

BIG DATA AND ANALYTICS LAB (BCSE0183)

Lab Assignment- 02

Made by:- Vishal Dixit

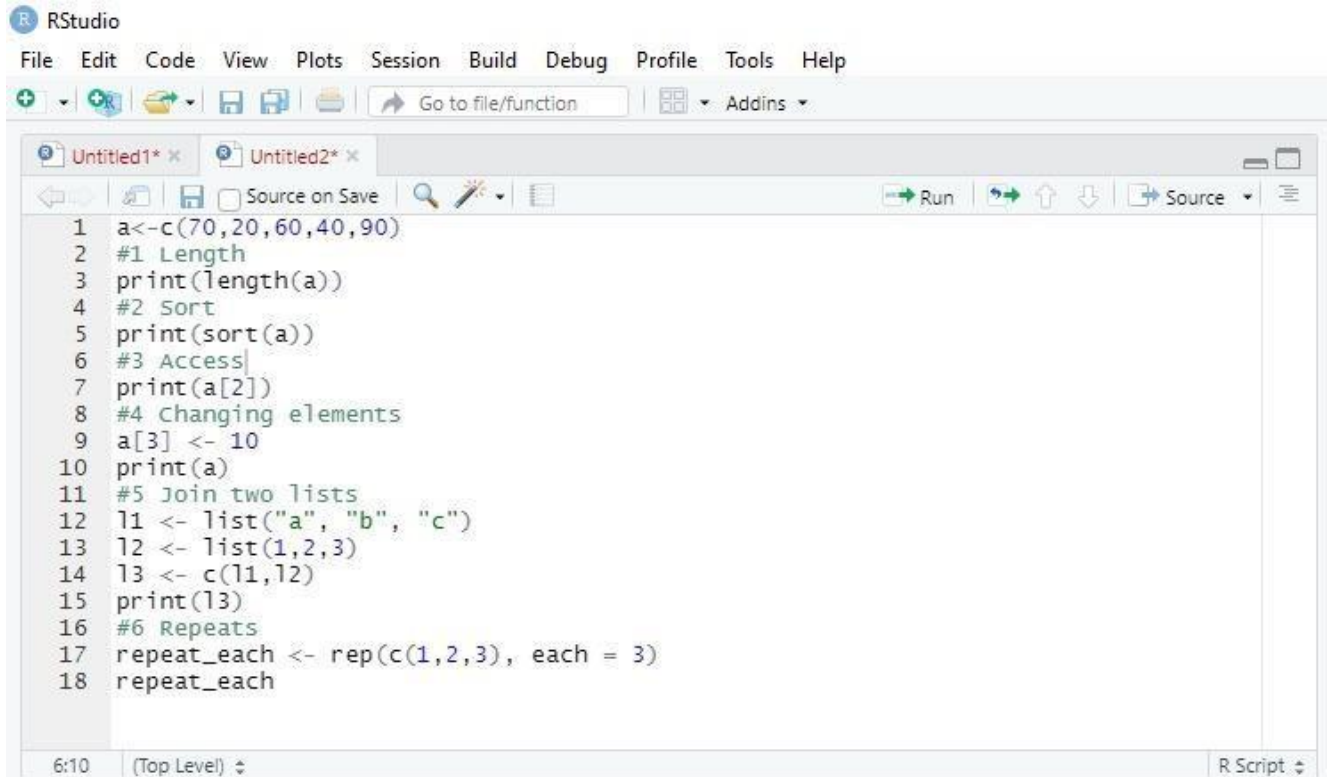
Sec- B (62)

University Roll No :- 201500792

Decision Making, Selection & Looping Structures using R Programming Language :

1) Write a R program to perform below operations on Data Structures like vector and list-

