IVS project 2

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Chapter 1

Namespace Index

1.1 Namespace List

Here is a list of all documented namespaces with brief descriptions:

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

File Index

4.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 5

Namespace Documentation

5.1 Kalkulacka Namespace Reference

Classes

- class Form1
- class Program

5.2 Kalkulacka.Properties Namespace Reference

Classes

- class **Resources**

  A strongly-typed resource class, for looking up localized strings, etc.
- class **Settings**

5.3 MathComponentsNS Namespace Reference

Classes

- class MathComponents

5.4 MathTest Namespace Reference

Classes

- class BasicMathTests

5.5 Profiling Namespace Reference

Classes

- class Program

Chapter 6

Class Documentation

6.1 MathTest.BasicMathTests Class Reference

Public Member Functions

- void **TestAddition** ()
- void **TestSubtraction** ()
- void **TestMultiplication** ()
- void **TestDivision** ()
- void **TestExponentiation** ()
- void **TestRoot** ()
- void **TestLogarithm** ()
- void **TestSin** ()
- void **TestCos** ()
- void **TestTan** ()
- void **TestArcsin** ()
- void **TestArccos** ()
- void **TestArctan** ()
- void **TestFactorial** ()
- void **TestRandom** ()

Static Public Member Functions

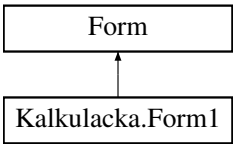
- static decimal **RoundOff** (decimal value)

The documentation for this class was generated from the following file:

- MathTest/BasicMathTests.cs

6.2 Kalkulacka.Form1 Class Reference

Inheritance diagram for Kalkulacka.Form1:



Public Member Functions

- void Valid_Chk ((bool, decimal) result)

  Function for checking validity of result Sets text box to result if all correct or error.
- void ZeroClear ()

  Function for clearing textbox to zero-state.
- void Clear ()

  Fuction for clearing textbox to NULL-state.

Public Attributes

- bool

  Function for applying unary operations Integrated with math lib.

Protected Member Functions

- override void Dispose (bool disposing)

  Clean up any resources being used.

Private Member Functions

- void Form1_Load (object sender, EventArgs e)

  Init function for UI setup.
- void length (char d)

  Function checking length and appending char if possible.
- void shift_Click (object sender, EventArgs e)

  Function for switching panel after click on SHIFT.
- void off_Click (object sender, EventArgs e)

  Function for switching off the application.
- void Number_click (object sender, EventArgs e)

  Number button click handler.
- void decPoint_Click (object sender, EventArgs e)

  Decimal point button handler Only one decimal point allowed.
- void subtraction_Click (object sender, EventArgs e)

  Minus sign click handler.
- void textBox1_KeyPress (object sender, KeyPressEventArgs e)

  Function to check if there is enough space in textbox for writing pressed key (WIP)
- void operation_Click (object sender, EventArgs e)

  Function for handling operation click.
- void InstantOp_Click (object sender, EventArgs e)

  Function for applying unary operations Integrated with math lib.
- decimal **Calculate** ()
- void Mplus_Click (object sender, EventArgs e)

  Function for addition to memory Memory icon control.
- void MRC_Click (object sender, EventArgs e)

  Function for recalling memory.
- void Mminus_Click (object sender, EventArgs e)

  Function for subtracting memory Memory icon control.
- void InitializeComponent ()

  Required method for Designer support - do not modify the contents of this method with the code editor.

Private Attributes

- List< Panel > **listPanel** = new List<Panel>()
- MathComponentsNS.MathComponents **newMath** = new MathComponentsNS.MathComponents()
- bool **shiftClicked** = false
- string **operationPerformed** = ""
- decimal **firstNum** = 0
- decimal **secondNum** = 0
- decimal **MEM** = 0
- decimal **ans** = 0
- bool **erase** = false
- bool **repeatEq** = false
- System.ComponentModel.IContainer components = null

