

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:	3
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Roll No :	39

Title:

3.1 Write a C++ program to Create a class Student with two method getData() and printData(). getData() to get the value from the user and display the data in printData(). Create the two objects s1 ,s2 to declare and access the values from class StudentTest.

3.2 Write a C++ program for Basic bank Management System

Learning Objective:

- Students will be able to write C++ and java program for using classes and objects.

Learning Outcome:

- Ability to execute a simple C++ and Java program by accepting and displaying values using functions
- Understanding the classes and objects concept in C++ and Java.

Course Outcome:

ECL304.1	Understand object-oriented programming concepts and implement using C++ and Java
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Theory:

Difference between procedural and object oriented language:

In procedural programming, program is divided into small parts called functions. In object oriented programming, program is divided into small parts called objects. ... Adding new data and function is easy. Procedural programming does not have any proper way for hiding data so it is less secure.

Object-oriented programming and procedural programming both are used to develop the applications. Both of them are high-level programming languages.

Application of object orientation:

Object-oriented programming (OOP) is a programming paradigm based on the concept of "objects", which can contain data and code: data in the form of fields (often known as attributes or properties), and code, in the form of procedures (often known as methods). OOP can also be used in manufacturing and design applications, as it allows people to reduce the effort involved. For instance, it can be used while designing blueprints and flowcharts. OOP makes it possible for the designers and engineers to produce these flowcharts and blueprints accurately. Object-oriented programming (OOP) is a computer programming model that organizes software design around data, or objects, rather than functions and logic. ... OOP focuses on the objects that developers want to manipulate rather than the logic required to manipulate them.

Brief introduction to C++ :

C++ was designed for systems and applications programming. It was an extension of the C programming language. In contrast to C, it supports object-oriented programming features like classes. Like C, it is used when a low-level programming language is necessary. While C++ is commonly used for graphics-heavy software such as games, photo and video editing apps, browsers, C is more widely used for embedded devices and OS kernels.

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- 1) 3.1 Write a C++ program to Create a class Student with two method getData() and printData(). getData() to get the value from the user and display the data in printData(). Create the two objects s1 ,s2 to declare and access the values from class StudentTest.**

Algorithm:

Step 1: Create a class named 'Student' with attributes such as name, roll ,cgpa and branch.

Step 2: Create two methods in the same class for getting the data and printing the data.

Step 3: Input the student details name, roll no, cgpa , and branch.

Step 4: Display the data entered by the user for one student and the other student's data in parameterized manner by calling the methods.

Program:

```
/* 3.1 Write a C++ program to Create a class Student with  
two method getData() and printData().  
getData() to get the value from the user and display the data in  
printData().  
Create the two objects s1 ,s2 to declare and access the values from class  
StudentTest*/  
  
#include<iostream>  
  
#include<string>  
  
using namespace std;
```

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```
class Student {  
    public:    //access specifier  
    string name; //attribute of the class  
    int roll_no; //attribute of the class  
    float cgpa; //attribute of the class  
    string branch; //attribute of the class  
  
    void getdata()    //method of class Student to input the data  
    {  
        cout<<"Enter your name: "<<endl;  
        cin>>name;  
        cout<<"Enter your roll number:";  
        cin>>roll_no;  
        cout<<"Enter your CGPA:";  
        cin>>cgpa;  
        cout<<"Enter your Branch: "<<endl;  
        cin>>branch;  
    }  
  
    void getdata(string n,int r,float c,string b) //parameterized method  
    to get the data  
    {  
        name=n;  
        roll_no=r;
```

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```
        cgpa=c;

    branch=b;

}

void printdata() //defining method
{

    cout<<"\n\nName of the student: "<<name<<endl;
    cout<<"Roll-no of the student: "<<roll_no<<endl;
    cout<<"Cgpa of the student: "<<cgpa<<endl;
    cout<<"Branch  of the student: "<<branch<<endl;

}

};

class StudentTest{

    private:    Student S1;Student S2;    //creating the objects of class
Student

    public:

        void StudentS1() //defining method
        {

            S1.getdata();
            S2.getdata();

        }

        void StudentS2() //defining method
        {
```

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```
        S1.printdata();  
        S2.printdata();  
    }  
};  
  
int main() {  
  
    Student s1;  
    Student s2;  
  
    s1.getdata(); // getting data in non parameterized manner  
    s1.printdata(); //displaying the output  
    s2.getdata("Shubham",27,(float)8.94,"EXTC"); // getting  
data in parameterized manner  
    s2.printdata(); //displaying the output  
    return 0; //returning an integer value  
}
```

Input Given:

Name: Shreyas

Roll_no: 39

CGPA : 10

Branch : EXTC

Faculty: Ms. Deepali Kayande

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Output :

C:\Users\Shreyas\Documents\SEM 3 C++ codes\LAB3.2.exe

Enter your name:

Shreyas

Enter your roll number:39

Enter your CGPA:10

Enter your Branch:

EXTC

Name of the student: Shreyas

Roll-no of the student: 39

Cgpa of the student: 10

Branch of the student: EXTC

Name of the student: Shubham

Roll-no of the student: 27

Cgpa of the student: 8.94

Branch of the student: EXTC

Process exited after 20.18 seconds with return value 0

Press any key to continue . . .

3.2 Write a C++ program for Basic bank Management System

Algorithm:

Step 1 : Create a class named Banklab with attributes such as name, account type, account number, amount and balance.

Step 2 : Create methods to input the values of the attributes.

Step 3 : Create a method for displaying the user's details entered through the constructor.

Step 4 : Create an option so that the user can choose what sort of operation they want to perform.

Step 5 : Using the user given data display the required output.

Program:

