

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:	Kanishka Aware
Roll No :	13

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

Procedural Programming can be defined as a programming model which is derived from structured programming, based upon the concept of calling procedure. Procedures, also known as routines, subroutines or functions, simply consist of a series of computational steps to be carried out. During a program's execution, any given procedure might be called at any point, including by other procedures or itself.

Object oriented programming can be defined as a programming model which is based upon the concept of objects. Objects contain data in the form of attributes and code in the form of methods. In object oriented programming, computer

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programs are designed using the concept of objects that interact with real world. Object oriented programming languages are various but the most popular ones are class-based, meaning that objects are instances of classes, which also determine their types.

Application of object orientation

Real-Time System design: Real-time system inherits complexities and makes it difficult to build them. OOP techniques make it easier to handle those complexities.

Hypertext and Hypermedia: Hypertext is similar to regular text as it can be stored, searched, and edited easily. Hypermedia on the other hand is a superset of hypertext. OOP also helps in laying the framework for hypertext and hypermedia.

AI Expert System: These are computer application that is developed to solve complex problems which are far beyond the human brain. OOP helps to develop such an AI expert System

Office automation System: These include formal as well as informal electronic systems that primarily concerned with information sharing and communication to and from people inside and outside the organization. OOP also help in making office automation principle.

Neural networking and parallel programming: It addresses the problem of prediction and approximation of complex-time varying systems. OOP simplifies the entire process by simplifying the approximation and prediction ability of the network.

Stimulation and modeling system: It is difficult to model complex systems due to varying specifications of variables. Stimulating complex systems require modeling and understanding interaction explicitly. OOP provides an appropriate approach for simplifying these complex models.

Object-oriented database: The databases try to maintain a direct correspondence between the real world and database object in order to let the object retain its identity and integrity.

Client-server system: Object-oriented client-server system provides the IT infrastructure creating object-oriented server internet(OCSI) applications.

CIM/CAD/CAM systems: OOP can also be used in manufacturing and designing applications as it allows people to reduce the efforts involved. For instance, it can

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be used while designing blueprints and flowcharts. So it makes it possible to produce these flowcharts and blueprint accurately.

Brief introduction to C++

C++ was designed with an orientation toward system programming and embedded, resource-constrained software and large systems, with performance, efficiency, and flexibility of use as its design highlights. C++ has also been found useful in many other contexts, with key strengths being software infrastructure and resource-constrained applications, including desktop applications, video games, servers (e.g. e-commerce, web search, or databases), and performance-critical applications (e.g. telephone switches or space probes).

C++ is standardized by the International Organization for Standardization (ISO), with the latest standard version ratified and published by ISO in December 2020 as ISO/IEC 14882:2020 (informally known as C++20). The C++ programming language was initially standardized in 1998 as ISO/IEC 14882:1998, which was then amended by the C++03, C++11, C++14, and C++17 standards. The current C++20 standard supersedes these with new features and an enlarged standard library. Before the initial standardization in 1998, C++ was developed by Danish computer scientist Bjarne Stroustrup at Bell Labs since 1979 as an extension of the C language; he wanted an efficient and flexible language similar to C that also provided high-level features for program organization. Since 2012, C++ has been on a three-year release schedule with C++23 as the next planned standard.

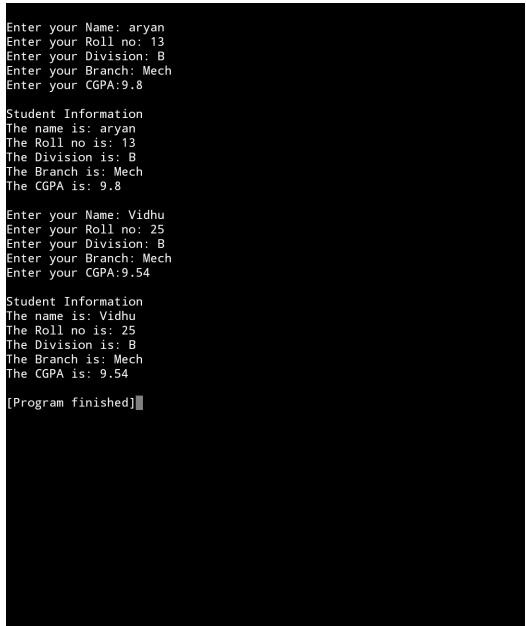
Algorithm :	<p>3.1</p> <p>STEP 1. Start</p> <p>STEP 2. Define Class Student</p> <p>STEP 3. Define attributes – Name , Roll_no, cgpa, div , branch</p> <p>STEP 4. Define and declare method – getdata() to get input from user.</p> <p>STEP 5. Define and declare method – printdata() to print the values</p> <p>STEP 6. Define Main function()</p>
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	<p>STEP 7. Create object s1, s2 to call the class functionality.</p> <p>STEP 8. Print result</p> <p>STEP 9. End.</p> <p>3.2</p> <p>STEP 1. Start</p> <p>STEP 2. Define Class BankLab 2</p> <p>STEP 3. Define attributes – Name , account_type , account_number, amount, balance \</p> <p>STEP 4. Declare attributes by using constructor of class.</p> <p>STEP 5. Define and declare method – deposit() to deposit the amount</p> <p>STEP 6. Define and declare methods – withdraw() to withdraw the amount</p> <p>STEP 7. Define and declare methods – display() to display the account details</p> <p>STEP 8. Define Main function()</p> <p>STEP 9. Create object b1, b2, b3 to call the class functionality.</p> <p>STEP 10. Do – while loop to repeat the process.</p> <p>STEP 11. Print results</p> <p>STEP 12. end</p>
Program:	https://github.com/kanishkadbit/skill-labs-with-OOPM/blob/main/13_Lab3.cpp
Input given:	3.1

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	<p>Aryan 13 B Mech 9.8</p> <p>Vidhu 25 B Mech 9.54</p> <p>3.2</p> <p>3 2 1</p>
Output Screenshot:	<p>3.1</p>  <p>3.2</p>

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```
Menu
1.Deposit
2.Withdraw
3.Display
Enter option
3
Please enter your account number:
1
Name :salmanAccount Number:1Account Type:sBalance: 2000Do you want to co
ntinue?[Y/N]Y
Menu1.Deposit2.Withdraw3.DisplayEnter option2
Please enter your account number:
1
Your Balance= 2000Enter amount to withdraw: 500
Do you want to continue?[Y/N]Y
Menu1.Deposit2.Withdraw3.DisplayEnter option1
Please enter your account number:
1
Enter the amount to deposit: 400
Do you want to continue?[Y/N]y
Menu1.Deposit2.Withdraw3.DisplayEnter option3
Please enter your account number:
1
Name :salmanAccount Number:1Account Type:sBalance: 1900Do you want to co
ntinue?[Y/N]y
Menu1.Deposit2.Withdraw3.DisplayEnter option
```