RAMA UNIVERSITY

www.ramauniversity.ac.in

FACULTY OF ENGINEERING & TECHNOLOGY

CSPS103: Object Oriented Programming

Lecture-26

Preeti Singh
Department of Computer Science & Engineering
Rama University, Kanpur

preeti.ru@ramauniversity.ac.in

OBJECTIVES

In this lecture, you will learn to:

- ❖Overloading a unary operator using member function
- ❖Example of Overloading unary minus operator
- ❖Overloading binary operator
- ❖Example of overloading binary operator

OVERLOADING A UNARY OPERATOR USING MEMBER FUNCTION

- Overloading a unary operator using a member function, the function takes no parameters.
- Since, there is only one operand, it is this operand that generates the call to the operator function.
- There is no need for another parameter.

EXAMPLE OF OVERLOADING UNARY MINUS OPERATOR

```
#include<iostream.h>
#include<conio.h>
class A {
int x,y,z;
public:
 void getdata(int a,int b,int c) {
 x=a;
 y=b;
 z=c;
 }
 void display() {
 cout<<"\nx="<<x<<"\ny="<<y<<"\nz="<<z;
 }
 void operator -() //unary minus overload function
 {
 x=-x;
 y=-y;
 z=-z;
 }
};
int main() {
A a;
a.getdata(2,3,4);
a.display();
-a; //activates operator –() function
a.display();
getch();
return 0;
}
```

OVERLOADING BINARY OPERATOR

❑When a member operator function overloads a binary operator, the function will have only one parameter.

❑This parameter will receive the object that is on the right side of the operator.

❑The object on the left side is the object that generates the call to the operator function and is passed implicitly by this pointer.

❑‘this’ can be used in overloading + operator .

EXAMPLE OF OVERLOADING BINARY OPERATOR

```
#include<iostream.h>
#include<conio.h>
class A{
int x,y;
public:
void input() {
 cin>>x>>y;
}
void display() {
cout<<"\nx="<<x<<"\ny="<<y<<"\nx+y="<<x+y;
}
A operator+(A p ); //overload binary + operator
};
A A :: operator+(A p) {
 A t;
 t.x=x + p.x;
 t.y=y + p.y;
 return t;
}
int main(){
A a1, a2, a3;
a1.input();
a2.input();
a3=a2+a1; //activates operator+() function
a3.display();
getch();
return 0;
}
```

REFERENCES

- Kernighan, Brian W., and Dennis M. Richie. The C Programming Language. Vol. 2. Englewood Cliffs: Prentice-Hall, 1988.
- King, Kim N., and Kim King. C programming: A Modern Approach. Norton, 1996.
- Bjrane Stroustrup, “C++ Programming language”,3rd edition, Pearson education Asia(1997)
- Lafore R.”Object oriented Programming in C++”,4th Ed. Techmedia,New Delhi(2002).
- Yashwant Kenetkar,”Let us C++”,1stEd.,Oxford University Press(2006)
- B.A. Forouzan and R.F. Gilberg,CompilerScience,”A structured approach using C++” Cengage Learning, New Delhi.
- https://www.javatpoint.com/cpp-tutorial
- https://www.tutorialspoint.com/cplusplus/index.htm
- https://ambedkarcollegevasai.com/wp-content/uploads/2019/03/CPP.pdf
- https://onlinecourses.nptel.ac.in/noc20_cs07/unit?unit=3&lesson=19

Multiple Choice Question:

Q1. Pick the incorrect statements out of the following.

a) Operator overloading does not disturbs the precedence of operators

b) Arity of operators can be changed using operator overloading

c) No new operators can be created

d) All of the mentioned

Multiple Choice Question:

Q2. What happens when objects s1 and s2 are added?

```
string s1 = "Hello";

string s2 = "World";

string s3 = (s1+s2).substr(5);
```

a) Error because s1+s2 will result into string and no string has substr() function

b) Segmentation fault as two string cannot be added in C++

c) The statements runs perfectly

d) Run-time error

Multiple Choice Question:

Q3. What is operator overloading in C++?

a) Overriding the operator meaning by the user defined meaning for user defined data type

b) Redefining the way operator works for user defined types

c) Ability to provide the operators with some special meaning for user defined data type

d) All of the mentioned

Multiple Choice Question:

Q4. How many approaches are used for operator overloading?

a) 1

b) 2

c) 3

d) 4

Multiple Choice Question:

Q5. Which of the following operator cannot be overloaded?

a) +

b) ?:

c) –

d) %

Summary

In this lecture, you learned that:

- Overloading a unary operator using a member function, the function takes no parameters.
- When a member operator function overloads a binary operator, the function will have only one parameter.