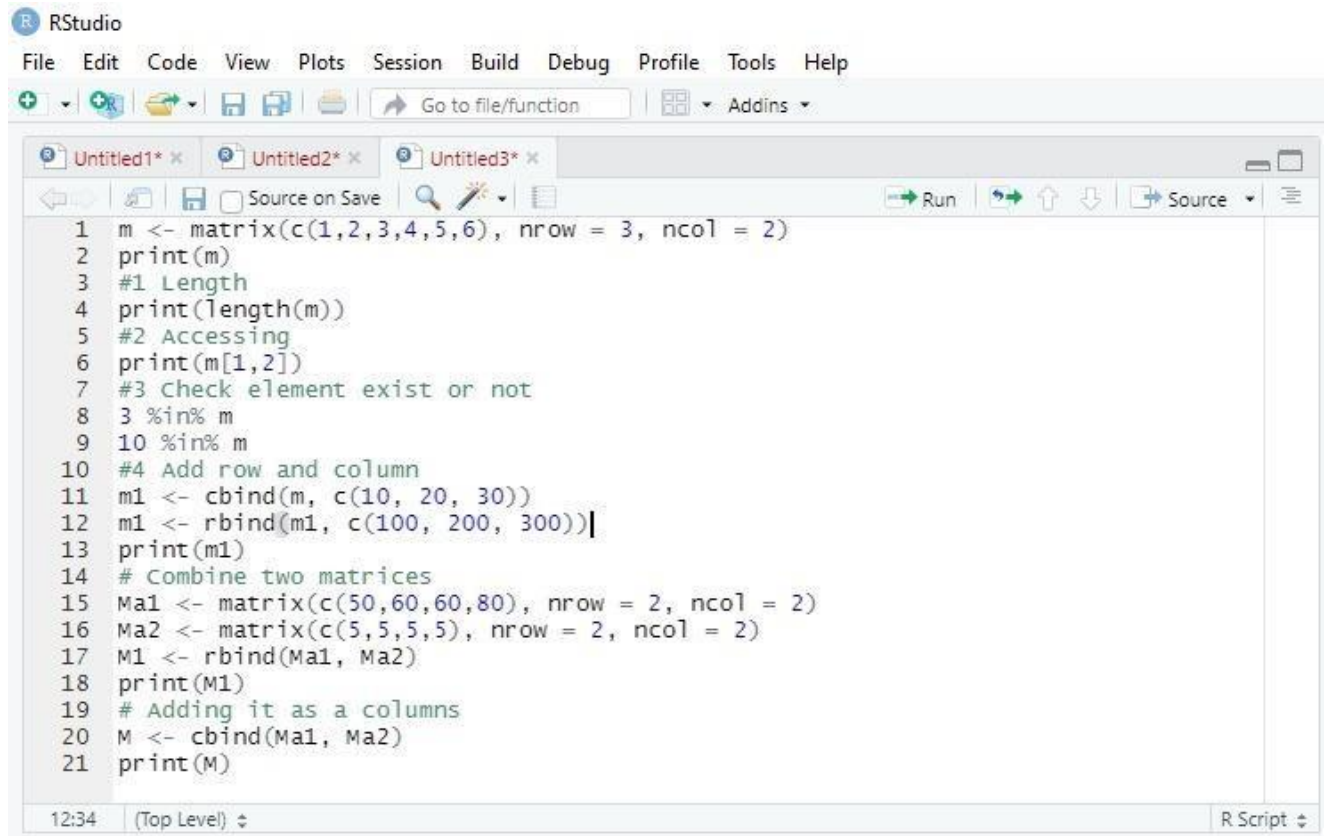
- a) Determining the length of elements
- b) Sorting the elements
- c) Accessing the elements
- d) Changing the element's value
- e) Join the two lists
- f) Repeat elements of vector



```
1 a<-c(70,20,60,40,90)
2 #1 Length
3 print(length(a))
4 #2 Sort
5 print(sort(a))
6 #3 Access
7 print(a[2])
8 #4 Changing elements
9 a[3] <- 10
10 print(a)
11 #5 Join two lists
12 l1 <- list("a", "b", "c")
13 l2 <- list(1,2,3)
14 l3 <- c(l1,l2)
15 print(l3)
16 #6 Repeats
17 repeat_each <- rep(c(1,2,3), each = 3)
18 repeat_each
```

2) Write a R program to perform below operations on Data Structures like matrix and array-

- a) Determining the length
- b) Accessing the elements
- c) Check element exists or not
- d) Add row and column
- e) Remove row and column
- f) Combining the two matrices



