using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace WindowsFormsApp1

{

//Author : Myles Schneider

//Creation date : 10/09/2018

//Version control : version 1.0

public partial class Calculator : Form

{

//imputs from calculator are stored here

double input1;

double input2;

double angle;

double radians;

//all booleans represent whether the button is pressed or not defualting to not pressed.

bool decimalPoint = false;

bool plusButton = false;

bool minusButton = false;

bool divideButton = false;

bool multiplyButton = false;

bool mySinButton = false;

bool myCosButton = false;

bool myTanButton = false;

bool mySqrtButton = false;

bool myCbertButton = false;

bool myInverseButton = false;

public Calculator()

{

InitializeComponent();

}

//button presses

private void oneButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + oneButton.Text;

}

private void twoButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + twoButton.Text;

}

private void threeButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + threeButton.Text;

}

private void fourButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + fourButton.Text;

}

private void fiveButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + fiveButton.Text;

}

private void sixButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + sixButton.Text;

}

private void sevenButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + sevenButton.Text;

}

private void eightButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + eightButton.Text;

}

private void nineButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + nineButton.Text;

}

private void zeroButton\_Click(object sender, EventArgs e)

{

inputOutput.Text = inputOutput.Text + zeroButton.Text;

}

private void decimalPoint\_Click(object sender, EventArgs e)

{

//check to see if not already pressed

if(!decimalPoint)

{

inputOutput.Text = inputOutput.Text + decimalPointButton.Text;

decimalPoint = true;

}

}

private void clearButton\_Click(object sender, EventArgs e)

{

inputOutput.Clear();

//reset decimal point behaviour

decimalPoint = false;

}

private void equalsButton\_Click(object sender, EventArgs e)

{

//check to see if an operand has already been applied and then perform the math using the correct library.

if (plusButton == true)

{

input2 = BasicMath.Arithmetic.Add(input1, double.Parse(inputOutput.Text));

}

else if (minusButton == true)

{

input2 = BasicMath.Arithmetic.Sub(input1, double.Parse(inputOutput.Text));

}

else if (divideButton == true)

{

input2 = BasicMath.Arithmetic.Div(input1, double.Parse(inputOutput.Text));

}

else if (multiplyButton == true)

{

input2 = BasicMath.Arithmetic.Mul(input1, double.Parse(inputOutput.Text));

}

else if(mySinButton == true)

{

//error trapping for the angles

//the librarys need to be updated to follow pascal casing Trigonometric.Trigonometric.Sin\*\*\*

if(double.Parse(inputOutput.Text) >= 90)

{

MessageBox.Show("Too large an angle.");

}

else

{

angle = Math.PI \* double.Parse(inputOutput.Text) / 180;

input2 = Trigonometric.Trigonometric.sin(angle);

}

}

else if(myCosButton == true)

{

if(double.Parse(inputOutput.Text) >= 90)

{

MessageBox.Show("Too large an angle.");

}

else

{

angle = Math.PI \* double.Parse(inputOutput.Text) / 180;

input2 = Trigonometric.Trigonometric.cosine(angle);

}

}

else if(myTanButton == true)

{

if(double.Parse(inputOutput.Text) >= 90)

{

MessageBox.Show("Too large an angle");

}

else

{

angle = double.Parse(inputOutput.Text);

radians = angle \* (Math.PI / 180);

input2 = Trigonometric.Trigonometric.tan(radians);

}

}

//the librarys need to be updated to follow pascal casing Trigonometric.Trigonometric.Sin\*\*\*

else if (mySqrtButton == true)

{

input2 = Algebraic.Algebra.sqrt(double.Parse(inputOutput.Text));

}

else if(myCbertButton == true)

{

input2 = Algebraic.Algebra.cubert(double.Parse(inputOutput.Text));

}

else if(myInverseButton == true)

{

input2 = Algebraic.Algebra.inverse(double.Parse(inputOutput.Text));

}

inputOutput.Text = input2.ToString();

input1 = 0;

}

private void additionButton\_Click(object sender, EventArgs e)

{

input1 += double.Parse(inputOutput.Text);

inputOutput.Clear();

plusButton = true;

minusButton = false;

divideButton = false;

multiplyButton = false;

decimalPoint = false;

mySinButton = false;

myCosButton = false;

myTanButton = false;

mySqrtButton = false;

myCbertButton = false;

myInverseButton = false;

}

private void subtractionButton\_Click(object sender, EventArgs e)

{

input1 += double.Parse(inputOutput.Text);

inputOutput.Clear();

plusButton = false;

minusButton = true;

divideButton = false;

multiplyButton = false;

decimalPoint = false;

mySinButton = false;

myCosButton = false;

myTanButton = false;

mySqrtButton = false;

myCbertButton = false;

myInverseButton = false;

}

private void divisionButton\_Click(object sender, EventArgs e)

{

input1 += double.Parse(inputOutput.Text);

inputOutput.Clear();

plusButton = false;

minusButton = false;

divideButton = true;

multiplyButton = false;

decimalPoint = false;

mySinButton = false;

myCosButton = false;

myTanButton = false;

mySqrtButton = false;

myCbertButton = false;

myInverseButton = false;

}

private void multiplicationButton\_Click(object sender, EventArgs e)

{

input1 += double.Parse(inputOutput.Text);

inputOutput.Clear();

plusButton = false;

minusButton = false;

divideButton = false;

multiplyButton = true;

decimalPoint = false;

mySinButton = false;

myCosButton = false;

myTanButton = false;

mySqrtButton = false;

myCbertButton = false;

myInverseButton = false;

}

private void sinButton\_Click(object sender, EventArgs e)

{

plusButton = false;

minusButton = false;

divideButton = false;

multiplyButton = false;

decimalPoint = false;

mySinButton = true;

myCosButton = false;

myTanButton = false;

mySqrtButton = false;

myCbertButton = false;

myInverseButton = false;

}

private void cosButton\_Click(object sender, EventArgs e)

{

plusButton = false;

minusButton = false;

divideButton = false;

multiplyButton = false;

decimalPoint = false;

mySinButton = false;

myCosButton = true;

myTanButton = false;

mySqrtButton = false;

myCbertButton = false;

myInverseButton = false;

}

private void tanButton\_Click(object sender, EventArgs e)

{

plusButton = false;

minusButton = false;

divideButton = false;

multiplyButton = false;

decimalPoint = false;

mySinButton = false;

myCosButton = false;

myTanButton = true;

mySqrtButton = false;

myCbertButton = false;

myInverseButton = false;

}

private void squareRootButton\_Click(object sender, EventArgs e)

{

plusButton = false;

minusButton = false;

divideButton = false;

multiplyButton = false;

decimalPoint = false;

mySinButton = false;

myCosButton = false;

myTanButton = false;

mySqrtButton = true;

myCbertButton = false;

myInverseButton = false;

}

private void cubeRootButton\_Click(object sender, EventArgs e)

{

plusButton = false;

minusButton = false;

divideButton = false;

multiplyButton = false;

decimalPoint = false;

mySinButton = false;

myCosButton = false;

myTanButton = false;

mySqrtButton = false;

myCbertButton = true;

myInverseButton = false;

}

private void inverseButton\_Click(object sender, EventArgs e)

{

plusButton = false;

minusButton = false;

divideButton = false;

multiplyButton = false;

decimalPoint = false;

mySinButton = false;

myCosButton = false;

myTanButton = false;

mySqrtButton = false;

myCbertButton = false;

myInverseButton = true;

}

}

}