

Don Bosco Institute of Technology, Kurla(W)
Department of Electronics and Tele-Communication Engineering
ECL304 - Skill Lab: C++ and Java Programming
Sem III
2021-22

Lab Number:	7
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Roll No :	11

Title:

1. To write a program to demonstrate friend function in C++.
2. To write a program to demonstrate friend class in C++.

Learning Objective:

- Students will be able to implement friend function and friend classes in C++.

Learning Outcome:

- To understand how to use the private members using friend function and friend class.

Course Outcome:

ECL304.6	Percept the Utility and applicability of OOP
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Theory:

- Explain in details about access specifiers: public, private and protected.

SOLUTION:

There are 3 access specifiers for a class/struct/Union in C++. These access specifiers define how the members of the class can be accessed. Of course, any member of a class is accessible within that class(Inside any member function of that same class). Moving ahead to type of access specifiers, they are:

Public - The members declared as Public are accessible from outside the Class through an object of the class.

Protected - The members declared as Protected are accessible from outside the class **BUT** only in a class derived from it.

Private - These members are only accessible from within the class. No outside Access is allowed.

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An Source Code Example:

```
class MyClass
{
    public:
        int a;
    protected:
        int b;
    private:
        int c;
};

int main()
{
    MyClass obj;
    obj.a = 10;    //Allowed
    obj.b = 20;    //Not Allowed, gives compiler error
    obj.c = 30;    //Not Allowed, gives compiler error
}
```

- Explain about friend function and friend classes in C++.

Solution:

A friend function is a function that is specified outside a class but has the ability to access the class members' [protected and private data](#). A friend can be a member's function, function template, or function, or a class or class template, in which case the entire class and all of its [members are friends](#).

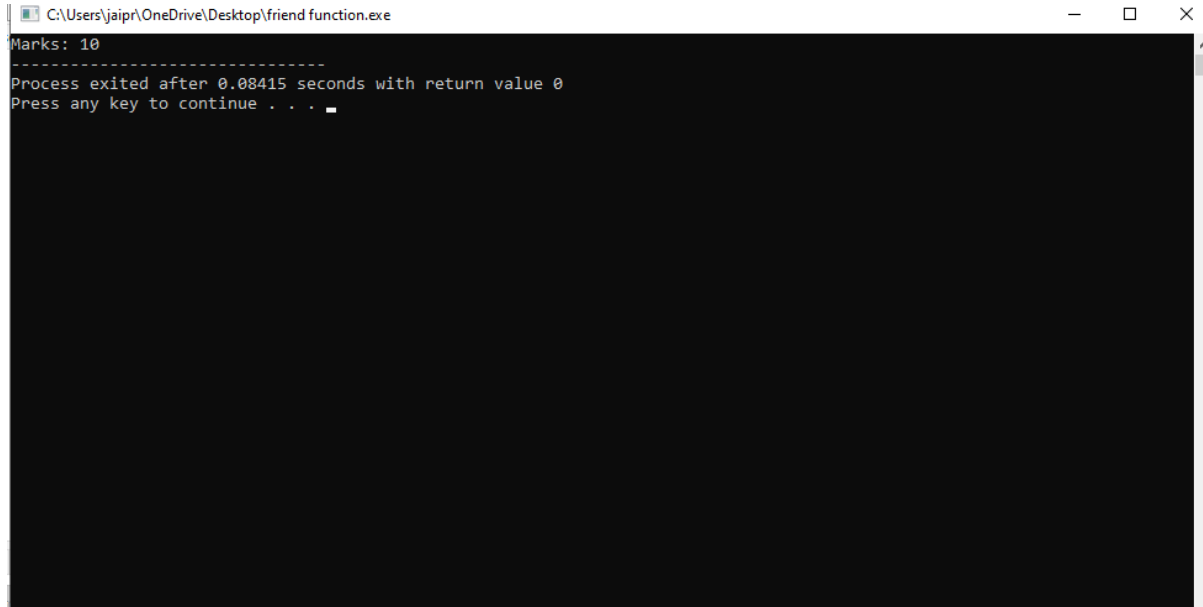
A friend class can have access to the data members and functions of another class in [which it is declared as a friend](#). They are used in situations where we want a certain class to have access to another class's private and protected members.

Classes declared as friends to any another class will have all the member functions become friend functions to the friend class. Friend functions are used to work as a link between the classes.

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7.1:-

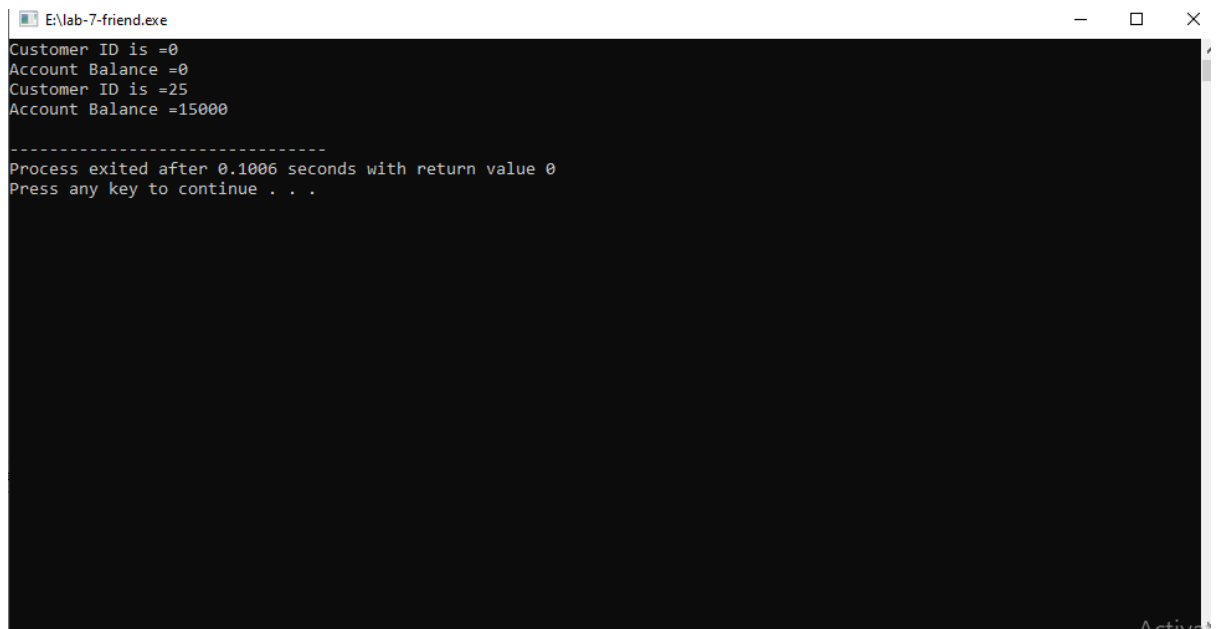
OUTPUT:



```
C:\Users\jaipr\OneDrive\Desktop\friend function.exe
Marks: 10
-----
Process exited after 0.08415 seconds with return value 0
Press any key to continue . . .
```

7.2:

OUTPUT:



```
E:\lab-7-friend.exe
Customer ID is =0
Account Balance =0
Customer ID is =25
Account Balance =15000
-----
Process exited after 0.1006 seconds with return value 0
Press any key to continue . . .
```

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