G. H. RAISONI COLLEGE OF ENGG., NAGPUR
(An Autonomous Institute under UGC Act 1956)
Department of Artificial Intelligence

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Practical Subject: Statistics and Probability using R
Session: 2020-21

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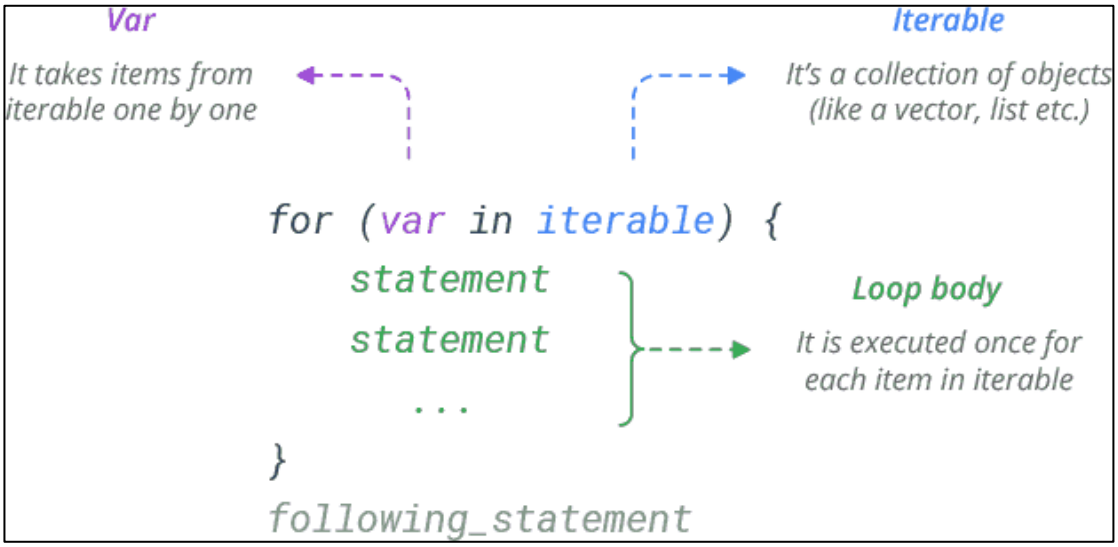
Semester	4
Section	A
Branch	Artificial Intelligence

Practical Details: Practical Number- 2

Practical Aim	Write a program in R for implementing various loops.

Theory & Algorithm	**Decision Statements:**
	
	Theory:
	A loop statement allows us to execute a statement or group of statements multiple times
	
	For loops:
	The syntax of for-loop is:
	for (val in sequence)
	{
	statement
	}
	Here, sequence is a vector and val takes on each of its value during the loop. In each iteration, statement is evaluated.

Syntax:



While loops:

Syntax of while loop:

while (test_expression)

