



FACULTY OF ENGINEERING & TECHNOLOGY

CSPS103: Object Oriented Programming

Lecture-24

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OBJECTIVES

In this lecture, you will learn to:

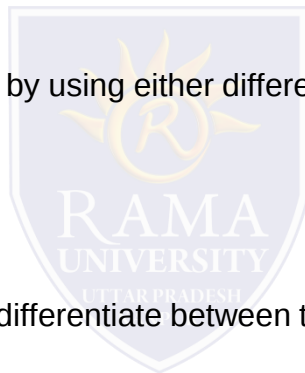
- ❖ **Function Overloading**

- ❖ **Example Function Overloading**



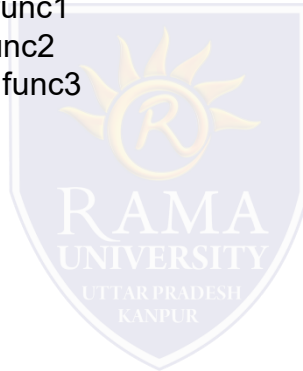
FUNCTION OVERLOADING

- ❑ Function Overloading is defined as the process of having two or more function with the same name, but different in parameters is known as function overloading in C++.
- ❑ In function overloading, the function is redefined by using either different types of arguments or a different number of arguments.
- ❑ It is only through these differences compiler can differentiate between the functions.



EXAMPLE : FUNCTION OVERLOADING

```
#include<iostream.h>
#include<conio.h>
int sum(int p,int q,int r);
double sum(int l,double m);
float sum(float p,float q)
int main(){
cout<<"sum="<< sum(11,22,33); //calls func1
cout<<"sum="<< sum(10,15.5); //calls func2
cout<<"sum="<< sum(13.5,12.5); //calls func3
return 0;
}
int sum(int p,int q,int r){ //func1
return(a+b+c);
}
double sum(int l,double m){ //func2
return(l+m);
}
float sum(float p,float q){ //func3
return(p+q);
}
```

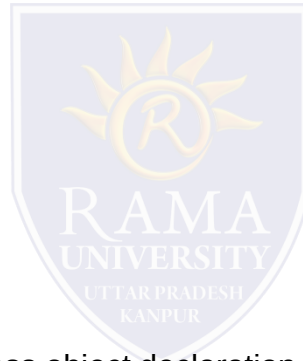


EXAMPLE : FUNCTION OVERLOADING

// Program of function overloading when number of arguments vary.

```
#include <iostream>
```

```
class Cal {  
    public:  
    static int add(int a,int b){  
        return a + b;  
    }  
    static int add(int a, int b, int c)  
    {  
        return a + b + c;  
    }  
};  
int main(void) {  
    Cal C;  
    cout<<C.add(10, 20)<<endl;  
    cout<<C.add(12, 20, 23);  
    return 0;  
}
```



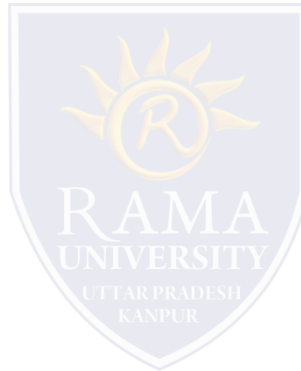
```
//    class object declaration.
```

EXAMPLE : FUNCTION OVERLOADING

// Program of function overloading with different types of arguments.

```
#include<iostream>
using namespace std;
int mul(int,int);
float mul(float,int);

int mul(int a,int b)
{
    return a*b;
}
float mul(double x, int y)
{
    return x*y;
}
int main()
{
    int r1 = mul(6,7);
    float r2 = mul(0.2,3);
    std::cout << "r1 is : " <<r1<< std::endl;
    std::cout <<"r2 is : " <<r2<< std::endl;
    return 0;
}
```



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MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q1. Which of the following permits function overloading on c++?

- a) type
- b) number of arguments
- c) type & number of arguments
- d) number of objects



MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q2. In which of the following we cannot overload the function?

- a) return function
- b) caller
- c) called function
- d) main function



MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q3. Function overloading is also similar to which of the following?

- a) operator overloading
- b) constructor overloading
- c) destructor overloading
- d) function overloading

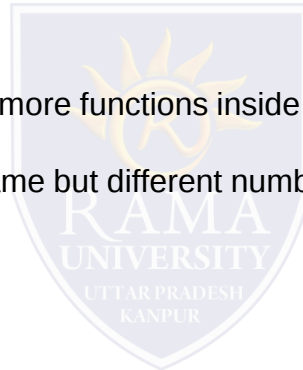


MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q4. Overloaded functions are _____

- a) Very long functions that can hardly run
- b) One function containing another one or more functions inside it
- c) Two or more functions with the same name but different number of parameters or type
- d) Very long functions

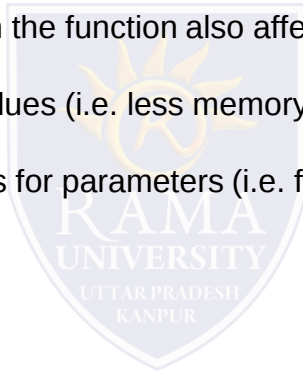


MULTIPLE CHOICE QUESTION

Multiple Choice Question:

Q5. What are the advantages of passing arguments by reference?

- a) Changes to parameter values within the function also affect the original arguments
- b) There is need to copy parameter values (i.e. less memory used)
- c) There is no need to call constructors for parameters (i.e. faster)
- d) All of the mentioned



Summary

In this lecture, you learned that:

- Function overloading is the process of using the same name for two or more functions.
- Each redefinition of the function must use either different types of parameters or a different number of parameters.

