My first project name is Simple calculator(Console based). So here we can perform basically four type of operation that are addition ,subtraction ,multiplication ,division for any type of two numbers means integers floats doubles etc.

So scope of this projects are many

1. We can easily perform our basic calculations(add, sub, mul, div).
2. we ever interested in coding they should learn many this from here.
3. Understanding of the 4 pillers of Object oriented language.

My objective of behind this is to make a simple application of daily use purpose and learn something new from the industry level.

After giving two numbers and choice(add or sub or etc.) it will produces the perfect result.

We have made 6 classes to implement this project and fullfill the development and reach out proper objective.

Those classes are: Addition, subtraction, multiplication, division , takeinput and the main one is SimpleCalculator.

public class SimpleCalculator

{

    public static void main(String[] args) {

        Scanner sc=new Scanner(System.in);

        try {

            System.out.println("Please Enter your choice: ");

        System.out.println("PRESS '1' FOR ADDITION\tPRESS '2' FOR SUBTRACTION\tPRESS '3' FOR MULTIPLICATION\tPRESS '4' FOR DIVISION: ");

        int sch=sc.nextInt();

        switch (sch) {

            case 1:new TakeInput(sch).input();

                break;

            case 2:new TakeInput(sch).input();

                break;

            case 3:new TakeInput(sch).input();

                break;

            case 4:new TakeInput(sch).input();

                break;

            default:System.out.println("Please enter valid choice.");

        }

        } catch (Exception e) {

            System.out.println(e.getMessage());

            System.out.println("Please enter the right option which is provided above... ");

        }

        finally

        {

            sc.close();

        }

    }

}

It is our main class SimpleCalculator{} which contains the main method. In main method we use try-catch block to handle the unexpected exceptions.

Here user will choose what type of operation he or she will want to do (1 for addition , 2 for subtraction , etc.). After giving that choice it will call the input() method using swithch-case which is present in the TakeInput{} class and pass that user choice operation through that class constructor.

class TakeInput

{

    int op=0;

    TakeInput(){}

    public TakeInput(int op)

    {

        this.op=op;

    }

    int aI=0;

    int bI=0;

    double aD=0.0;

    double bD=0.0;

    int ch1=0;

    int ch2=0;

    Scanner sc=new Scanner(System.in);

    public void input()

    {

        try {

            System.out.print("Please enter a number: (IF THE NUMBER HAVE NO DECIMAL POINT DIGIT THEN PRESS 1 AND IF THE NUMBER HAVE DECIMAL POINT DIGIT THEN PRESS 2): ");

            ch1=sc.nextInt();

            System.out.println();

            if(ch1==1)

                aI=sc.nextInt();

            else

                aD=sc.nextDouble();

            System.out.println("Enter another number: (IF THE NUMBER HAVE NO DECIMAL POINT DIGIT THEN PRESS 1 AND IF THE NUMBER HAVE DECIMAL POINT DIGIT THEN PRESS 2): ");

            ch2=sc.nextInt();

            System.out.println();

            if(ch2==1)

                bI=sc.nextInt();

            else

                bD=sc.nextDouble();

        } catch (Exception e) {

            System.out.println(e.getMessage());

            System.out.println("Please enter the right option which is provided above... ");

        }

        //Redirect to that method.

        if(op==1){

            Addition ob=new Addition();

            if(ch1==1 && ch2==1)

                ob.add(aI,bI);

            else if(ch1==2 && ch2==2)

                ob.add(aD, bD);

            else if(ch1==1 && ch2==2)

                ob.add(aI, bD);

            else if(ch1==2 && ch2==1)

                ob.add(aD,bI);

        }

        else if(op==2){

            Subtraction ob=new Subtraction();

            if(ch1==1 && ch2==1)

                ob.sub(aI,bI);

            else if(ch1==2 && ch2==2)

                ob.sub(aD, bD);

            else if(ch1==1 && ch2==2)

                ob.sub(aI, bD);

            else if(ch1==2 && ch2==1)

                ob.sub(aD,bI);

