# Foundations of Data Analytics Lab 1
# Meher Shrishti Nigam 20BRS1193

## Understanding Basic Data Types in R

## CODE

```
# Lab 1, 2
# L7+L8
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# 20BRS1193

# LAB 1 Understanding Basic Data Types in R

rm(list=ls())

# Ram went to a shop to buy chocolates. He carried Rs. A in his pocket
# where ‘A’ is a real number (For eg., 10.5 means 10 Rupees 50 paise).
# He bought ‘B’ chocolates for the Rupee part of the money he had.
# where ‘B’ is an integer value (for eg., 5 means 5 chocolates).
# Compute the cost of a chocolate.

# Q1 Let the money be denoted as variable A. Assign a decimal value to it and display it.
# Ans1
A <- 10.5
print(A) # or
A

# Q2 Print the class name of the variable A.
# Ans2
class(A)

# Q3 Check whether the variable A is of type ‘numeric’.
# Ans3
is.numeric(A)

# Q4 Let the number of chocolates be denoted as variable B. Assign an integer value to it and
display it.
# Ans4
B <- 5L
B

# Q5 Check whether the variable B is of type ‘integer’.
# Ans5
is.integer(B)

# Q6 Create a variable C which stores the rupee part of the money he carried.
# Ans6
C <- floor(A) # as.integer(A)
C
```

```
# Q7 Compute the cost of a chocolate.
# Ans7 Let the variable costOfChocolate contain the cost of 1 chocolate
costOfChocolate <- C/B
costOfChocolate

# Q8 Represent the money as character string.
# Ans8
money <- as.character(A)
money

# Q9 Store the first name and last name of the kid.
# Ans9
firstName <- "Ram"
lastName <- "Khanna"
firstName
lastName

# Q10 Display the message “<firstname lastname> bought <B> chocolates”
# Ans10
paste(firstName , " ", lastName, " bought ", B, " chocolates.") # or
print(sprintf("%s bought %d chocolates.", paste(firstName, lastName), B))

# Consider the kids rhymes “Twinkle Twinkle Little Star”

rhyme = "Twinkle Twinkle Little Star"

# Q11 Extract the substring “Little ” from the rhymes.
# Ans11
rhymeSubstring = substring(rhyme, 17, 22) # or
rhymeSubstring
rhymeSubstring = substr(rhyme, start=17, stop=22)
rhymeSubstring

# Q12 Replace “Little” as “Big”.
# Ans12
rhyme = sub("Little", "Big", rhyme)
rhyme

# Babu wanted to know about complex number. Help him to understand
# the real and imaginary part of the complex number. Show him that
# square root of a negative value can be computed by converting it
# into a complex number.

# Q13 Assign a complex number to a variable X.
# Ans13
X = 5 + 8i
X
# Q14 Display the real part of X.
# Ans14
Re(X)
```

```
# Q15 Display the imaginary part of X.
# Ans15
Im(X)

# Q16 Compute square root of a negative number.
# Ans16
sqrt(as.complex(-236))

# Q17 Check whether real part of X is greater than its imaginary part.
# Ans17
if(Re(X) > Im(X)){
  print("Yes, the real part of X is greater than the imaginary part.")
}else{
  print("No, the real part of X is not greater than the imaginary part.")
}

# or

check <- Re(X) > Im(X)
check

# Q18 Write a R program to take input from a user. Input must be
# name, age, registration number and subject name. Display the
# information on the console. Display the version of R you're using.

name1 <- readline()

age <- readline()
age = as.integer(age)

regno <- readline()

subject <- readline()

paste("Name: ", name1)
paste("Age: ", age)
paste("Registration No.: ", regno)
paste("Subject: ", subject)

print(R.version.string)
```