  Required designer variable.
- System.Windows.Forms.TextBox **textBox1**
- System.Windows.Forms.Button **num1**
- System.Windows.Forms.Button **num2**
- System.Windows.Forms.Button **num3**
- System.Windows.Forms.Button **num4**
- System.Windows.Forms.Button **num5**
- System.Windows.Forms.Button **num6**
- System.Windows.Forms.Button **num7**
- System.Windows.Forms.Button **num8**
- System.Windows.Forms.Button **num9**
- System.Windows.Forms.Button **num0**
- System.Windows.Forms.Button **ANS**
- System.Windows.Forms.Button **decPoint**
- System.Windows.Forms.Button **division**
- System.Windows.Forms.Button **multiplication**
- System.Windows.Forms.Button **subtraction**
- System.Windows.Forms.Button **addition**
- System.Windows.Forms.Button **RAND**
- System.Windows.Forms.Button **equals**
- System.Windows.Forms.Button **AC**
- System.Windows.Forms.Button **del**
- System.Windows.Forms.Button **sin**
- System.Windows.Forms.Button **shift**
- System.Windows.Forms.Panel **shiftUnclickedPanel**
- System.Windows.Forms.Panel **shiftClickedPanel**
- System.Windows.Forms.Button **arcsin**
- System.Windows.Forms.Button **Power2**
- System.Windows.Forms.Button **Power3**
- System.Windows.Forms.Button **powerX**
- System.Windows.Forms.Button **log**
- System.Windows.Forms.Button **ln**
- System.Windows.Forms.Button **pi**
- System.Windows.Forms.Button **factorial**
- System.Windows.Forms.Button **root2**
- System.Windows.Forms.Button **cos**
- System.Windows.Forms.Button **arccos**
- System.Windows.Forms.Button **multiplication10**
- System.Windows.Forms.Button **PowerXMinus1**
- System.Windows.Forms.Button **root**
- System.Windows.Forms.Button **logDec**
- System.Windows.Forms.Button **root3**

- System.Windows.Forms.Button **euler**
- System.Windows.Forms.Button **MRC**
- System.Windows.Forms.Button **Mplus**
- System.Windows.Forms.Button **Mminus**
- System.Windows.Forms.Button **off**
- System.Windows.Forms.Button **tan**
- System.Windows.Forms.Button **arctan**
- System.Windows.Forms.Label **DisplayedM**

6.2.1 Member Function Documentation

6.2.1.1 Dispose()

```
override void Kalkulacka.Form1.Dispose (
            bool disposing )  [inline], [protected]
```

Clean up any resources being used.

Parameters

disposing	true if managed resources should be disposed; otherwise, false.

6.2.1.2 InitializeComponent()

```
void Kalkulacka.Form1.InitializeComponent ( )  [inline], [private]
```

Required method for Designer support - do not modify the contents of this method with the code editor.

6.2.1.3 length()

```
void Kalkulacka.Form1.length (
            char d )  [inline], [private]
```

Function checking length and appending char if possible.

Parameters

in	*char*	d (character to be appended)

6.2.2 Member Data Documentation

6.2.2.1 components

```
System.ComponentModel.IContainer Kalkulacka.Form1.components = null  [private]
```

Required designer variable.

The documentation for this class was generated from the following files:

- Kalkulacka/Form1.cs
- Kalkulacka/Form1.Designer.cs

6.3 MathComponentsNS.MathComponents Class Reference

Private Member Functions

- decimal **TruncateToFit** ((bool, decimal) a)
- decimal **Add** (decimal a, decimal b)
- decimal **Subtract** (decimal a, decimal b)
- decimal **Multiply** (decimal a, decimal b)
- decimal **Divide** (decimal a, decimal b)
- decimal **Exponentiate** (decimal b, decimal e)
- decimal **Root** (decimal d, decimal r)
- decimal **Logarithm** (decimal a, decimal b)
- decimal **Sin** (decimal a)
- decimal **Cos** (decimal a)
- decimal **Tan** (decimal a)
- decimal **Arcsin** (decimal a)
- decimal **Arccos** (decimal a)
- decimal **Arctan** (decimal a)
- decimal **Factorial** (decimal a)
- decimal **UnconstrainedFactorial** (decimal a)
- decimal **Random** ()
- decimal **TruncateToFit** ((bool, decimal) a)
- decimal **Add** (decimal a, decimal b)
- decimal **Subtract** (decimal a, decimal b)
- decimal **Multiply** (decimal a, decimal b)
- decimal **Divide** (decimal a, decimal b)
- decimal **Exponentiate** (decimal b, decimal e)
- decimal **Root** (decimal d, decimal r)
- decimal **Logarithm** (decimal a, decimal b)
- decimal **Sin** (decimal a)
- decimal **Cos** (decimal a)
- decimal **Tan** (decimal a)
- decimal **Arcsin** (decimal a)
- decimal **Arccos** (decimal a)
- decimal **Arctan** (decimal a)
- decimal **Factorial** (decimal a)
- decimal **UnconstrainedFactorial** (decimal a)
- decimal **Random** ()

Private Attributes

- bool

  truncates result to fit calc screen if less than 9 whole, leave all whole and truncate decimal to sum up to 9 max
- decimal **error** = (true, 0)
- decimal **constPI** = (false, (decimal)Math.PI)
- decimal **constE** = (false, (decimal)Math.E)

6.3.1 Member Data Documentation

6.3.1.1 bool

`MathComponentsNS.MathComponents.bool [private]`

truncates result to fit calc screen if less than 9 whole, leave all whole and truncate decimal to sum up to 9 max

Function of random number generates random decimal number between 0 inclusive to 1 exclusive.

