**PROJECT REPORT ON JAVA CREATING SCIENTIFIC CALCULATOR**

1. I used basic tools of eclipse for java and made simple scientific calculator, plots of basic functions.
2. For understanding the basic function of programming I have made the calculator which will perform the basic mathematical functions like addition, sustraction ,multiplication division, square, square root etc.
3. The aim of this project is to understand object oriented programming. the calculator application performs basic mathematical oprations .
4. When the user operate the application calls the corresponding class and the user can perform various mathematical operations provided in the class.

Creating the calculator application :

To create the Calculator application, 3 java imports were created. First, import java.util.Scanner; is created. Then, we create the base class Calculate, with the file name "Calculate.java" which contains all the methods for calculation. Second and third import import java.util.\*; import java.lang.Math.\*; . After this we create main method and then give condition Boolean whether the condition is true of false. Then the condition while condition as true. Then print the all the functions as +,\_,\*,^,% etc. after that we print the enter the choice of operation, then switch the operation. Then the cases for the simple scientific calculator as shown in the code. After every case we use break condition for after every case the loop should stop and ask for another choice.

Working of code :

he steps for working with the Calculator application are:

In the command prompt, run the programme first then in command prompt it ask for the enter your choice then we choice the function which we want to calculate.

The result is shown on the command prompt based on the above values. Example; if we choice the + function then it asks for our first number if we get 6 then it asks for the second number if we 4 then it prints the correct addition as our answer 10.the loop continues infintes…

My Calculator Code:

import java.util.Scanner; import java.util.\*;  
import java.lang.Math.\*;

class Variables {  
static int store1;  
  
public static void main(String[] args) {  
// static int store;  
  
  
Scanner sc = new Scanner(System.in);

boolean condition = true;  
while(condition)  
{ System.out.println(  
"1.+Plus"+ "\n" +  
"2.-minus"+ "\n" +  
"3.\*multiply"+ "\n" +  
"4./divide"+ "\n" +  
"5.^power"+ "\n" +  
"6.sqrt"+ "\n" +  
"7.Nrt"+ "\n" +  
"8.log"+ "\n" +  
"9.natutallog"+ "\n" +  
"10.sin"+ "\n" +  
"11.inversesin"+ "\n" +  
"12.cos"+ "\n" +  
"13.inversecos"+ "\n" +  
"14.tan"+ "\n" +  
"15.inversetan"+ "\n" +  
"16.store"+ "\n" +  
"17.recall"+ "\n" +  
"18.decimal to binary"+ "\n" +  
"19.binary to decimal"+ "\n" +  
"20.sip"  
);  
System.out.println("Please enter your cboice of operation");  
int operation = sc.nextInt();  
// long store1=0;  
try {  
switch(operation)  
{   
case 1:  
{  
System.out.println("Enter first number");  
int x= sc.nextInt();  
System.out.println("Enter second number");  
int y= sc.nextInt();  
double sum=x+y;  
System.out.println("Sum is ="+ sum);  
}  
  
break;  
  
case 2:  
{  
System.out.println("Enter first number");  
int x= sc.nextInt();  
System.out.println("Enter second number");  
int y= sc.nextInt();  
double minus=x-y;  
System.out.println("miuns is ="+ minus);  
}  
break;  
  
case 3:  
{  
System.out.println("Enter first number");  
int x= sc.nextInt();  
System.out.println("Enter second number");  
int y= sc.nextInt();  
double multiply=x\*y;  
System.out.println("multiply is ="+ multiply);  
}  
break;  
  
case 4:  
{  
System.out.println("Enter first number");  
int x= sc.nextInt();  
System.out.println("Enter second number");  
int y= sc.nextInt();  
double divide=x/y;  
System.out.println("divide is ="+ divide);  
}  
break;  
  
case 5:  
{  
System.out.println("Enter first number");  
int x= sc.nextInt();  
System.out.println("Enter power");  
int y= sc.nextInt();  
double power=Math.pow(x, y);  
System.out.println("Power is "+ power);  
}  
break;  
  
  
case 6:  
{  
System.out.println("Enter first number");  
int x= sc.nextInt();  
  
double sqrt=Math.sqrt(x);  
System.out.println("Power is "+ sqrt);  
}  
break;  
case 7:  
{  
System.out.println("Enter first number");  
int x= sc.nextInt();  
System.out.println("Power ");  
int y= sc.nextInt();  
double nthroot=Math.pow(x,1/y);  
System.out.println("nthroot is ="+ nthroot);  
}  
break;  
  
  
case 8:  
{  
System.out.println("Enter the num to find log");  
int x=sc.nextInt();  
System.out.println("Enter base to which log find");  
int y= sc.nextInt();  
double log= Math.log(x)/Math.log(y);  
System.out.println("The log values is "+log);  
  
