AK-Calculator

A Calculator like you have *Never* seen!!

Why you enter your equation one by one
if you can enter it once?

Example:

Before AK-Calculator
1+2*3+4/5-6

After AK-Calculator
(1+(2*3)+(4/5)-6)

_____

The Result:

AK-Calculator does your equation
Easy to write!
Easy to read!
Easy to modify!

It also analyses the result!!
(1+(2*3)+(4/5)-6)
_____
(2*3)= 6
(4/5)= 0.8
(1+(2*3)+(4/5)-6)= 1.8
Total= 1.8

Imagine how much easier math could be with AK-Calculator

Invented by
Ahmed Kilany

try it now
it's free

Advanced Knack
www.aKnack.com

Before AK-Calculator

If you worked with the classic calculator you would have found that you needed to enter your equation one by one to get the result. For example if you need to calculate an equation like this 1+2*3 you should enter each part of your equation one by one until you get the result.

On the other hand if you need to change your equation to be '2+2*3' you will need to retype the equation again. And if you needed to modify the equation you would need to enter the whole equation again.

On the other hand you should also take care of the operating precedence. To enter your equation you would follow these steps.
1- Calculate 3*2.
2- Then you will need to add the result to 1 '6+1'
Finally you will get the result after these steps.

Entering the equation one by one can be tedious. It will also be very difficult to modify. So if you would like to change anything in your equation you will need to re-enter all the equation again.

We should notes that it was a very simple equation and as long as we enter difficult equation we will need to make many steps.

Now let's see how it's easy and fun it is to calculate this equation on the AK-Calculator.

Why AK-Calculator?

AK-Calculator allows you to solve the entire previous problem. And all you need to do is just copy and paste your equation on AK-Calculator! Here are some key features.

Nothing happens behind the scenes!

Unlike the classic calculator, AK-Calculator allows you to see the entire equation. So you can easily review everything you have entered. And you can also edit your equation at any time you want.
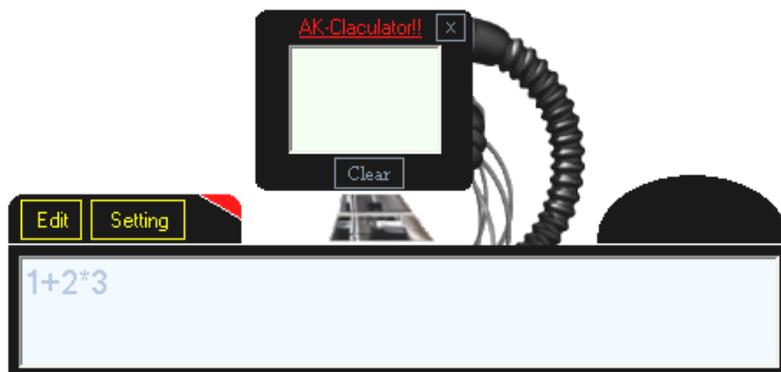
Assigning the Operator Precedence.

What is an operator precedence parser and why should we care?

1 + 2 * 3
Does this mean (1 + 2) * 3 or 1 + (2 * 3)?

When you use two or more operators in a statement, some operators take precedence over to the other operators. Operator precedence determines the order in which operators are processed.

Although it may seem natural to those familiar with arithmetic that the compiler processes the multiplication (*) operator before the addition (+) operator, the compiler needs explicit instructions about which operators to process first.

You can see an example of operator precedence when you work with the multiplication and addition operators.

The multiplication operator (*) has a higher precedence than the addition operator +, so the multiplication is performed before the addition.

AK-Calculator generates parentheses for the grouping of operators and operands in order to explicitly specify the precedence and to make the equation as readable as possible. So if you wrote equation like this 1+2*3 AK-Calculator will change it to be 1+(2*3).

