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**
Student Name:	**Shruti Gokhale**
Roll No :	**40**

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:

Difference between procedural and object oriented language

Procedural programming:

Procedural programming uses a list of instructions to tell the computer what to do step-by-step. Procedural programming relies on - you guessed it - procedures, also known as routines or subroutines. A procedure contains a series of computational steps to be carried out. Procedural programming is also referred to as imperative programming. Procedural programming languages are also known as top-down languages.

Object-oriented programming:

Object-oriented programming, or OOP, is an approach to problem-solving where all computations are carried out using objects. An object is a component of a program that knows

how to perform certain actions and how to interact with other elements of the program. Objects are the basic units of object-oriented programming.

Application of object orientation

1. User interface design such as windows, menu
2. Object oriented databases
3. Simulation and Modeling
4. Real Time Systems
5. AI and Expert System
6. Neural Networks and parallel programming
7. Decision support and office automation systems etc.

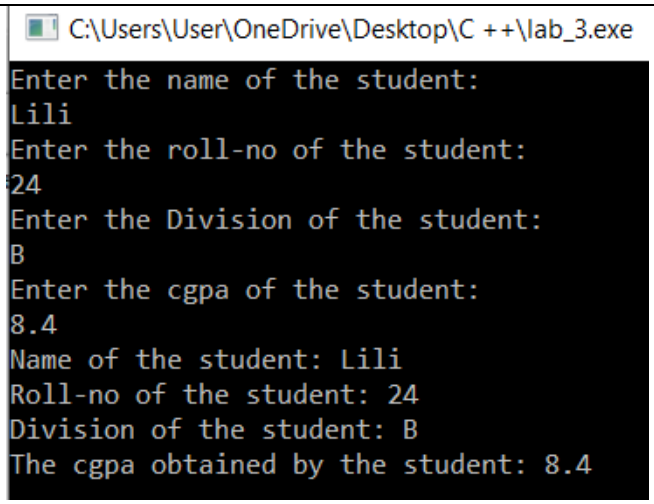
Brief introduction to C++ and Java

C++ (pronounced "see plus plus") is a programming language began as an expanded version of C. The C++ were first invented by Bjarne Stroustrup in 1979 at Bell Laboratories in Murray Hill, New Jersey. Bjarne Stroustrup initially called the new language "C with Classes." However, in 1983 the name was changed to C++. C++ is a middle-level programming language. C++ is a statically typed, compiled, general purpose, case -sensitive, free-form programming language that supports procedural, object-oriented, and generic programming.

Algorithm (3.1):	1. Start 2. Define Class Student 3. Define attributes – Name , Roll_no, cgpa, div , branch 4. Define and declare method – getdata() to get input from user. 5. Define and declare method – printdata() to print the values 6. Define Main function() 7. Create object s1, s2 to call the class functionality. 8. End.
Program:	#include<iostream> using namespace std; class Student{ public: string name; int roll_no; char div; float cgpa; void getdata()

```
{
cout<<"Enter the name of the student:  "<<endl;
cin>>name;
cout<<"Enter the roll-no of the student: "<<endl;
cin>>roll_no;
cout<<"Enter the Division of the student: "<<endl;
cin>>div;
cout<<"Enter the cgpa of the student: "<<endl;
cin>>cgpa;
}
/*int getdata(string n,int r,char d,float c)
{
name=n;
roll_no=r;
div=d;
cgpa=c;
return 0;
}*/
void printdata()
{
cout<<"Name of the student: "<<name<<endl;
cout<<"Roll-no of the student: "<<roll_no<<endl;
cout<<"Division of the student: "<<div<<endl;
cout<<"The cgpa obtained by the student: "<<cgpa<<endl;
}
};
int main()
{
```

	Student s1;
	Student s2;
	s1.getdata();
	s1.printdata();
	return 0;
	}

Input given:	Name: Lili Roll no: 24 Division: B Cgpa:8.4
Output Screenshot:	

Algorithm (3.2):	1. Start 2. Define Class BankLab 2 3. Define attributes – Name , account_type , account_number, amount, balance 4. Declare attributes by using constructor of class. 5. Define and declare method – deposit() to deposit the amount 6. Define and declare method – withdraw() to withdraw the amount 7. Define and declare method – display() to display the account details 8. Define Main function() 9. Create object b1, b2, b3 to call the class functionality. 10. Do – while loop to repeat the process.

	11. End

Program:	#include<iostream>
	using namespace std;
	class BankLab2
	{
	public:
	string name;
	char account_type;
	int account_number,amount;
	float balance;
	BankLab2(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: ";
	cin>>amount;
	if(amount<0)
	{
	cout<<"Invalid amount,Enter a valid amount";
	return 0;
	}
	balance=balance+amount;
	return 1;
	}

```
int withdraw()
{
cout<<"Your Balance= "<<balance;
cout<<"Enter amount to withdraw: ";
cin>>amount;
if (balance<amount)
{
cout<<"Insufficient Balance: ";
return 0;
}
if(amount<0)
{
cout<<"Invalid amount";
return 0;
}
balance=balance-amount;
return 1;
}
void display()
{
cout<<"Name :"<<name;
cout<<"Account Number:"<<account_number;
cout<<"Account Type:"<<account_type;
cout<<"Balance: "<<balance;
}
};
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;
int op;
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";
break;
}
cout<<"Do you want to continue?[Y/N]";
cin>>ans;
if(ans=='Y' || ans == 'y')
{
cout<<"Menu";
cout<<"1.Deposit";
cout<<"2.Withdraw";
cout<<"3.Display";
cout<<"Enter option";
cin>>op;
}
}
while(ans!='N');
}
```

Input given:

Option: 1

	Acc no: 2 Amount to deposit: 1000 Continue: N
Output Screenshot: