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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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

Theory:

(1) Difference between procedural and object oriented language:

Object-oriented programming and procedural programming both are used to develop the applications. Both of them are high-level programming languages; and it is also important to know the difference between them.

- Procedural Language:

It is defined as a programming language derived from the structure programming and based on calling procedures. The procedures are the functions, routines, or subroutines that consist of the computational steps required to be carried. As compared to object-oriented programming, procedural programming is less secure.

- Object Oriented Programming language:

In Object oriented programming, program is divided into small parts called objects. Object oriented programming follows bottom-up approach. Object oriented programming have access specifiers like private, public, protected etc. Object oriented programming provides data hiding so it is more secure.

(2) Application of object orientation:

- User interface design such as windows, menu.
- Real Time Systems
- Simulation and Modelling
- Object oriented databases

(3) Brief introduction to C++ and Java:

1. C++ is a general-purpose programming language that was developed as an enhancement of the C language to include object-oriented paradigm. It is an imperative and a compiled language.
2. The name of C++ signifies the evolutionary nature of the changes from C. "++" is the C increment operator. C++ is one of the predominant languages for the development of all kind of technical and commercial software.
3. C++ introduces Object-Oriented Programming, not present in C. Like other things, C++ supports the four primary features of OOP: encapsulation, polymorphism, abstraction, and inheritance.
4. C++ used in operating systems, game developments, IoT devices, Web browsers, financial tools, telecommunications, movie production etc.

PROGRAM 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: START

Step 2: Create class Student; with parameters which are needed as rollnum, name, branch, Division, cgpa etc.

Step 3: Give two methods as getdata(), and printdata() in a class student.

Step 4: In main function create two objects s1,s2 to declare access values from class student.

Step 5: END

Program:

```
#include<iostream>
using namespace std;

class student{
        public:
        int rollnum;
        float cgpa;
        string branch,name;
        char div;


        int getdata()
        {
                cout<<"\nEnter your Name: ";
                cin>>name;

                cout<<"Enter your Roll no: ";
                cin>>rollnum;

                cout<<"Enter your Division: ";
                cin>>div;

                cout<<"Enter your Branch: ";
                cin>>branch;
```

```
        cout<<"Enter your CGPA:";
        cin>>cgpa;
    }

    int displaydata()
    {
        cout<<"\nStudent Information"<<endl;
        cout<<"The name is: "<<name<<endl;
        cout<<"The Roll no is: "<<rollnum<<endl;
        cout<<"The Division is: "<<div<<endl;
        cout<<"The Branch is: "<<branch<<endl;
        cout<<"The CGPA is: "<<cgpa<<endl;
    }
};

int main()
{
    student s1,s2;
    s1.getdata();
    s1.displaydata();
    s2.getdata();
    s2.displaydata();
}
```