1+(2*3) is definitely more clearer than 1+2*3.
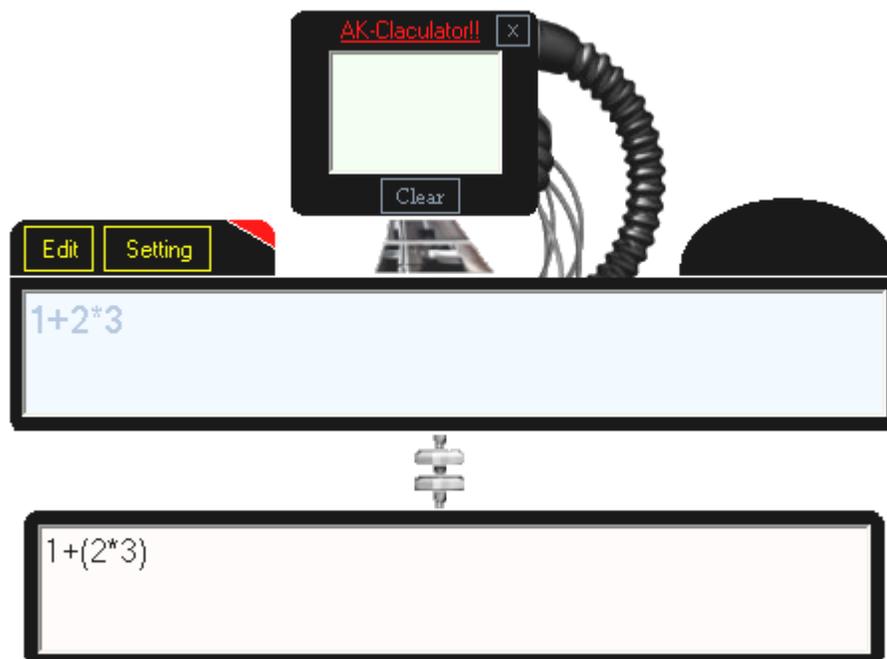
Assigning the Operator Associativity.

You might encounter situations in which two or more operators of the same precedence appear in the same equation. In these cases, the processor uses the rules of associativity to determine which operator to process first. In this case, the associativity of an operator specifies the order in which operations of the same precedence are performed. Left-to-right associativity means that operations are performed from left to right.

Take a look at the multiplication operator. It has left-to-right associativity.

a + b * c / d
The (*) and (/) operations are performed before + because of precedence. b is multiplied by c before it is divided by d because of associativity. So if you like to see this fact you can easily do it with AK-Calculator. All you have to do is just change the *HideAssociativity* option to false.
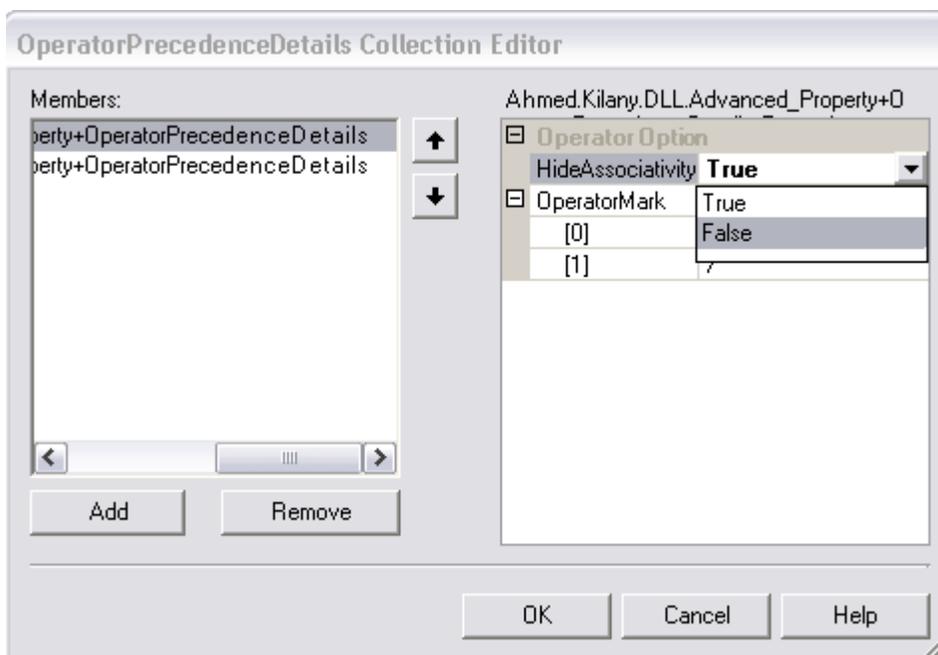
And after you have done that AK-Calculator will organize the equation for you. For example:

a + b * c / d
It will convert to*
(a+((b*c)/d))

