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|  | Finolex Academy of Management and Technology, Ratnagiri | | | |
| **Department of Information Technology** | | | |
| **Subject:** | **R Programming Lab. (ITL804)** | | | |
| **Class:** | **BE IT / Semester – VIII (Rev-2016) / Academic year: 2019-20** | | | |
| **Name of Student:** | **Kazi Jawwad A Rahim** | | | |
| **Roll No:** | **28** | | **Date of performance (DOP) :** |  |
| **Assignment/Experiment No:** | | **03** | **Date of checking (DOC) :** |  |
| **Title:** Program to demonstrate flow control instructions and functions | | | | |
| **Marks:** | |  | **Teacher’s Signature:** |  |

**1. Aim**: To understand the use of various flow control instructions and functions in R.

**2. Prerequisites**:

1. Basics of R programming, various data structures used in R etc.

**3. Hardware Requirements**:

1. PC with minimum 2GB RAM

**4. Software Requirements:**

1. Windows / Linux OS.
2. R version 3.6 or higher

**5. Learning Objectives:**

1. To understand decision and loop control instructions.
2. To understand function definition and calling to it.

**6. Learning Objectives Applicable: LO 1**

**7. Program Outcomes Applicable: PO 1, PO 2**

**8. Program Education Objectives Applicable: PEO 2**

**OUTPUT:**

**IF ELSE Example:**

age=as.numeric(readline("Enter age"))

gender=readline("Enter Gender")

if(age>=60 && gender=="M"){

print("Available for Concession")

}else if(age>=45 && gender=="F"){

print("Available for Concession");

}else{

print("Noot avaialable for Concession")

}

**OUTPUT:**

> source('D:/JK/If Else.R')

Enter age60

Enter GenderM

[1] "Available for Concession"

**SWITCH:**

day=as.numeric(readline("Enter Day Number\n"))

y=switch(day,"Monday","Tuesday","Wednesday","Thursday","Friday","Saturday","Sunday")

print(y)

**OUTPUT:**

> source('D:/JK/Switch.R')

Enter Day Number

5

[1] "Friday"

**For:**

for(i in 1:10){

print(i)

}

**OUTPUT:**

> source('D:/JK/For.R')

[1] 1

[1] 2

[1] 3

[1] 4

[1] 5

[1] 6

[1] 7

[1] 8

[1] 9

[1] 10

**While:**

i=1

while(i<=5){

print(i)

i=i+1

}

**OUTPUT:**

> source('D:/JK/While.R')

[1] 1

[1] 2

[1] 3

[1] 4

[1] 5

**Repeat:**

i=1

repeat{

print(i)

i=i+1

if(i>5){

break

}

}

**OUTPUT:**

> source('D:/JK/Repeat.R')

[1] 1

[1] 2

[1] 3

[1] 4

[1] 5

**Function:**

area = function(l,w){

a=l\*w

return(a)

}

print(area(3,5))

**OUTPUT:**

> source('D:/JK/Function.R')

[1] 15

**Double Function:**

volume=function(r,l){

area=function(r){

a=r\*r

return(a)

}

v=area(l)\*3.14\*r\*l

return(v)

}

print(volume(3,5))

**OUTPUT:**

> source('D:/JK/Double Function.R')

[1] 1177.5

**Learning Outcomes Achieved:**

1. We understood decision and loop control instructions.
2. We understood function definition and calling to it.

**Conclusion:**

We have successfully demonstrated the loop instructions like If-Else, Switch, For, While, Repeat and functions and double functions.

**13. Experiment/Assignment Evaluation**

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| **Experiment/Assignment Evaluation:** | | | | | |
| **Sr. No.** | **Parameters** | | | **Marks obtained** | **Out of** |
| **1** | Technical Understanding (Assessment may be done based on Q & A **or** any other relevant method.) Teacher should mention the other method used - | | |  | 6 |
| **2** | Neatness/presentation | | |  | 2 |
| **3** | Punctuality | | |  | 2 |
| **Date of performance (DOP)** | |  | **Total marks obtained** |  | **10** |
| **Date of checking (DOC)** | |  | **Signature of teacher** | | |

**References**:

1. URL: https://cran.r-project.org/doc/manuals/r-release/R-intro.pdf ( Online Resources)
2. R Cookbook Paperback – 2011 by Teetor Paul O Reilly Publications
3. Beginning R: The Statistical Programming Language by Dr. Mark Gardener, Wiley Publications
4. R Programming For Dummies by Joris Meys Andrie de Vries, Wiley Publications

**Viva Questions**

1. What are decision control instructions ?
2. What are loop control instructions ?
3. Compare flow control instructions in R with flow control instructions in Python ?
4. How to define function in R?
5. Can I shuffle arguments of the functions while calling it?