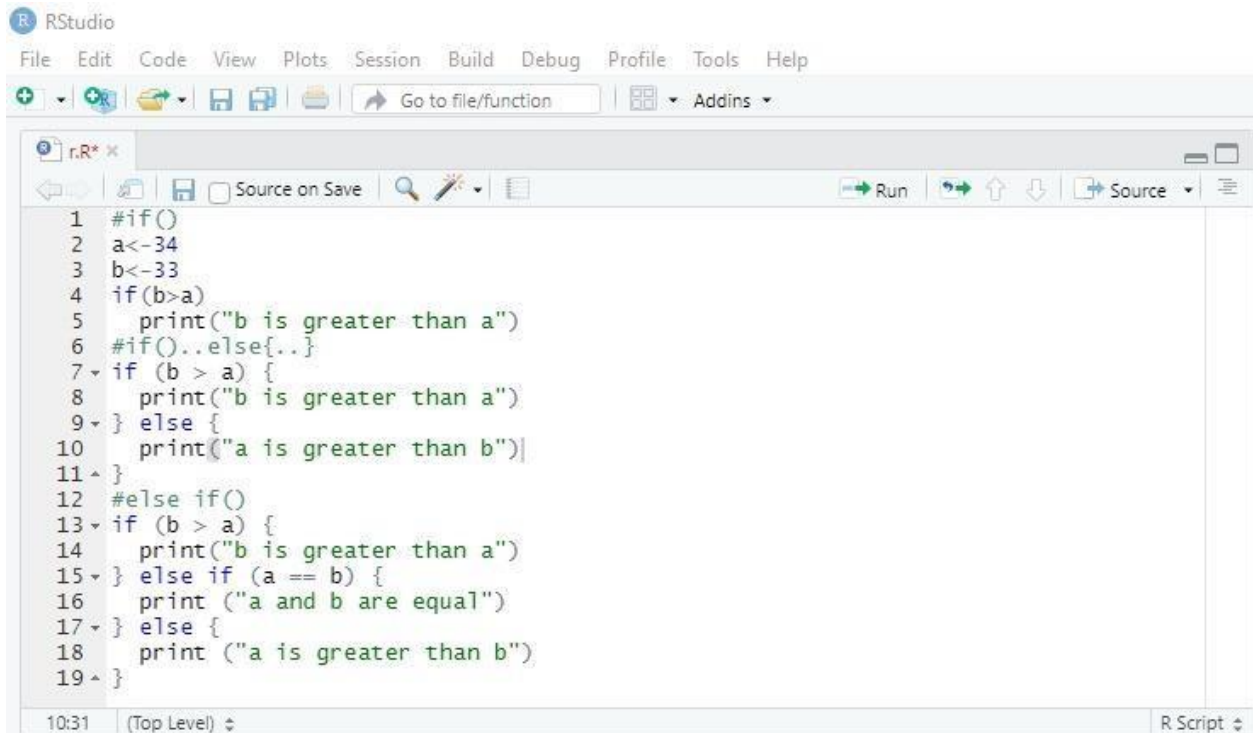
The screenshot shows the RStudio interface with three untitled files open. The active file, 'Untitled1*', contains the following R code:

```
1 m <- matrix(c(1,2,3,4,5,6), nrow = 3, ncol = 2)
2 print(m)
3 #1 Length
4 print(length(m))
5 #2 Accessing
6 print(m[1,2])
7 #3 Check element exist or not
8 3 %in% m
9 10 %in% m
10 #4 Add row and column
11 m1 <- cbind(m, c(10, 20, 30))
12 m1 <- rbind(m1, c(100, 200, 300))
13 print(m1)
14 # Combine two matrices
15 Ma1 <- matrix(c(50,60,60,80), nrow = 2, ncol = 2)
16 Ma2 <- matrix(c(5,5,5,5), nrow = 2, ncol = 2)
17 M1 <- rbind(Ma1, Ma2)
18 print(M1)
19 # Adding it as a columns
20 M <- cbind(Ma1, Ma2)
21 print(M)
```

The status bar at the bottom indicates the time is 12:34 and the cursor is at the 'Top Level'.

3) Create R Code for Condition Statements –

- a) if ()
- b) if () ... else {...}
- c) else if ()



