Practical No. 2 Date: / / 201

Aim: Program to calculate area of geometric objects (at least 4).

Objectives:

- To study R operators.
- Implement a program to calculate area of geometric objects.

Theory:

R Operators

Operators are used to perform operations on variables and values. We have the following types of operators in R programming:

- Arithmetic Operators
- Relational Operators
- Logical Operators
- Assignment Operators
- Miscellaneous Operators

Arithmetic Operators

These operators act on each element of the vector.

Operator	Description
+	Adds two vectors
-	Subtracts second vector from the first
*	Multiplies both vectors
/	Divide the first vector with the second
%%	Give the remainder of the first vector with the second
%/%	The result of division of first vector with second (quotient)
^	The first vector raised to the exponent of second vector

Relational Operators

Each element of the first vector is compared with the corresponding element of the second vector. The result of comparison is a Boolean value.

Operator	Description
>	Checks if each element of the first vector is greater than the corresponding element of the second vector.
<	Checks if each element of the first vector is less than the corresponding element of the second vector.
==	Checks if each element of the first vector is equal to the corresponding element of the second vector.
<=	Checks if each element of the first vector is less than or equal to the corresponding element of the second vector.
>=	Checks if each element of the first vector is greater than or equal to the corresponding element of the second vector
!=	Checks if each element of the first vector is unequal to the corresponding element of the second vector.

Logical Operators

It is applicable only to vectors of type logical, numeric or complex. All numbers greater than 1 are considered as logical value TRUE. Each element of the first vector is compared with the corresponding element of the second vector. The result of comparison is a Boolean value.

Operator	Description
&	Logical AND operator. It combines each element of the first vector with the corresponding element of the second vector and gives a output TRUE if both the elements are TRUE.
|	Logical OR operator. It combines each element of the first vector with the corresponding element of the second vector and gives a output TRUE if one the elements is TRUE
!	Logical NOT operator. Takes each element of the vector and gives the opposite logical value

The logical operator && and || considers only the first element of the vectors and give a vector of single element as output.

Operator	Description
&&	Logical AND operator. Takes first element of both the vectors and gives the TRUE only if both are TRUE.
||	Logical OR operator. Takes first element of both the vectors and gives the TRUE only if both are TRUE.

Assignment Operators

These operators are used to assign values to vectors.

Operator	Description
<-	Left Assignment
=	Left Assignment
<<-	Left Assignment
->	Right Assignment
->>	Right Assignment

Miscellaneous Operators

These operators are used to for specific purpose and not general mathematical or logical computation.

Operator	Description
:	It creates the series of numbers in sequence for a vector.
%in%	This operator is used to identify if an element belongs to a vector.
%*%	This operator is used to multiply a matrix with its transpose.

Algorithm:

1. Start.
2. Display name of geometric object.
3. Read input parameters required to calculate area of respective object.
4. Display area using input parameters.
5. Repeat Step 2 to 4 for at least four different geometric objects.
6. Stop.