{

statement

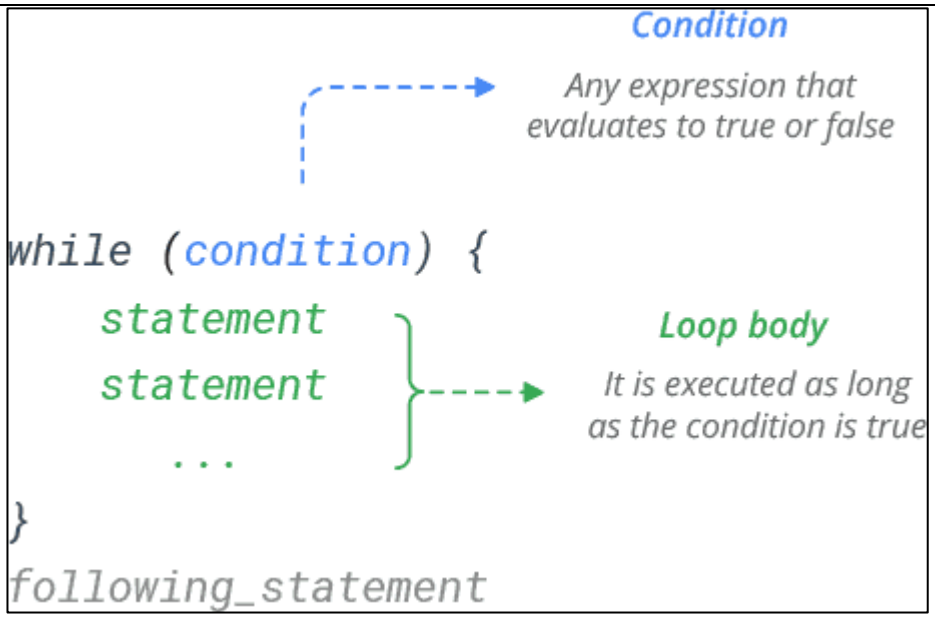
}

Here, test_expression is evaluated and the body of the loop is entered if the result is TRUE.

The statements inside the loop are executed and the flow returns to evaluate the test_expression again.

This is repeated each time until test_expression evaluates to FALSE, in which case, the loop exits.

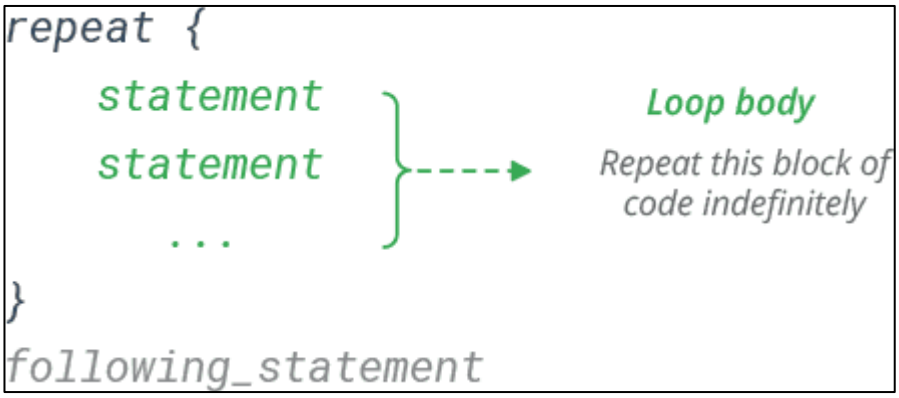
Syntax:



Repeat loop:

A repeat loop is used to iterate over a block of code multiple number of times.

There is no condition check in repeat loop to exit the loop.



Program	

main.r

```r
# Practical-2
# Shivam Tawari

#For Loop

X <- c(2,5,3,9,8,11,6)
count <- 0
for (val in X) {
if(val %% 2 == 0) count = count+1
}
print(count)

#While loop
i <- 1
while (i < 6) {
    print (i)
    i = i+1

#Repeat Loop
X <- 1
repeat {
    print(X)
    X = X+1
    if (X == 6){
        break
    }
}
}
```

Output

input

```
> # Practical-2
> # Shivam Tawari
>
> #For Loop
>
> X <- c(2,5,3,9,8,11,6)
> count <- 0
> for (val in X) {
+ if(val %% 2 == 0) count = count+1
+ }
> print(count)
[1] 3
>
> #While loop
> i <- 1
> while (i < 6) {
+     print (i)
+     i = i+1
+
+ #Repeat Loop
+ X <- 1
+ repeat {
+     print(X)
+     X = X+1
+     if (X == 6){
+         break
+     }
+ }
+ }
```

input

```
[1] 1
[1] 2
[1] 3
[1] 4
[1] 5
[1] 2
[1] 1
[1] 2
[1] 3
[1] 4
[1] 5
[1] 3
[1] 1
[1] 2
[1] 3
[1] 4
[1] 5
[1] 4
[1] 1
[1] 2
[1] 3
[1] 4
[1] 5
[1] 5
[1] 1
[1] 2
[1] 3
[1] 4
[1] 5
```