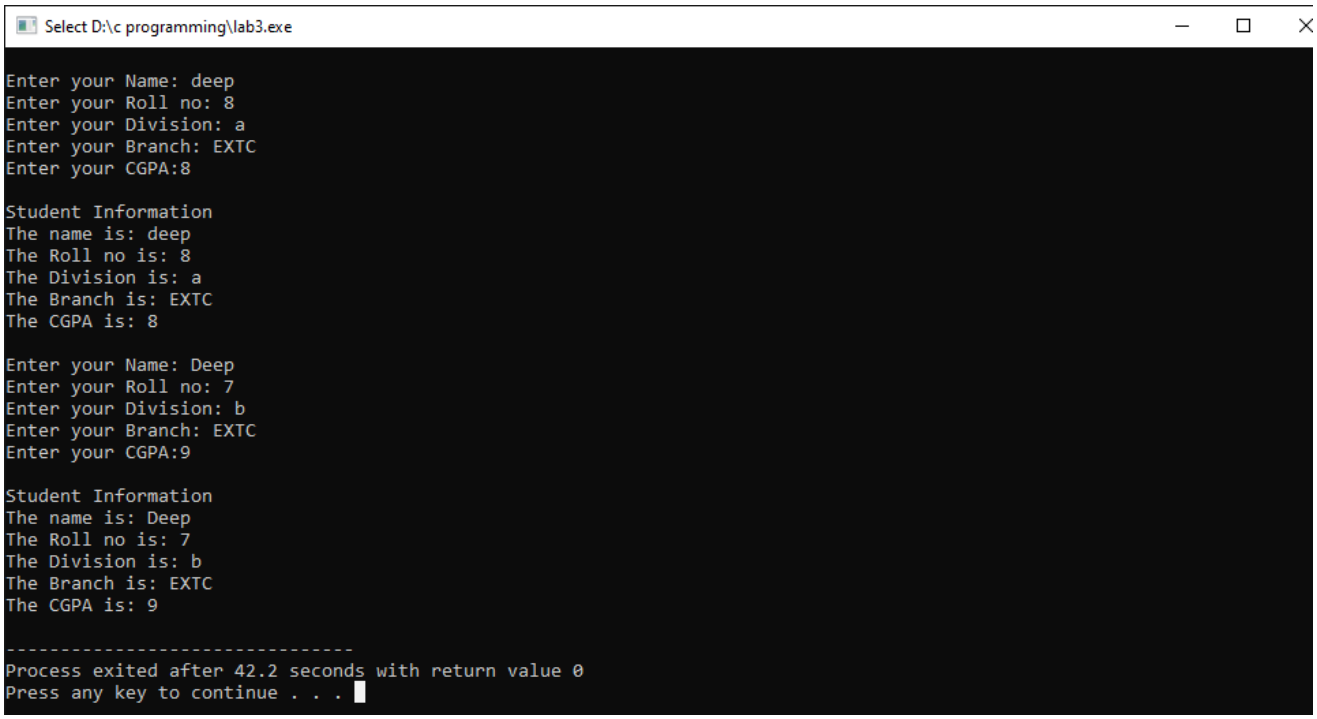
Input Given:

For 2 Students information to be output (as declare in code):

1. Enter Name

2. Enter Roll no
3. Enter Division
4. Enter branch
5. Enter your score in (cgpa)

Output:



PROGRAM 2: Write a C++ program for Basic Bank Management System.

Algorithm:

Step 1: START

Step 2: Create class bank code, declare parameters which are needed as name, account number etc.

Step 3: Create Constructor, and functions like deposit(), withdraw(), display().

Step 4: In main function declare objects, and add do-while loop and in it use switch case to add input from user, add input option from given 3.

Step 5: END.

PROGRAM CODE:

```
        // To create  Basic Bank Management System using Constructors
#include<iostream>
using namespace std;

class Bankcode
{
        public:
      string name;
            char account_type;
            int account_number;
                  int amount;
            float balance;

        Bankcode(string n ,int a, char t, float b)
         {
                  name = n;
                  account_number=a;
                  account_type=t;
                  balance=b;
        }


   int deposit()
        {
                  cout<<"Enter the amount to   deposit: "<<endl;
                  cin>> amount;
                  if(amount<0)
```

```
        {
                cout<<"Invalid amount,Enter a valid amount"<<endl;
                return 0;
        }
        balance=balance+amount;
        return 1;
}

int withdraw()
{
        cout<<"Your Balance= "        <<balance;
        cout<<"Enter amount to withdraw: "<<endl;
        cin>> amount;
         if (balance<amount)
        {
                cout<<"Insufficient Balance:  "<<endl;
                return 0;
        }
        if(amount<0)
        {
                cout<<"Invalid          amount"<<endl;
                return 0;
        }
        balance=balance-amount;
        return 1;
}

void display()
```

```
        {
                cout<<"Name : "<<name<<endl;
                cout<<"Account Number:" <<account_number<<endl;
                cout<<"Account Type:" <<account_type<<endl;
                cout<<"Balance: " <<balance<<endl;
        }
};

int main()
{
        char ans;
        int account_number;
        int op;

   Bankcode b1("salman",1,'s',2000);
        Bankcode b2("makarand",2,'s',2000);
        Bankcode b3("siddharth",3,'s',2000);

        cout<<"\nMenu"<<endl;
        cout<<"1.Deposit"<<endl ;
        cout<<"2.Withdraw"<<endl;
        cout<<"3.Display"<<endl;
   cout<<"Enter option"<<endl;
   cin>>op;

   do
                {
                        cout<<"Please enter your account number:"<<endl;
```

