**FINOLEX ACADEMY OF MANAGEMENT AND TECHNOLOGY, RATNAGIRI**

**DEPARTMENT OF MCA**

**PRACTICAL NO .04**

**INTRODUCTION TO R PROGRAMMING AND**

**DATA ACQUISITION**

QUE 1.Create a variable named carName and assign the value Volvo to it.

ANS :

> carName<-"Volvo"

> carName

[1] "Volvo"

QUE 2. Use the correct function to combine the text "Hello" with the txt variable, to output "Hello World!".

ANS :

> text<-"Hello"

> paste(text,"World!")

[1] "Hello World!"

QUE 3. What data type is myVar and x?

x <- 10.5

myVar <- 30

ANS :

> x<-10.5

> class(x)

[1] "numeric"

> myVar<-30

> class(myVar)

[1] "numeric"

QUE 4. Use the correct function to find the square root of the number 100.

ANS :

> x<-100

> sqrt(x)

[1] 10

QUE 5.Use the correct function to find the number of characters in the str variable:

str<-“Finolex Academy of Management and Technology”

ANS :

> str<-"Finolex Academy of Management and Technology"

> nchar(str)

[1] 44

QUE 6. Write a R program to create a sequence of numbers from 20 to 50 and find the mean of numbers from 20 to 60 and sum of numbers from 51 to 91.

ANS :

> print("Sequence of numbers from 20 to 50:")

[1] "Sequence of numbers from 20 to 50:"

> print(seq(20,50))

[1] 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

> print("Mean of numbers from 20 to 60:")

[1] "Mean of numbers from 20 to 60:"

> print(mean(20:60))

[1] 40

> print("Sum of numbers from 51 to 91:")

[1] "Sum of numbers from 51 to 91:"

> print(sum(51:91))

[1] 2911

QUE 7.Write a R program to create three vectors numeric data, character data and logical data. Display the content of the vectors and their type.

ANS :

> a = c(1, 2, 3, 4, 0, -1, -2, -3, -4)

> b = c("Red", "Green", "White", "Blue", "Black", "Yellow")

> c = c(TRUE, FALSE, TRUE, TRUE, FALSE, TRUE, FALSE)

> print(a)

[1] 1 2 3 4 0 -1 -2 -3 -4

> print(class(a))

[1] "numeric"

> print(b)

[1] "Red" "Green" "White" "Blue" "Black" "Yellow"

> print(class(b))

[1] "character"

> print(c)

[1] TRUE FALSE TRUE TRUE FALSE TRUE FALSE

> print(class(c))

[1] "logical"

QUE 8.Write a R program to create a data frame from four given vectors.

name = c('Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael',

'Matthew', 'Laura', 'Kevin', 'Jonas')

score = c(12.5, 9, 16.5, 12, 9, 20, 14.5, 13.5, 8, 19)

attempts = c(1, 3, 2, 3, 2, 3, 1, 1, 2, 1)

qualify = c('yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes')

ANS :

> name = c('Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael', 'Matthew', 'Laura', 'Kevin', 'Jonas')

> score = c(12.5, 9, 16.5, 12, 9, 20, 14.5, 13.5, 8, 19)

> attempts = c(1, 3, 2, 3, 2, 3, 1, 1, 2, 1)

> qualify = c('yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', ' no', 'yes')

> print("Original data frame:")

[1] "Original data frame:"

> print(name)

[1] "Anastasia" "Dima" "Katherine" "James"

[5] "Emily" "Michael" "Matthew" "Laura"

[9] "Kevin" "Jonas"

> print(score)

[1] 12.5 9.0 16.5 12.0 9.0 20.0 14.5 13.5 8.0 19.0

> print(attempts)

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

> print(qualify)

[1] "yes" "no" "yes" "no" "no" "yes" "yes" "no" "no"

[10] "yes"

> df = data.frame(name, score, attempts, qualify)

> print(df)

name score attempts qualify

1 Anastasia 12.5 1 yes

2 Dima 9.0 3 no

3 Katherine 16.5 2 yes

4 James 12.0 3 no

5 Emily 9.0 2 no

6 Michael 20.0 3 yes

7 Matthew 14.5 1 yes

8 Laura 13.5 1 no

9 Kevin 8.0 2 no

10 Jonas 19.0 1 yes

QUE 9.Write a R program to extract specific column from a data frame using column name.

ANS :

|  |
| --- |
| > exam\_data = data.frame(name = c('Anastasia', 'Dima', 'Katherine', 'James', 'Emily', 'Michael','Matthew', 'Laura', 'Kevin', 'Jonas'),score = c(12.5, 9, 16.5, 12, 9, 20, 14.5, 13.5, 8, 19), attempts = c(1, 3, 2, 3, 2, 3, 1, 1, 2, 1),qualify = c('yes', 'no', 'yes', 'no', 'no', 'yes', 'yes', 'no', 'no', 'yes') )  > exam\_data  name score attempts qualify  1 Anastasia 12.5 1 yes  2 Dima 9.0 3 no  3 Katherine 16.5 2 yes  4 James 12.0 3 no  5 Emily 9.0 2 no  6 Michael 20.0 3 yes  7 Matthew 14.5 1 yes  8 Laura 13.5 1 no  9 Kevin 8.0 2 no  10 Jonas 19.0 1 yes  > new\_dfdata=select(exam\_data,'name','score')  > new\_dfdata  name score  1 Anastasia 12.5  2 Dima 9.0  3 Katherine 16.5  4 James 12.0  5 Emily 9.0  6 Michael 20.0  7 Matthew 14.5  8 Laura 13.5  9 Kevin 8.0  10 Jonas 19.0 |
|  |
| |  | | --- | |  | |

QUE 10.Write a R program to create an ordered factor from data consisting of the names of months.

ANS :

> name\_of\_mon = c("January","February","March","April","May","June","July","August", "September","October","November","December","September","October","September","November","August","February","January","November","November","February","May","August","February", "July","December","August","August","September","November","September",

+ "February","April")

> print("Original vector:")

[1] "Original vector:"

> print(name\_of\_mon)

[1] "January" "February" "March" "April"

[5] "May" "June" "July" "August"

[9] "September" "October" "November" "December"

[13] "September" "October" "September" "November"

[17] "August" "February" "January" "November"

[21] "November" "February" "May" "August"

[25] "February" "July" "December" "August"

[29] "August" "September" "November" "September"

[33] "February" "April"

> fac = factor(name\_of\_mon)

> print("Ordered factors of the said vector:")

[1] "Ordered factors of the said vector:"

> print(fac)

[1] January February March April May

[6] June July August September October

[11] November December September October September

[16] November August February January November

[21] November February May August February

[26] July December August August September

[31] November September February April

12 Levels: April August December February January ... September

> print(table(fac))

fac

April August December February January July

2 5 2 5 2 2

June March May November October September

1 1 2 5 2 5