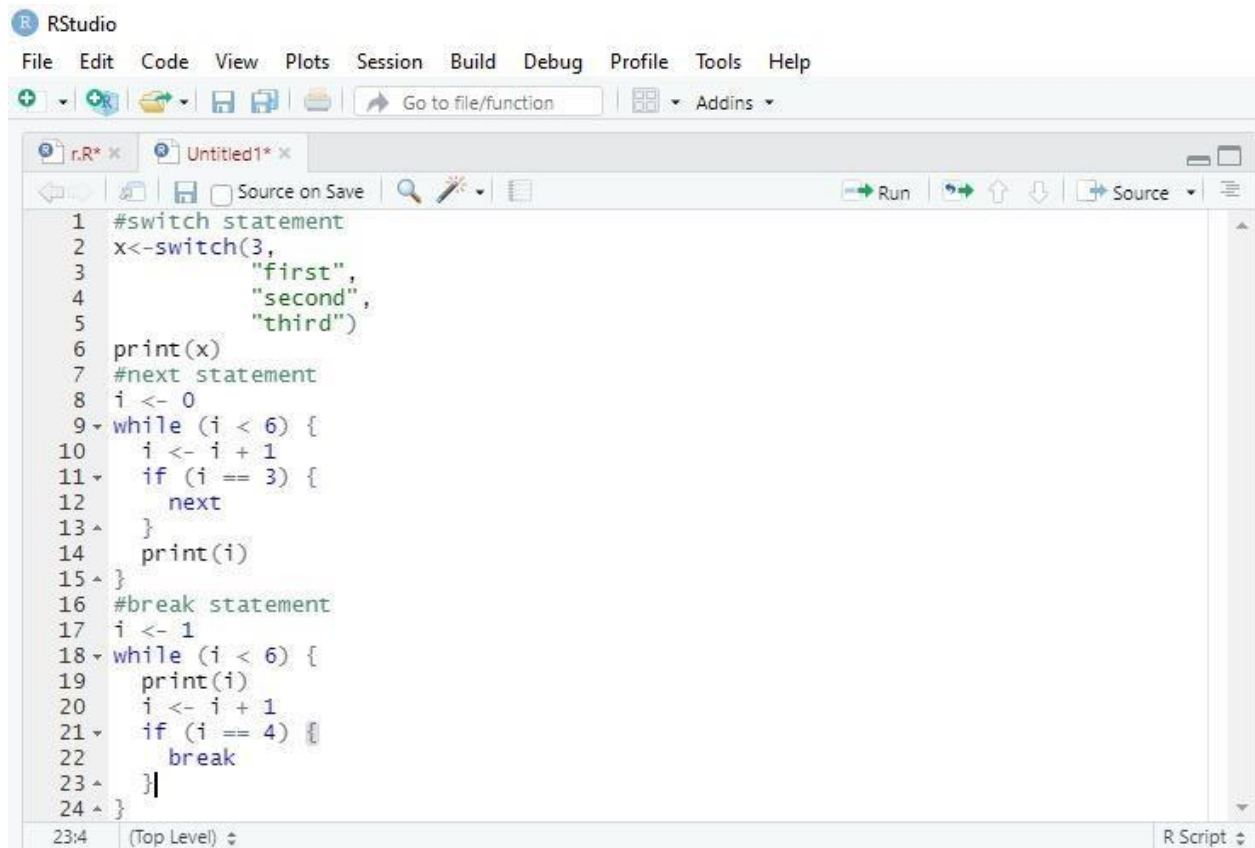
The screenshot shows the RStudio interface with a menu bar (File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help) and a toolbar. The main editor window displays R code for selection control structures. The code includes comments for `#if()`, `#if()..else{..}`, and `#else if()`, along with their respective implementations using `if()`, `else`, and `else if()` statements. The code is as follows:

```
1 #if()
2 a<-34
3 b<-33
4 if(b>a)
5   print("b is greater than a")
6 #if()..else{..}
7 if (b > a) {
8   print("b is greater than a")
9 } else {
10  print("a is greater than b")
11 }
12 #else if()
13 if (b > a) {
14   print("b is greater than a")
15 } else if (a == b) {
16   print ("a and b are equal")
17 } else {
18   print ("a is greater than b")
19 }
```

The status bar at the bottom shows the time 10:31, the location (Top Level), and the file type (R Script).

