**Lab Exercise 8**

Develop the following:

1. Create a package named "Calculator".
2. Create some classes in the package representing some common operations like addition, subtraction, multiplication and division.
3. Import and compile these classes in other program.

**Theory:** While class definitions are practical modular units, the Java programming language has another mechanism that facilitates programming teams and reusable software units. The package facility allows for appropriate classes to be grouped into packages. As with standard design rationale for objects where relevant methods are placed in the same class definition, packages in Java form the next level of software containment for classes with logically related functionality. Packaging also partitions the name space to avoid name clashes. Computations in Java are reliant on objects, and the result of system design is a set of class definitions. Where teams of programmers work independently with the intention of the results to be subsequently integrated, there is a chance that they may choose the same name for their classes. Packaging thus allows for the names of classes to be confined to the originating package**.**

Package hierarchy is specified via the package keyword preceding a class definition as shown below. Here, class XYZ belongs within package A. Its complete qualified name is thus A.XYZ.

package A;

class XYZ {

int h;

void j() { ... }

}

**Program:**

addition.java

package Calculator;

public class addition {

public int add(int a, int b){

return (a+b);

}

}

subtraction.java

package Calculator;

public class subtraction {

public int sub(int a, int b){

return (a-b);

}

}

multiplication.java

package Calculator;

public class multiplication {

public int mul(int a, int b){

return (a\*b);

}

}

division.java

package Calculator;

public class division {

public int div(int a, int b){

return (a/b);

}

}

op.java

package op;

import Calculator.\*;

import java.util.Scanner;

public class Op {

public static void main(String[] args) {

while(true){

System .out.println("1.Addition"+"\n"+"2.Subtraction"+"\n"+"3.Multiplication"+"\n"+"4.Division"+"\n"+"5.Exit");

System.out.println("Enter the choice");

Scanner in= new Scanner(System.in);

int n= in.nextInt();

if(n==5){

System.exit(0);

}

System.out.println("enter the number");

int a= in.nextInt();

int b= in.nextInt();

switch(n){

case 1: addition ad= new addition();

int k= ad.add(a,b);

System.out.println(a+"+"+b+"="+k);

break;

case 2: subtraction sb= new subtraction();

int l= sb.sub(a, b);

System.out.println(a+"-"+b+"="+l);

break;

case 3: multiplication mu= new multiplication();

int m= mu.mul(a, b);

System.out.println(a+"\*"+b+"="+m);

break;

case 4: division dv= new division();

int h= dv.div(a, b);

System.out.println(a+"/"+b+"="+h);

break;

}

}

}

}