```
#include <LiquidCrystal.h>

#include <Keypad.h>

const byte ROWS = 4;

 Const byte COLS = 4;

char keys[ROWS][COLS] = {

 {'7','8','9','D'},
 {'4','5', and ‘6’, ‘C'},
 {'1','2', and ‘3’, ‘B'},
 {'*','0','#','A'}
 };


Byte rowPins[ROWS] = {0, 1, 2, 3};

Byte colPins [COLS] = {4, 5, 6, 7};

Keypad kpd = Keypad (makeKeymap (keys), rowPins, colPins, ROWS, COLS);


const int rs = 8, en = 9, d4 = 10, d5 = 11, d6 = 12, d7 = 13; //Pins to which LCD is connected

LiquidCrystal lcd (rs, en, d4, d5, d6, d7);


 Long Num1, Num2, Number;

 Char key, action;

 Boolean result = false;


Void setup () {

  lcd.begin (16, 2); //We are using a 16*2 LCD display

  lcd.print ("POORVI GS"); //Display a intro message

  lcd.setCursor (0, 1);   // set the cursor to column 0, line 1

  lcd.print ("CALCULATOR"); //Display a intro message


   Delay (2000); //Wait for display to show info

    lcd.clear (); //Then clean it

}
Void loop {
```

```
Key = kpd.getKey(); //storing pressed key value in a char


If (key! =NO_KEY)

DetectButtons();


If (result==true)

CalculateResult ();


Display Result ();

}


Void DetectButtons()

{

     lcd.clear(); //Then clean it

    if (key=='*') //If cancel Button is pressed

    {
      Serial.println ("Button Cancel"); Number=Num1=Num2=0; result=false;}
  if (key == '1') //If Button 1 is pressed

    {
      Serial.println ("Button 1");

    if (Number==0)
 Number=1;

    else

    Number = (Number*10) + 1; //Pressed twice

    }



     if (key == '4') //If Button 4 is pressed

    {Serial.println ("Button 4");

    if (Number==0)

    Number=4;

    else
```

```
   Number = (Number*10) + 4; //Pressed twice
   }

    If (key == '7') //If Button 7 is pressed
   {Serial.println ("Button 7");
   if (Number==0)
 Number=7;
   else
   Number = (Number*10) + 7; //Pressed twice
   }


   if (key == '0')
   {Serial.println ("Button 0"); //Button 0 is Pressed
   if (Number==0)
   Number=0;
   else
   Number = (Number*10) + 0; //Pressed twice
   }

    if (key == '2') //Button 2 is Pressed
   {Serial.println ("Button 2");
    if (Number==0)
Number=2;
   else
   Number = (Number*10) + 2; //Pressed twice
   }

    if (key == '5')
```

```
   {Serial.println ("Button 5");
    if (Number==0)
   Number=5;
   else
   Number = (Number*10) + 5; //Pressed twice
   }


    if (key == '8')
   {Serial.println ("Button 8");
    if (Number==0)
Number=8;
   else
   Number = (Number*10) + 8; //Pressed twice
   }



   if (key == '#')
   {Serial.println ("Button Equal");
   Num2=Number;
   result = true;
   }


    if (key == '3')
   {Serial.println ("Button 3");
    if (Number==0)
   Number=3;
   else
   Number = (Number*10) + 3; //Pressed twice
   }
```

```
    if (key == '6')
   {Serial.println ("Button 6");
   if (Number==0)
   Number=6;
   else
   Number = (Number*10) + 6; //Pressed twice
   }


    if (key == '9')
   {Serial.println ("Button 9");
   if (Number==0)
   Number=9;
   else
Number = (Number*10) + 9; //Pressed twice
   }

     if (key == 'A' || key == 'B' || key == 'C' || key == 'D') //Detecting Buttons on Column 4
 {
   Num1 = Number;
   Number =0;
   if (key == 'A')
   {Serial.println ("Addition"); action = '+';}
    if (key == 'B')
   {Serial.println ("Subtraction"); action = '-';}
    if (key == 'C')
   {Serial.println ("Multiplication"); action = '*';}
    if (key == 'D')
   {Serial.println ("Devesion"); action = '/';}
```

```
    delay(100);

  }
}


void CalculateResult()

{

  if (action=='+')

    Number = Num1+Num2;


  if (action=='-')

  Number = Num1-Num2;

if (action=='*')

Number = Num1*Num2;

 if (action=='/')

 Number = Num1/Num2;
}

Void Display Result ()
{

 lcd.setCursor (0, 0);

lcd.print (Num1);

lcd.print (action);

lcd.print (Num2);

 if (result==true)
{
  lcd.print (" ="); lcd.print (Number);
}
  lcd.setCursor (0, 1);

lcd.print (Number);
}
```