**Day 1 – R Programming**

> #install.packages('caret')

> num = 10

> num

[1] 10

> library('caret')

> x = 10.2

> y <- 10

> z = "Hello"

> x

[1] 10.2

> y

[1] 10

> z

[1] "Hello"

> as.integer(x)

[1] 10

> a = 1 + 10i

> a

[1] 1+10i

> sqrt(144)

[1] 12

> a = 5; b = 15

> out = a > b

> out

[1] FALSE

> age <- c(21, 25, 28, 30, 20, 26)

> age

[1] 21 25 28 30 20 26

> id = c(1:10) #range values from 1-10

> id

[1] 1 2 3 4 5 6 7 8 9 10

> seq(1, 20)

[1] 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

> seq(2, 20, 2) #range values from 2 to 20 with offset 2

[1] 2 4 6 8 10 12 14 16 18 20

> loan\_default <- c(TRUE, FALSE, FALSE, TRUE, TRUE)

> loan\_default

[1] TRUE FALSE FALSE TRUE TRUE

> place\_names <- c("China", "India", "Denmark", "UK", "Finland")

> place\_names

[1] "China" "India" "Denmark" "UK" "Finland"

> class(loan\_default)

[1] "logical"

> class(age)

[1] "numeric"

> class(z)

[1] "character"

> num\_as\_str <- c("10", "30", "40", "50")

> class(num\_as\_str)

[1] "character"

> numbers <- as.integer(num\_as\_str)

> class(numbers)

[1] "integer"

> mean(numbers)

[1] 32.5

> max(age)

[1] 30

> min(numbers)

[1] 10

> median(age)

[1] 25.5

> range(numbers)

[1] 10 50

> var(age)

[1] 15.2

> sort(age)

[1] 20 21 25 26 28 30

> sort(age, decreasing = TRUE)

[1] 30 28 26 25 21 20

> random\_ele <- c(15, 2.5, TRUE, "Hello")

> random\_ele

[1] "15" "2.5" "TRUE" "Hello"

> class(random\_ele)

[1] "character"

> mat <- c(1:16)

> mat <- matrix(mat, ncol=4)

> mat

[,1] [,2] [,3] [,4]

[1,] 1 5 9 13

[2,] 2 6 10 14

[3,] 3 7 11 15

[4,] 4 8 12 16

> mat1 <- c(1:16)

> mat1 <- matrix(mat1, ncol = 4, byrow = T)

> mat1

[,1] [,2] [,3] [,4]

[1,] 1 2 3 4

[2,] 5 6 7 8

[3,] 9 10 11 12

[4,] 13 14 15 16

> matrix(c(56, 72, 25, 14, 87, 99), ncol = 3, byrow = T)

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

[1,] 56 72 25

[2,] 14 87 99

> mat1[2,]

[1] 5 6 7 8

> mat1[2,2]

[1] 6

> mat1[,4]

[1] 4 8 12 16

> matr = matrix(c(5:16), nrow = 3, byrow = TRUE)

> column.names <- c("COL1", "COL2", "COL3")

> row.names <- c("ROW1", "ROW2", "ROW3")

> column.names <- c("COL1", "COL2", "COL3", "COL4")

> result <- matrix(c(5:16), nrow = 3, byrow = TRUE, dimnames = list(row.names, column.names))

> result

COL1 COL2 COL3 COL4

ROW1 5 6 7 8

ROW2 9 10 11 12

ROW3 13 14 15 16

> employee = list(1, c("John", "Rose"), c(12000, 15000))

> employee

[[1]]

[1] 1

[[2]]

[1] "John" "Rose"

[[3]]

[1] 12000 15000

> employee[[1]]

[1] 1

> employee[[2]]

[1] "John" "Rose"

> employee[[3]]

[1] 12000 15000

> employee = list(EmpID=1, EmpName=c("John", "Rose"), basic\_pay=c(12000, 15000))

> employee

$EmpID

[1] 1

$EmpName

[1] "John" "Rose"

$basic\_pay

[1] 12000 15000

> employee$EmpName

[1] "John" "Rose"

> list\_of\_expenses <- list(100, 150, 350, 50)

> class((list\_of\_expenses))

[1] "list"

> expenses <- unlist(list\_of\_expenses)

> class(expenses)

[1] "numeric"

> length(expenses)

[1] 4

> days\_from\_purchase <- c(10, 15, 20, 25)

> days\_from\_purchase

[1] 10 15 20 25

> ctf <- as.factor(days\_from\_purchase)

> typeof(ctf)

[1] "integer"

> class(ctf)

[1] "factor"

> age <- c(21, 42, 28, 31, 19)

> names <- c("John", "Sachin", "Rahul", "Ravi", "Sameer")

> salary <- c(12000, 20000, 25000, 16000, 28000)

> ownhouse <- c(TRUE, FALSE, TRUE, TRUE, FALSE)

> mydf <- data.frame(names, age, salary, ownhouse)

> mydf

names age salary ownhouse

1 John 21 12000 TRUE

2 Sachin 42 20000 FALSE

3 Rahul 28 25000 TRUE

4 Ravi 31 16000 TRUE

5 Sameer 19 28000 FALSE

> stock\_price <- c(110.55, 102.50, 145.90, 130.70, 160.45, 112.80)

> stock\_mat <- matrix(stock\_price, ncol = 2, byrow = T)

> stock\_df = data.frame(stock\_mat)

> stock\_df

X1 X2

1 110.55 102.5

2 145.90 130.7

3 160.45 112.8

> colnames(stock\_df) <- c("Open Price", "Close Price")

> letters[1:10]

[1] "a" "b" "c" "d" "e" "f" "g" "h" "i" "j"

> letters[1:26]

[1] "a" "b" "c" "d" "e" "f" "g" "h" "i" "j" "k" "l" "m" "n" "o" "p" "q" "r" "s" "t" "u" "v" "w" "x" "y" "z"

> rownames(stock\_df) <- letters[1:3]

> stock\_df

Open Price Close Price

a 110.55 102.5

b 145.90 130.7

c 160.45 112.8

> stock\_df$`Close Price`

[1] 102.5 130.7 112.8