



# RAMA UNIVERSITY

[www.ramauniversity.ac.in](http://www.ramauniversity.ac.in)

## FACULTY OF ENGINEERING & TECHNOLOGY

### CSPS103: Object Oriented Programming

#### Lecture-16

Preeti Singh

Department of Computer Science & Engineering  
Rama University, Kanpur

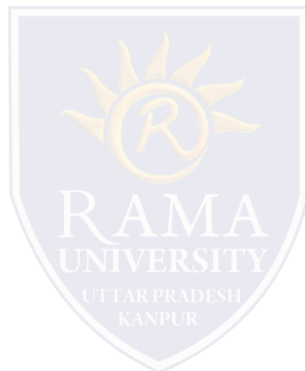
[preeti.ru@ramauniversity.ac.in](mailto:preeti.ru@ramauniversity.ac.in)

# OBJECTIVES

In this lecture, you will learn to:

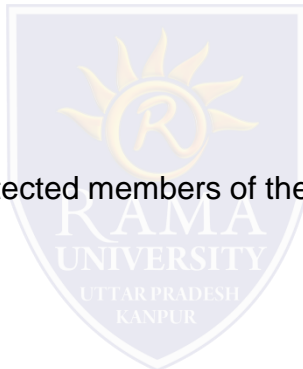
❖ **Friend Class**

❖ **Example of friend class**



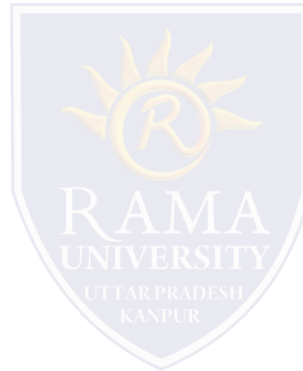
# FRIEND CLASS

- It is possible for one class to be a friend of another class.
- When this is the case, the friend class and all of its member functions have access to the private members defined within the other class.
- A friend class can access both private and protected members of the class in which it has been declared as friend.



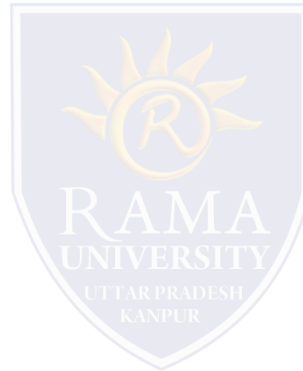
## EXAMPLE : FRIEND CLASS

```
// Using a friend class.
#include<iostream.h>
#include<conio.h>
class A{
int x, y;
public:
friend void display(A &obj);
friend class B;
void getdata() {
cin>>x>>y;
}
};
class B{
int p,q;
public:
void get(A &obj) {
p=obj.x;
q=obj.y;
}
};
```



## EXAMPLE : FRIEND CLASS (Contd.)

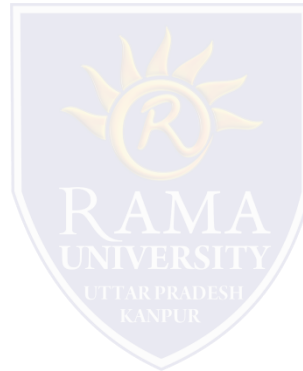
```
void display(A &obj){  
    cout<<obj.x<<obj.y;  
}  
int main(){  
    A a;  
    B b;  
    b.get(a);  
    a.getdata();  
    display(a);  
    getch()  
    return 0;  
}
```



# EXAMPLE : FRIEND CLASS

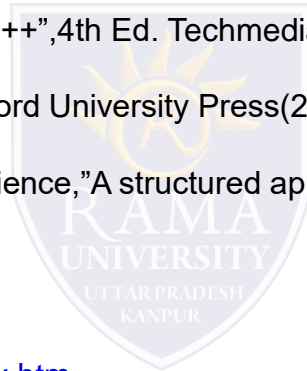
```
#include <iostream.h>

class A
{
    int x =5;
    friend class B;    // friend class.
};
class B
{
    public:
    void display(A &a)
    {
        cout<<"value of x is : "<<a.x;
    }
};
int main()
{
    A a;
    B b;
    b.display(a);
    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.
- Bjarne 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++", 1st Ed., Oxford University Press (2006)
- B.A. Forouzan and R.F. Gilberg, Compiler Science, "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://ambedkarcollegevasai.com/wp-content/uploads/2019/03/_CPP.pdf)
- [https://onlinecourses.nptel.ac.in/noc20\\_cs07/unit?unit=3&lesson=19](https://onlinecourses.nptel.ac.in/noc20_cs07/unit?unit=3&lesson=19)



# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q1. Where does keyword 'friend' should be placed?**

- a) function declaration
- b) function definition
- c) main function
- d) block function



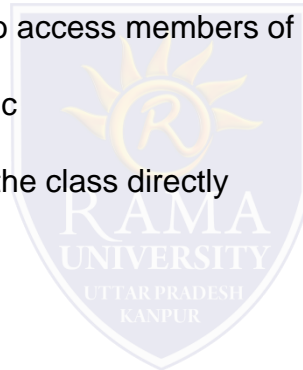


# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q2. Which of the following is correct about friend functions?**

- a) Friend functions use the dot operator to access members of a class using class objects
- b) Friend functions can be private or public
- c) Friend cannot access the members of the class directly
- d) All of the mentioned



# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q3. Which keyword is used to represent a friend function?**

- a) friend
- b) Friend
- c) friend\_func
- d) Friend\_func



# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

Q4. How many member functions are there in this C++ class excluding constructors and destructors?

```
class Box
{
public:
    int capacity;
    void print();
    friend void show();
    bool compare();
    friend bool lost();
};
```

- a) 1
- b) 2
- c) 3
- d) 4

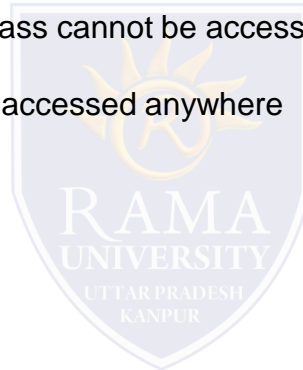


# MULTIPLE CHOICE QUESTION

## Multiple Choice Question:

**Q5. Which rule will not affect the friend function?**

- a) private and protected members of a class cannot be accessed from outside
- b) private and protected member can be accessed anywhere
- c) both a & b
- d) None of the mentioned



# Summary

## In this lecture, you learned that:

- Friend class can access both private and protected members of the class in which it has been declared as friend.

