## Ex no :1

**Inheritance**

```
import java.util.Scanner;
class Employee {
int salary = 50000;
void basic_salary() {
System.out.println(&amp;quot;Basic salary is &amp;quot; + salary);
}
}
class Programmer extends Employee {
int increment = 10000;
int prog_salary = salary + increment;
void print_salary() {
System.out.println(&amp;quot;Programmer salary is &amp;quot; + prog_salary);
}
}
public class emp {
public static void main(String args[]) {
Programmer p1 = new Programmer();
p1.basic_salary();
p1.print_salary();
}
}
```

**Output:**

Basic Salary is50000

Programmer Salary is60000

## Ex no : 2

**INTERFACE**

**PROGRAM: 1**

```
interface Printer
{
void print(String message);
}
class ConsolePrinter implements Printer
{
public void print(String message)
{
System.out.println("printing :" + message);
}
}
public class InterfaceExample
{
public static void main(String[]args)
{
Printer printer = new ConsolePrinter();
printer.print ("Hello, Interface!");
}
}
```

**Output:**

Printing :Hello, Interface !

**PROGRAM:2**

```
interface Shape
{
void draw();
}
class Circle implements Shape { @Override
public void draw() { System.out.println("Drawing a circle");
}
}
class Square implements Shape { @Override
public void draw() { System.out.println("Drawing a square ");
}
}
public class shapes{
public static void main(String[]args)
{
Shape circle = new Circle(); Shape square = new Square();
String shapeType = "Circle"; switch
(shapeType.toLowerCase()){ case"circle":
circle.draw(); break;
case"square":
square.draw(); break;
default:
System.out.println("unknow shape");
}}}
```

**Output:**

Drawing a circle

**Program 3:**

```
// Java program to demonstrate working of  interface

import java.io.*;

// A simple interface
interface In1 {

    // public, static and final
    final int a = 10;

    // public and abstract
    void display();
}

// A class that implements the interface.
class TestClass implements In1 {

    // Implementing the capabilities of
    // interface.
    public void display(){
      System.out.println("Computer Technology");
    }

    // Driver Code
    public static void main(String[] args)
    {
        TestClass t = new TestClass();
        t.display();
        System.out.println(t.a);
    }
}
```

**Output:**

```
Computer Technology
10
```

## Ex no: 3

**PROGRAM:1**

```
import mypack.Hello;
public class MyClass
{
public static void main(String args[])
{
Hello a = new Hello();
 a.display();
}
}

package mypack;
public class Hello
{
public void display()
{
System.out.println("I Love India!!");
}}
```

**Output:**

I Love India!!

**PROGRAM:2**

```
package userinput;
import java.util.Scanner;
public class UserInput
{
public static int getUserInput()
{ Scanner scanner=new Scanner(System.in);
System.out.println("Enter a number:");
return scanner.nextInt();
}
}
```

```
package calculator;
public class Addition {
public static int addNumbers(int num1, int num2 )
{
return num1+num2;
}
}
```

```
import userinput.UserInput;
 import calculator.Addition;
public class add {
public static void main(String[] args)
{ int number1 = UserInput.getUserInput();
 int number2 = UserInput.getUserInput();
int sum = Addition.addNumbers(number1,number2);
System.out.println("sum:"+sum);
}}
```

**Output:**

Enter a number:

5

Enter a number

5

Sum: 10

**RESULT:**

Thus, the above java program has executed successfully

## Ex no :4

**Exception handling**

**Program 1:**

**PROGRAM:1**

```
public class exceptionhandlingexample
{
public static void main(String[] args)
{
try
 {
int result = divideNumbers(10, 0); System.out.println("Result: " +                result);
} catch (ArithmeticException e) {
System.err.println("Error: Division   by zero is not allowed.");
} finally {
System.out.println("Finally block executed.");
}
```

```
}
private static int divideNumbers(int numerator, int denominator) {
return numerator / denominator;
}
}
```

**Output:**

Error: Division by zero is not allowed

Finally block executed

## Program 2:

```
class Calculator {
public int add(int a, int b) {
return a + b;
}
public int subtract(int a, int b) {
return a - b;
}
public int multiply(int a, int b) {
return a * b;
}
public int divide(int a, int b) {
if (b != 0) {
return a / b;
} else {
throw new ArithmeticException("Cannot divide by zero!");
}
}
}
public class PackageExample {
public static void main(String[] args) {
```

```
Calculator calculator = new Calculator();
int result = calculator.add(5, 3);
System.out.println(“Addition: “ + result);
result = calculator.subtract(5, 3);
System.out.println(“Subtraction:” + result);
result = calculator.multiply(5, 3);
System.out.println(“Multiplication: “ + result);
result = calculator.divide(10, 2);
System.out.println(“Division: “ + result);
}
}
```

**Output:**

Addition: 8

Subtraction: 2

Multiplication: 15

Division: 5