}  
break;  
case 9:  
{  
System.out.println("Enter the num to find natural log");  
int x=sc.nextInt();  
  
double naturallog= Math.log(x);  
System.out.println("The natural log values is " +naturallog);  
  
}  
break;  
  
  
case 10:  
{  
System.out.println("Enter the num to find sin ");  
int x=sc.nextInt();  
  
double sin= Math.sin(x);  
System.out.println("The sine value of "+ "x is "+sin);  
  
}  
break;  
  
  
case 11:  
{  
System.out.println("Enter the num to find inversesin ");  
int x=sc.nextInt();  
  
double inversesin= Math.asin(x);  
System.out.println("The inverse sine value of "+ "x is "+inversesin);  
  
}  
break;  
case 12:  
{  
System.out.println("Enter the num to find cos ");  
int x=sc.nextInt();  
  
double cos= Math.cos(x);  
System.out.println("The cos value of "+ "x is "+cos);  
  
}  
break;  
  
case 13:  
{  
System.out.println("Enter the num to find inverse cos ");  
int x=sc.nextInt();  
  
double inversecos= Math.cos(x);  
System.out.println("The inverse cos value of "+ "x is "+inversecos);  
  
}  
break

case 14:  
{  
System.out.println("Enter the num to find tan ");  
int x=sc.nextInt();  
  
double tan= Math.tan(x);  
System.out.println("The tan value of "+ "x is "+tan);  
  
}  
break;  
  
case 15:  
{  
System.out.println("Enter the num to find inverse tan ");  
int x=sc.nextInt();  
  
double inversetan= Math.atan(x);  
System.out.println("The inverse tan value of "+ "x is "+inversetan);  
  
}  
break;  
  
case 16:  
  
System.out.println("Enter the num to store ");  
store1=sc.nextInt();  
break;  
case 17:  
  
System.out.println("Your saved num is "+store1);  
break;  
case 18:  
{  
System.out.println("Enter the num to find binary ");  
int x=sc.nextInt();  
  
  
System.out.println("Thw binary value of x is"+Integer.toBinaryString(x));  
  
}  
break;  
  
case 19:  
{  
System.out.println("Enter the num to convert to decimal ");  
String binary=sc.next();  
  
  
System.out.println("The decimal value is " +Integer.parseInt(binary,2));  
  
}  
break;  
case 20:  
{  
System.out.println("Enter the amount to consolidate");  
long x=sc.nextInt();  
  
System.out.println("Enter period of months to achieve goal");  
int y= sc.nextInt();  
if(y<12) {  
System.out.println("Sip to achieve montly is"+x/y);  
System.out.println("Sip to achieve quaterly is"+x/(y/4));}  
else if(y>=12)  
{  
int a= y/12;  
int b= y%12;  
int c= a+b;  
System.out.println("Sip to achieve yearly is "+(x/c+x%c));  
}  
  
  
}

break;}  
  
  
}  
catch (Exception e)  
{  
System.out.println("Error occured");  
  
}  
}  
  
  
  
  
}  
}

MY OUPUTS:

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

1

Enter first number

5

Enter second number

5

Sum is =10.0

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

2

Enter first number

5

Enter second number

3

miuns is =2.0

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

3

Enter first number

5

Enter second number

5

multiply is =25.0

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

4

Enter first number

6

Enter second number

6

divide is =1.0

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

5

Enter first number

5

Enter power

5

Power is 3125.0

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

6

Enter first number

3

Power is 1.7320508075688772

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

7

Enter first number

5

Power

2

nthroot is =1.0

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

8

Enter the num to find log

5

Enter base to which log find

4

The log values is 1.160964047443681

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

9

Enter the num to find natural log

5

The natural log values is 1.6094379124341003

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

10

Enter the num to find sin

8

The sine value of x is 0.9893582466233818

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

11

Enter the num to find inversesin

1

The inverse sine value of x is 1.5707963267948966

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

13

Enter the num to find inverse cos

5

The inverse cos value of x is 0.28366218546322625

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

14

Enter the num to find tan

5

The tan value of x is -3.380515006246586

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

15

Enter the num to find inverse tan

6

The inverse tan value of x is 1.4056476493802699

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

17

Your saved num is 0

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

18

Enter the num to find binary

5

Thw binary value of x is101

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

19

Enter the num to convert to decimal

5

Error occured

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation

20

Enter the amount to consolidate

5

Enter period of months to achieve goal

9

Sip to achieve montly is0

Sip to achieve quaterly is2

1.+Plus

2.-minus

3.\*multiply

4./divide

5.^power

6.sqrt

7.Nrt

8.log

9.natutallog

10.sin

11.inversesin

12.cos

13.inversecos

14.tan

15.inversetan

16.store

17.recall

18.decimal to binary

19.binary to decimal

20.sip

Please enter your cboice of operation