



FACULTY OF ENGINEERING & TECHNOLOGY

CSPS103: Object Oriented Programming

Lecture-25

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# OBJECTIVES

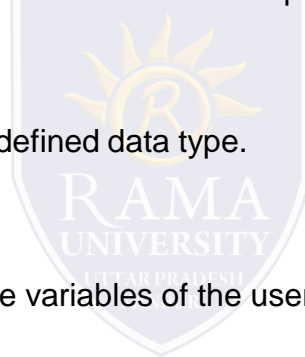
In this lecture, you will learn to:

- ❖ Operators Overloading
- ❖ Syntax of Operator Overloading
- ❖ Rules for Operator Overloading



# OPERATOR OVERLOADING

- ☐ Operator overloading is a compile-time polymorphism in which the operator is overloaded to provide the special meaning to the user-defined data type.
- ☐ Operator overloading is used to overload or redefines most of the operators available in C++.
- ☐ It is used to perform the operation on the user-defined data type.
- ☐ For example, C++ provides the ability to add the variables of the user-defined data type that is applied to the built-in data types.



# SYNTAX OF OPERATOR OVERLOADING

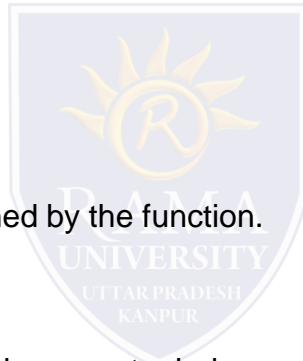
```
return_type class_name :: operator op(argument_list)

{

    // body of the function.

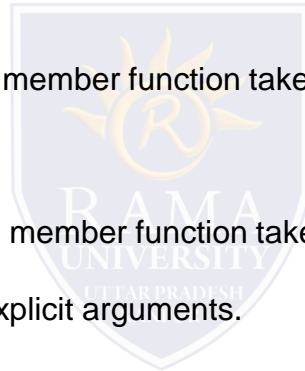
}
```

- ☐ Where the **return type** is the type of value returned by the function.
- ☐ **class\_name** is the name of the class.
- ☐ **operator op** is an operator function where op is the operator being overloaded, and the operator is the keyword.



# RULES FOR OPERATOR OVERLOADING

- ❑ Existing operators can only be overloaded, but the new operators cannot be overloaded.
- ❑ The overloaded operator contains at least one operand of the user-defined data type.
- ❑ We cannot use friend function to overload certain operators. However, the member function can be used to overload those operators.
- ❑ When unary operators are overloaded through a member function take no explicit arguments, but, if they are overloaded by a friend function, takes one argument.
- ❑ When binary operators are overloaded through a member function takes one explicit argument, and if they are overloaded through a friend function takes two explicit arguments.



# PROCESS OF OVERLOADING

## The process of overloading involves the following steps:

- ❑ Create a class that defines the data type that is to be used in the overloading operation.
- ❑ Declare the operator function operator op() in the public part of the class.
- ❑ Define the operator function to implement the required operations.



# REFERENCES

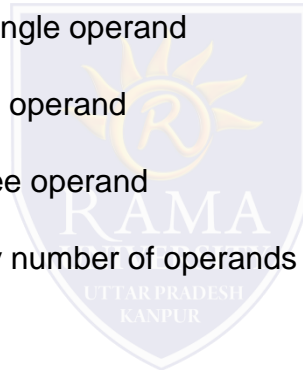
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# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q1. What is a binary operator?**

- a) Operator that performs its action on a single operand
- b) Operator that performs its action on two operand
- c) Operator that performs its action on three operand
- d) Operator that performs its action on any number of operands



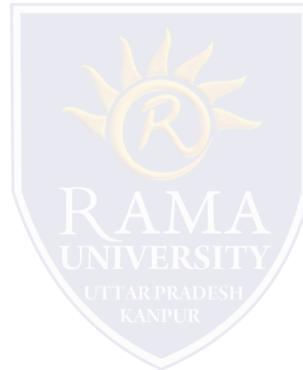


# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q2. Which is the correct example of a binary operator?**

- a) ++
- b) —
- c) Dereferencing operator(\*)
- d) +

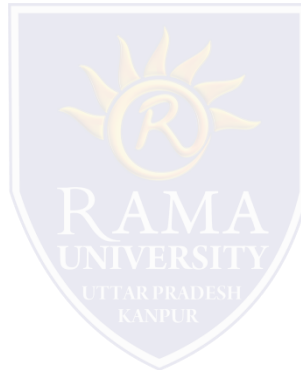


# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q3. Which is the correct example of a unary operator?**

- a) &
- b) ==
- c) —
- d) /



# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q4. Which is called ternary operator?**

- a) ?:
- b) &&
- c) |||
- d) ===

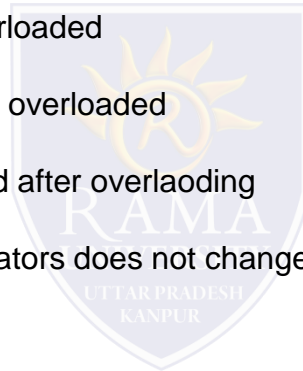


# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q5. Which is the correct statement about operator overloading?**

- a) Only arithmetic operators can be overloaded
- b) Only non-arithmetic operators can be overloaded
- c) Precedence of operators are changed after overlaoding
- d) Associativity and precedence of operators does not change



# Summary

## In this lecture, you learned that:

- The language allows not only functions to be overloaded, but also most of the operators, such as  $+$ ,  $-$ ,  $*$ ,  $/$ , etc.
- As the name suggests, here the conventional operators can be programmed to carry out more complex operations.