```
/* Write a C++ program for Basic bank Management System */
```

```
#include<iostream>
```

```
using namespace std;
```

```
class BankLab2 {
```

```
    public:    //Access Specifier
```

```
    string name;    //Attribute of the class
```

```
    char account_type;    //Attribute of the class
```

```
    int account_number,amount;    //Attribute of the class
```


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```
float balance; //Attribute of the class
```

```
BankLab2(string n,int a, char t, float b) {    //constructor is created
```

```
    name = n;
```

```
    account_number=a;
```

```
    account_type=t;
```

```
    balance=b;
```

```
}
```

```
int deposit() //method
```

```
{
```

```
    cout<<" \n Enter the amount to deposit: "; // asking user input
```

```
    cin>>amount; //storing the user input
```

```
    if(amount<0)
```

```
    {
```

```
        cout<<"\n Invalid amount,Enter a valid amount";
```

```
        return 0;
```

```
    }
```

```
    balance=balance+amount;
```

```
    return 1;
```

```
}
```

```
int withdraw() //method
```

```
{
```

```
    cout<<"\n Your Balance= "<<balance;
```

```
    cout<<"\n Enter amount to withdraw: "; // asking user input
```

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```
cin>>amount; //storing the user input
if (balance<amount)
{
    cout<<"\n Insufficient Balance: ";
    return 0;
}

if(amount<0)

{
    cout<<"\n Invalid  amount";
    return 0;
}
balance=balance-amount;
return 1;

}

void display() //method
{
    cout<<"Name :"<<name;
    cout<<"\n Account Number:"<<account_number;
    cout<<"\n Account Type:"<<account_type;
    cout<<"\n Balance: "<<balance;
}
```

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```
};  
  
int main()  
{  
  
    int account_number;  
    char ans;  
    BankLab2 b1("salman",1,'s',2000);  
    BankLab2 b2("makarand",2,'s',2000);  
    BankLab2 b3("siddharth",3,'s',2000);  
  
    cout<<"Menu"<<endl;  
    cout<<"1.Deposit"<<endl;  
    cout<<"2.Withdraw"<<endl;  
    cout<<"3.Display"<<endl;  
    cout<<"Enter option"<<endl; //asking the user input  
  
    int op;  
    cin>>op;//storing the user input  
  
    do  
    {  
        cout<<"Please enter your account number:"<<endl; // asking  
user input  
        cin>>account_number;          //storing the user input  
        switch(account_number)  
        {
```

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```
case 1:    if(op==1)
            b1.deposit();
            if(op==2)
                b1.withdraw();
            if(op==3)
                b1.display();
            break;
```

```
case 2:    if(op==1)
            b2.deposit();
            if(op==2)
                b2.withdraw();
            if(op==3)
                b2.display();
            break;
```

```
case 3:    if(op==1)
            b3.deposit();
            if(op==2)
                b3.withdraw();
            if(op==3)
                b3.display();
            break;
```

```
default: cout<<"Enter value between 1 to 3";
```

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```
        break;

    }

    cout<<"\n Do you want to continue?[Y/N]"; // asking user input
    cin>>ans; //storing the user input
    if(ans=='Y' || ans == 'y')
    {
        cout<<"Menu"<<endl;
        cout<<"1.Deposit"<<endl;
        cout<<"2.Withdraw"<<endl;
        cout<<"3.Display"<<endl;
        cout<<"Enter option"<<endl;
        cin>>op;
    }
    else if(ans=='N' || ans=='n')
    {
        break ;
    }

}

while(ans!='N' || ans!='n');

}
```

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Input given:

Enter option : 1 (Deposit)

Enter Account no. : 2


Amount to deposit : 1780

Do you want to continue ? : Y

Enter option : 3 (Display)

Enter Account no. : 2

Output:

 C:\Users\Shreyas\Documents\SEM 3 C++ codes\LAB 3.exe

```
Menu
1.Deposit
2.Withdraw
3.Display
Enter option
1
Please enter your account number:
2

Enter the amount to    deposit: 1780

Do you want to continue?[Y/N]Y
Menu
1.Deposit
2.Withdraw
3.Display
Enter option
3
Please enter your account number:
2
Name :makarand
Account Number:2
Account Type:s
Balance: 3780
Do you want to continue?[Y/N]N

-----
Process exited after 66.46 seconds with return value 0
Press any key to continue . . . ■
```