 papaya 2

Code:

# factors

colors = factor(c("red", "blue", "green", "blue", "red"))

print(levels(colors))

print(colors)

Output:

> # factors

> colors = factor(c("red", "blue", "green", "blue", "red"))

> print(levels(colors))

[1] "blue" "green" "red"

> print(colors)

[1] red blue green blue red

Levels: blue green red

Code:

# arrays

arr = array(

c(1:12),

dim = c(3, 2, 2)

)

print(arr)

print(arr[1,1,1])

Output:

> # arrays

> arr = array(

+ c(1:12),

+ dim = c(3, 2, 2)

+ )

> print(arr)

, , 1

[,1] [,2]

[1,] 1 4

[2,] 2 5

[3,] 3 6

, , 2

[,1] [,2]

[1,] 7 10

[2,] 8 11

[3,] 9 12

> print(arr[1,1,1])

[1] 1