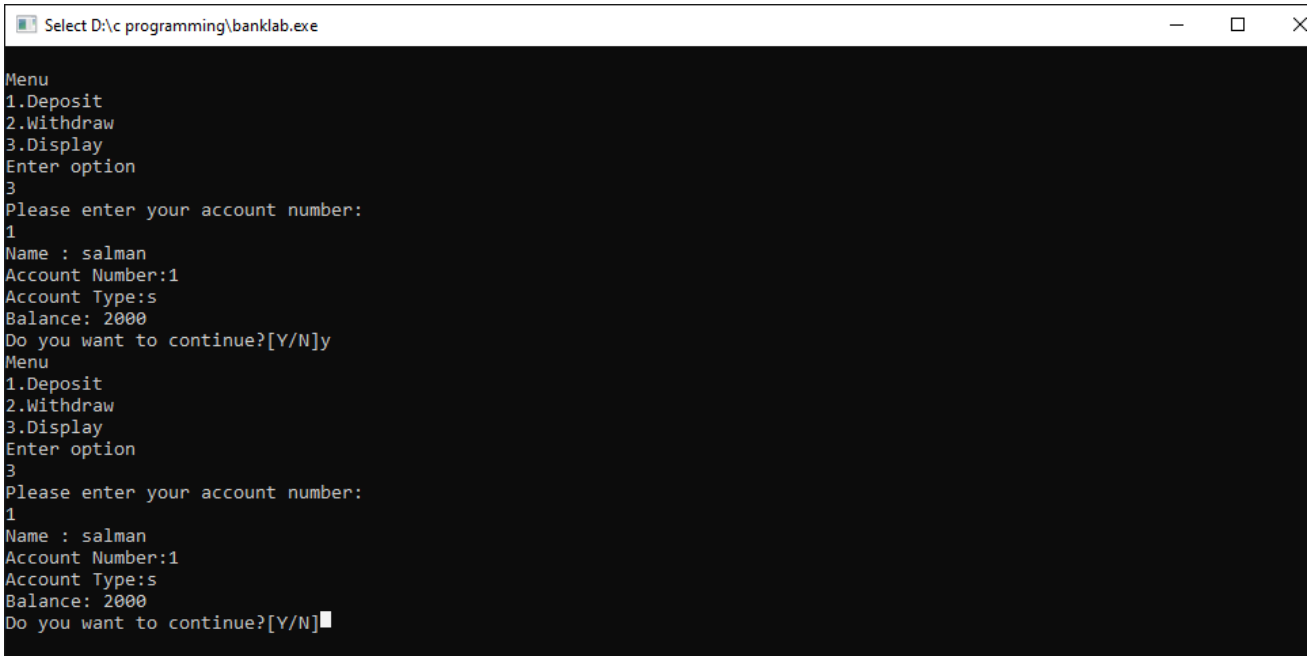
```
cin>>account_number;
        switch(account_number)
        {

            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"<<endl;
                        break;
                }

        cout<<"Do you want to continue?[Y/N]";
                cin>>ans;

                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;
                }
            }
                while(ans!='N');
    return 0;
}
```

INPUT GIVEN:

1. Enter option from 1-3.
2. Enter the display amount, withdraw amount.
3. Enter Y/N .

OUTPUT:


Select D:\c programming\banklab.exe
Menu
1.Deposit
2.Withdraw
3.Display
Enter option
3
Please enter your account number:
1
Name : salman
Account Number:1
Account Type:s
Balance: 2000
Do you want to continue?[Y/N]y
Menu
1.Deposit
2.Withdraw
3.Display
Enter option
3
Please enter your account number:
1
Name : salman
Account Number:1
Account Type:s
Balance: 2000
Do you want to continue?[Y/N]