Factorial operation function without upper limit helper function, don't use in calculator.

Factorial operation function.

Function arctan.

Function arccos.

Function arcsin.

Function tangent.

Function cosine using Taylor series algorithm cos x = 1 x^2/2! + x^4/4! x^6/6! + ...

sine function using Taylor series algorithm sin x = x x^3/3! + x^5/5! x^7/7! + ...

Logarithm function expect log-argument positive expect base positive and different from 1.

Funtion of root to ath.

Division operation function.

Multiplication operation function.

Subtraction operation function.

Addition operation function.

Returns

error/scientific notation if more than 9 whole places (?)

Parameters

in	*decimal*	first addend (a)
in	*decimal*	second addend (b)

Returns

sum (result of a + b)

Parameters

in	*decimal*	minuend (a)
in	*decimal*	subtrahend (b)

Returns

difference (result of a - b)

Parameters

in	*decimal*	first factor (a)
in	*decimal*	second factor (b)

Returns

product (result of a $*$ b)

Parameters

in	*decimal*	dividend (a)
in	*decimal*	divisor (b)

Returns

quotient (result of a / b)

error if divisor is zero

non-integer exponent or base expect error (?)

Parameters

in	*decimal*	base (b)
in	*decimal*	exponent (e)

Returns

result of b^e

error if 0^0 or 0^-1

Parameters

in	*decimal*	degree d
in	*decimal*	radicand r

Returns

ath root of b

error if negative radicant

Parameters

in	*decimal*	argument (a)
in	*decimal*	base (b)

Returns

log of a with base of b

Parameters

in	*decimal*	a

Returns

result with 5 decimal places precision

Parameters

in	*decimal*	number a

Returns

result with 5 decimal places precision (?)

Parameters

in	*decimal*	number a tan x = sin x / cos x

Returns

result with 5 decimal places precision (?)

Parameters

in	*decimal*	number a

Returns

result with 5 decimal places precision (?) expect value between -pi/2 and pi/2

Parameters

in	*decimal*	number a

Returns

result with 5 decimal places precision (?) expect value between -1 and 1

Parameters

in	*decimal*	number a expect number non-negative integer not greater than 12

Returns

error if a is negative integer

error if a is greater than 12

error if a has decimal point

Parameters

in	*decimal*	number a expect number non-negative integer

Returns

error if a is negative integer

error if a has decimal point

The documentation for this class was generated from the following file:

- Kalkulacka/Math.cs

6.4 Kalkulacka.Program Class Reference

Static Private Member Functions

- static void Main ()

  The main entry point for the application.

6.4.1 Member Function Documentation

6.4.1.1 Main()

```
static void Kalkulacka.Program.Main ( )  [inline], [static], [private]
```

The main entry point for the application.

The documentation for this class was generated from the following file:

- Kalkulacka/Program.cs

6.5 Profiling.Program Class Reference

Static Private Member Functions

- static int **Main** (string[ ] args)

The documentation for this class was generated from the following file:

- Profiling/Program.cs

Chapter 7

File Documentation

7.1 Kalkulacka/Form1.cs File Reference

File responsible for handling calculator UI and integrating functions from math lib.

Classes

- class Kalkulacka.Form1

7.1.1 Detailed Description

File responsible for handling calculator UI and integrating functions from math lib.

7.2 Kalkulacka/Math.cs File Reference

File responsible for implementing math operations and constants all functions return (bool, decimal) tuple where first operand is set to true if there is an error (e.g. out of bounds, division by zero), second is result.

Classes

- class MathComponentsNS.MathComponents

7.2.1 Detailed Description

File responsible for implementing math operations and constants all functions return (bool, decimal) tuple where first operand is set to true if there is an error (e.g. out of bounds, division by zero), second is result.

7.3 Profiling/Math.cs File Reference

File responsible for implementing math operations and constants all functions return (bool, decimal) tuple where first operand is set to true if there is an error (e.g. out of bounds, division by zero), second is result.

Classes

- class MathComponentsNS.MathComponents

7.3.1 Detailed Description

File responsible for implementing math operations and constants all functions return (bool, decimal) tuple where first operand is set to true if there is an error (e.g. out of bounds, division by zero), second is result.

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