# OUTPUT

```
> # Lab 2
> # L7+L8
> # Meher Shrishti Nigam
> # CSE AI + Robotics
> # 20BRS1193
>
> # LAB 1 Understanding Basic Data Types in R
>
> rm(list=ls())
```

```
> # Ram went to a shop to buy chocolates. He carried Rs. A in his pocket
> # where ‘A’ is a real number (For eg., 10.5 means 10 Rupees 50 paise).
>  .... [TRUNCATED]

> print(A) # or
[1] 10.5

> A
[1] 10.5

> # Q2 Print the class name of the variable A.
> # Ans2
> class(A)
[1] "numeric"

> # Q3 Check whether the variable A is of type ‘numeric’.
> # Ans3
> is.numeric(A)
[1] TRUE

> # Q4 Let the number of chocolates be denoted as variable B. Assign an integer value to it and
display it.
> # Ans4
> B <- 5L

> B
[1] 5

> # Q5 Check whether the variable B is of type ‘integer’.
> # Ans5
> is.integer(B)
[1] TRUE

> # Q6 Create a variable C which stores the rupee part of the money he carried.
> # Ans6
> C <- floor(A) # as.integer(A)

> C
[1] 10

> # Q7 Compute the cost of a chocolate.
> # Ans7 Let the variable costOfChocolate contain the cost of 1 chocolate
> costOfChocolate <- C/B

> costOfChocolate
[1] 2

> # Q8 Represent the money as character string.
> # Ans8
> money <- as.character(A)
```

```
> money
[1] "10.5"

> # Q9 Store the first name and last name of the kid.
> # Ans9
> firstName <- "Ram"

> lastName <- "Khanna"

> firstName
[1] "Ram"

> lastName
[1] "Khanna"

> # Q10 Display the message “<firstname lastname> bought <B> chocolates”
> # Ans10
> paste(firstName , " ", lastName, " bought ", B, " chocolates.") # .... [TRUNCATED]
[1] "Ram  Khanna  bought  5  chocolates."

> print(sprintf("%s bought %d chocolates.", paste(firstName, lastName), B))
[1] "Ram Khanna bought 5 chocolates."

> # Consider the kids rhymes “Twinkle Twinkle Little Star”
>
> rhyme = "Twinkle Twinkle Little Star"

> # Q11 Extract the substring “Little ” from the rhymes.
> # Ans11
> rhymeSubstring = substring(rhyme, 17, 22) # or

> rhymeSubstring
[1] "Little"

> rhymeSubstring = substr(rhyme, start=17, stop=22)

> rhymeSubstring
[1] "Little"

> # Q12 Replace “Little” as “Big”.
> # Ans12
> rhyme = sub("Little", "Big", rhyme)

> rhyme
[1] "Twinkle Twinkle Big Star"

> # Babu wanted to know about complex number. Help him to understand
> # the real and imaginary part of the complex number. Show him that
> # square  .... [TRUNCATED]

> X
[1] 5+8i
```

```
> # Q14 Display the real part of X.
> # Ans14
> Re(X)
[1] 5

> # Q15 Display the imaginary part of X.
> # Ans15
> Im(X)
[1] 8

> # Q16 Compute square root of a negative number.
> # Ans16
> sqrt(as.complex(-236))
[1] 0+15.36229i

> # Q17 Check whether real part of X is greater than its imaginary part.
> # Ans17
> if(Re(X) > Im(X)){
+   print("Yes, the real part of X is greater  ..." ... [TRUNCATED]
[1] "No, the real part of X is not greater than the imaginary part."

> # or
>
> check <- Re(X) > Im(X)

> check
[1] FALSE

> # Q18 Write a R program to take input from a user. Input must be > # name, age, registration
number and subject name. Display the > # information  .... [TRUNCATED]

> name1 <- readline()

Meher

> age <- readline()

20

> age = as.integer(age)

>regno <- readline() 20BRS1193

>subject <- readline() Data Analytics

>paste("Name: ", name1) [1]

"Name:  Meher"
```

```
>paste("Age: ", age) [1]

"Age:  20"

>paste("Registration No.: ", regno) [1]

"Registration No.:  20BRS1193"

> paste("Subject: ", subject) [1]

"Subject:  Data Analytics"

> print(R.version.string)

[1] "R version 3.6.3 (2020-02-29)"
```