4) Create R Code for Selection Control Structures –

- a) switch statement
- b) next statement
- c) break statement



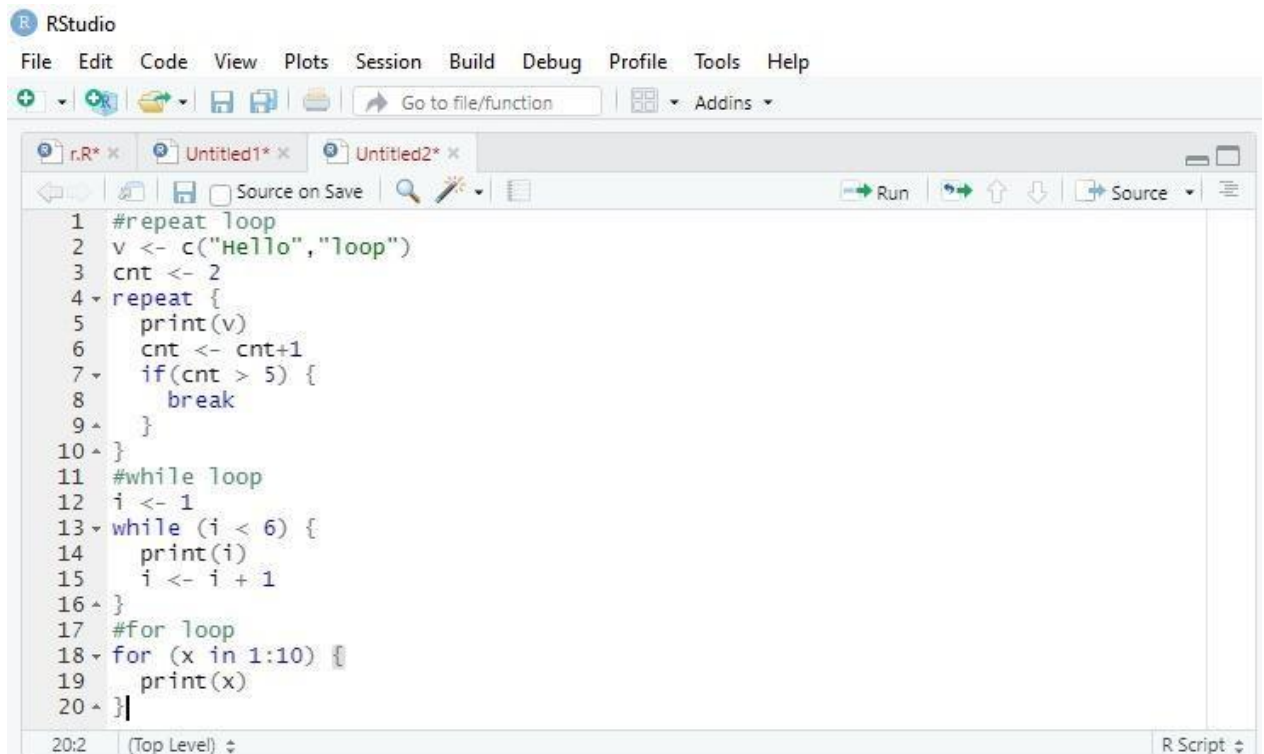
The screenshot shows the RStudio interface with a script editor containing the following R code:

```
1 #switch statement
2 x<-switch(3,
3     "first",
4     "second",
5     "third")
6 print(x)
7 #next statement
8 i <- 0
9 while (i < 6) {
10     i <- i + 1
11     if (i == 3) {
12         next
13     }
14     print(i)
15 }
16 #break statement
17 i <- 1
18 while (i < 6) {
19     print(i)
20     i <- i + 1
21     if (i == 4) {
22         break
23     }
24 }
```

The status bar at the bottom indicates the cursor is at line 23, column 4, at the top level of the script.

5) Create R Code for Looping Statements –

- a) repeat Loop
- b) while Loop
- c) for Loop



```
1 #repeat loop
2 v <- c("Hello","loop")
3 cnt <- 2
4 repeat {
5   print(v)
6   cnt <- cnt+1
7   if(cnt > 5) {
8     break
9   }
10 }
11 #while loop
12 i <- 1
13 while (i < 6) {
14   print(i)
15   i <- i + 1
16 }
17 #for loop
18 for (x in 1:10) {
19   print(x)
20 }
```

6) Write a R program to perform below operations using String functions-

- a) String Length
- b) Check a String
- c) Multiline Strings
- d) Combine Two Strings
- e) Escape Characters

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

r.R* x Untitled1* x Untitled2* x Untitled3* x

Source on Save Run Source

```
1 #string length
2 str <- "abc def"
3 nchar(str)
4 #check a string
5 grepl("a", str)
6 grepl("abc", str)
7 grepl("x", str)
8 #multiline string
9 str <- "hello
10       hi
11       hey."
12 print(str)
13 #combine two strings
14 str1 <- "abc"
15 str2 <- "xyz"
16 paste(str1, str2)
17 #escape characters
18 str <- "HEY \"How are you\",How you doing "
19 str
20 cat(str)
```

20:9 (Top Level) R Script