

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:	05
Student Name:	SHIVAM SHARMA
Roll No :	E-19

Title:

1. Write a program to create a class Student with data 'name, city and age' along with method print Data to display the data. Create the two objects s1, s2 to declare and access the values
2. WAP using parameterized constructor with two parameters id and name. While creating the objects obj1 and obj2 passed two arguments so that this constructor gets invoked after creation of obj1 and obj2.

Learning Objective:

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

Learning Outcome:

- Ability to execute a simple C++ and Java program with and without any inputs to the program.
- Understanding the classes and objects in C++ and Java.

Theory:

Classes and Objects are basic concepts of Object Oriented Programming which revolve around the real life entities.

Constructors are used for initializing new objects. Fields are variables that provide the state of the class and its objects, and methods are used to implement the behavior of the class and its objects.

There are various types of classes that are used in real time applications such as nested classes, anonymous classes, lambda expressions.

Object

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It is a basic unit of Object-Oriented Programming and represents the real life entities. A typical Java program creates many objects, which as you know, interact by invoking methods. An object consists of :

State: It is represented by attributes of an object. It also reflects the properties of an object.

Behavior: It is represented by methods of an object. It also reflects the response of an object with other objects.

Identity: It gives a unique name to an object and enables one object to interact with other

Class

A class is a user defined blueprint or prototype from which objects are created. It represents the set of properties or methods that are common to all objects of one type. In general, class declarations can include these components, in order:

Modifiers: A class can be public or has default access (Refer this for details).

class keyword: class keyword is used to create a class.

Class name: The name should begin with an initial letter (capitalized by convention).

Superclass(if any): The name of the class's parent (superclass), if any, preceded by the keyword extends. A class can only extend (subclass) one parent.

Interfaces(if any): A comma-separated list of interfaces implemented by the class, if any, preceded by the keyword implements. A class can implement more than one interface.

Body: The class body surrounded by braces, { }.

Algorithm 1 :

STEP 1: start

STEP 2: define two n1 and n2 STEP 3: input number1,n1 input number2, n2

STEP 4: addition of two numbers n1 and n2 STEP 5: swapping of two numbers n1 and n2

STEP 6: odd or even

STEP7: stop

Program 1:

INPUT

```
class Student
{
    String name, city;
    int age;
    static int m;
    void printData()
```

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```
{
    System.out.println("Student name = "+name);
    System.out.println("Student city = "+city);
    System.out.println("Studentage="+age);
}
}
public class Main
{
    public static void main(String args[])
    {
        Student s1,s2;
        s1=new Student();
        s2=new Student();
        s1.name="Amit";
        s1.city="Dehradun";
        s1.age=22;
        s2.name="Kapil";
        s2.city="Delhi";
        s2.age=50;
        s2.printData();
        s1.printData();
        s1.m=50;
        s2.m=55;
        Student.m=27;
        System.out.println("s1.m = "+s1.m);
        System.out.println("s2.m="+s2.m);
        System.out.println("Student.m="+Student.m);
    }
}
```

Output:

```
Student name = aaron
Student city = mumbai
Studentage=21
Student name = Shivam
Student city = kalyan
Studentage=20
s1.m = 29
s2.m=29
Student.m=29

...Program finished with exit code 0
Press ENTER to exit console.
```

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PROGRAM 2

Algorithm 2:

Step 1 : start

Step 2 : create class employee

Step 3 : declare employee attributes like empId and emp name

Step 4 : create a parameterized constructor with two parameters

Step 5 : In public static void main create object of employee and give input

Step 6 : call employee object

Step 7 : end

INPUT

```
class Employee
{
    int empId;
    String empName;

    //parameterized constructor with two parameters
    Employee(int empId, String empName){
        this.empId = empId;
        this.empName=empName;
    }

    void info()
    {
        System.out.println("Id:"+empId+" Name:"+empName);
    }
}

public class Main{
    public static void main(String args[])
    {
        Employee obj1 = new Employee(10245,"DHANSHREE");
        Employee obj2 = new Employee(92232,"DIVYA");
        obj1.info();
        obj2.info();
    }
}
```

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OUTPUT

```
Id:1803036 Name:Shivam
Id:1803010 Name:Aaron

...Program finished with exit code 0
Press ENTER to exit console.
```