*notes: The associativity option is disabled by default. However To show the associativity you just need to set the *HideAssociativity* option to false.

Understanding the hierarchy of the equation

AK-Calculator allows you to understand the operator precedence and associativity but when you enter a big equation you will find that it will be Alltel bit difficult to understand which part of your equation will calculate first and which part will calculate in the next level. However, let's look at an example:

As you can see AK-Calculator changed the equation to be easier to understand.

(2*(((((5-6)*8)+7+8-5+55))*(4+9-(5*6/2)+1))+(4/2*(-1)))
Converted to

$$\Big(\big(2*\big(\big((5\text{-}6)*8\big)+7+8\text{-}5+55\big)*\big(4+9\text{-}(5*6/2)+1\big)\big)\big)+\big(4/2*(\text{-}1)\big)\Big)$$

If you looked deeper at the following equation you will find that AK-Calculator changed two things.

$$((2*((((5\text{-}6)*8)+7+8\text{-}5+55)*(4+9\text{-}(5*6/2)+1)))+(4/2*(\text{-}1)))$$

1- __Parentheses color.__

By the color you can easily follow any part of your equation and you can understand when each block starts and when it end? (And the blocks mean group of operators and operands of the same precedence.)

2- __Parentheses size.__

By the size of the parentheses you can understand the hierarchy of the equation. So you can understand which part of your equation will calculate first and which part will be calculate on the next level of processing and so on. For example just by one look you can understand that the biggest blue precedence should be calculated before going to calculate the biggest red one.

__Removing the redundant parentheses__

As with everything else, the parentheses should be used sensibly and should not be redundant. AK-Calculator allows removing the redundant parentheses.

If you looked at the previous example you will find that AK-Calculator removed some parentheses from the equation

The following black bold parenthesis is the parenthesis that the program removed.

(2*(((((5-6)*8)+7+8-5+55)**)***(4+9-(5*6/2)+1))+(4/2*(-1)))

You can also notes that the program added additional parentheses to allow you to understand the operator precedence easily.

However, the following equation is definitely clearer than the previous one.

$$((2*(((5\text{-}6)*8)+7+8\text{-}5+55)*(4+9\text{-}(5*6/2)+1)))+(4/2*(\text{-}1)))$$

Smart assistant!

AK-Calculator smart assistant! Example if you entered equation like the following
(((154.1154+454.254-(17.11*5)-445*54.554

AK-Calculator will show you interactive message let you know that you need three right parentheses to close the parentheses you opened.

Analyses the result

Instead of getting the final result, AK-Calculator allows you to get the result of each part of your equation. For example:

(1+2*3)
It will evaluate as:
(2*3)= 6
(1+(2*3))= 7

Result:
(1+(2*3))= 7
      Total= 7

And if you changed the *HideAssociativity* option to false you will get the result of each couple of the operands. For example:

(1-2+3+4-5)
It will evaluate as:

$$((((1\text{-}2)\text{+}3)\text{+}4)\text{-}5)$$

(1-2)= -1
((1-2)+3)= 2
(((1-2)+3)+4)= 6
((((1-2)+3)+4)-5)= 1

Result:
((((1-2)+3)+4)-5)= 1
      Total= 1

AK-Calculator makes working with equation easier than before and it's also available for free.

This is just the beginning. AK-Calculator is far from done. I have released this version to start the broader discussion and to hear from you as soon as possible. I work hard building new version with many new features. Please feel free to send me your feedback. calculator@aKnack.com.

Invented by

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