

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 :	04

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.
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.
- Explain about friend function and friend classes in C++.
A friend function in C++ is defined as a function that can access private, protected and public members of a class. The friend function is declared using the friend keyword inside the body of the class.
A friend class is a class that can access the private and protected members of a class in which it is declared as friend. This is needed when we want to allow a particular class to access the private and protected members of a class.

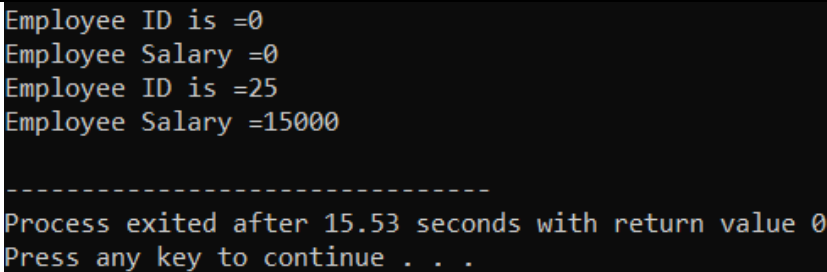
Algorithm m :	1)create class employee in which create attributes EmpID and Salary in private 2)create function displayDetails to print EmpID and Salary 3)declare friend function insertDetails 4)in function insertDetails give access to private members of class Employee
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Faculty: Ms. Deepali Kayande

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	5)create object of employee class obj and call functions displayDetails insertDetails
Program:	<pre>#include<iostream> using namespace std; class Employee{ int EmpID; float Salary; public: Employee(){ EmpID=0; Salary=0; } void displayDetails(){ cout<<"Employee ID is "<<EmpID<<endl<<"Employee Salary ="<<Salary<<endl; } friend void insertDetails(Employee &obj); }; void insertDetails(Employee &obj){ obj.EmpID=25; obj.Salary=15000; } int main(){</pre>

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	<pre> Employee obj; obj.displayDetails(); insertDetails(obj); obj.displayDetails(); return 0; } </pre>
Input given:	<p>EmpID =25</p> <p>Salary=15000</p>
Output Screenshot:	 <pre> Employee ID is =0 Employee Salary =0 Employee ID is =25 Employee Salary =15000 ----- Process exited after 15.53 seconds with return value 0 Press any key to continue . . . </pre>

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

```

#include <iostream>
using namespace std;

```

```

// forward declaration
class ClassB;

```

```

class ClassA {

```

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```
private:
    int numA;

    // friend class declaration
    friend class ClassB;

public:

    ClassA() : numA(12) { }
};

class ClassB {
private:
    int numB;

public:


    ClassB() : numB(1) { }

    // member function to add numA
    // from ClassA and numB from ClassB
    int add() {
        ClassA objectA;
        return objectA.numA + numB;
    }
};

int main() {
    ClassB objectB;
    cout << "Sum: " << objectB.add();
    return 0;
}
```

Output:

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 C:\Users\Aniket Pawar\Documents\lab 7.exe

Sum: 13

Process exited after 11.65 seconds with return value 0

Press any key to continue . . . 