        }

        else if(op==3){

            Multiplication ob=new Multiplication();

            if(ch1==1 && ch2==1)

                ob.mul(aI,bI);

            else if(ch1==2 && ch2==2)

                ob.mul(aD, bD);

            else if(ch1==1 && ch2==2)

                ob.mul(aI, bD);

            else if(ch1==2 && ch2==1)

                ob.mul(aD,bI);

        }

        else if(op==4){

            Division ob=new Division();

            if(ch1==1 && ch2==1)

                ob.div(aI,bI);

            else if(ch1==2 && ch2==2)

                ob.div(aD, bD);

            else if(ch1==1 && ch2==2)

                ob.div(aI, bD);

            else if(ch1==2 && ch2==1)

                ob.div(aD,bI);

        }

    }

}

Here the above class is TakeInput{} class. Here we declare one *op* variable to store the user choice operation which will come through TakeInput class constructor. After that we declare 2 integer variable which will capable to store user provided operand and two double variable to store the user provided double values. And two integer variable which will able to store the choice means that user provided values have decimal values of not.

After giving any two types of user input(operand) we use if-else to check the user choice operation and then redirect to that method with those user provided data.

class Addition{

    public void add(int a , int b)

    {

        System.out.println("THE RESULT OF "+a+" + "+b+" IS "+"="+(a+b));

    }

    public void add(int a, double b)

    {

        System.out.println("THE RESULT OF "+a+" + "+b+" IS "+"="+(a+b));

    }

    public void add(double a, int b)

    {

        System.out.println("THE RESULT OF "+a+" + "+b+" IS "+"="+(a+b));

    }

    public void add(double a , double b)

    {

        System.out.println("THE RESULT OF "+a+" + "+b+" IS "+"="+(a+b));

    }

}

class Subtraction{

    public void sub(int a , int b)

    {

        System.out.println("THE RESULT OF "+a+" - "+b+" IS "+"="+(a-b));

    }

    public void sub(int a, double b)

    {

        System.out.println("THE RESULT OF "+a+" - "+b+" IS "+"="+(a-b));

    }

    public void sub(double a, int b)

    {

        System.out.println("THE RESULT OF "+a+" - "+b+" IS "+"="+(a-b));

    }

    public void sub(double a , double b)

    {

        System.out.println("THE RESULT OF "+a+" - "+b+" IS "+"="+(a-b));

    }

}

class Division{

    public void div(int a , int b)

    {

        System.out.println("THE RESULT OF "+a+" / "+b+" IS "+"="+(a/b));

    }

    public void div(int a, double b)

    {

        System.out.println("THE RESULT OF "+a+" / "+b+" IS "+"="+(a/b));

    }

    public void div(double a, int b)

    {

        System.out.println("THE RESULT OF "+a+" / "+b+" IS "+"="+(a/b));

    }

    public void div(double a , double b)

    {

        System.out.println("THE RESULT OF "+a+" / "+b+" IS "+"="+(a/b));

    }

}

class Multiplication{

    public void mul(int a , int b)

    {

        System.out.println("THE RESULT OF "+a+" \* "+b+" IS "+"="+(a\*b));

    }

    public void mul(int a, double b)

    {

        System.out.println("THE RESULT OF "+a+" \* "+b+" IS "+"="+(a\*b));

    }

    public void mul(double a, int b)

    {

        System.out.println("THE RESULT OF "+a+" \* "+b+" IS "+"="+(a\*b));

    }

    public void mul(double a,double b)

    {

        System.out.println("THE RESULT OF "+a+" \* "+b+" IS "+"="+(a\*b));

    }

}

The above 4 classes are addition, substraction, division, and multiplication respectively.

And here we noticed that polymorphism is used here to calculate operations.

Here which method is executes it will depends on the user provided inputs.

After that it will executes that method and show the output. And end the program.