Subject: Re: Most significant digit and formatting floating point output
Posted by David Fanning on Tue, 07 Aug 2012 13:44:05 GMT
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Helder writes:

> well, I'm tangled up with something quite stupid, but I don't want to reinvent the wheel (for the 10th time today...).
> Here are two versions of the same question:
> 1) Short version: given a number such as 0.003456789 how do I get the most significant digit position? I need this number to produce formatted output that would convert the number to simply 0.003. In general I can figure this out with some IFs and stuff like that, but I'm hoping there is a more "elegant" way for this.
>
> 2) Long version: I'm analyzing some images and I get results with errors. These numbers are floating point and I would like to format the output so that it looks something like this: 'My results are (0.123 +/- 0.003) units' and the source data is:
> Result = 0.123456789
> Error = 0.003456789
> The point is that I need to find the first non-zero element in Error. Then I would use this number in the FORMAT parameter like this: MyFormat = '(f0'+STRTRIM(FirstNonZeroElement+2,2)+'.'+STRTRIM(FirstNonZ eroElement,2)+')'
> and use "MyFormat" as formatting for the string conversion of both.
> (in the above example FirstNonZeroElement should be 3 and MyFormat would be '(f05.3)'.

You might be interested in the Number_Formatter program
in the Coyote Library:

http://www.idlcoyote.com/programs/number_formatter.pro

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: Most significant digit and formatting floating point output
Posted by Helder Marchetto on Tue, 07 Aug 2012 14:09:45 GMT
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On Tuesday, August 7, 2012 3:44:05 PM UTC+2, David Fanning wrote:

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>
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> David
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> David Fanning, Ph.D.
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> Fanning Software Consulting, Inc.
>
> Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
>
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Thanks David,
If I understand number_formatter correctly, it accepts a number of decimals as an input, but it does not determine which one is the first significant digit.

I'm starting to think that I'll have to code this as in your program and look for the first digit that is not a zero or a dot.

Thanks,
Helder

Subject: Re: Most significant digit and formatting floating point output
Posted by Craig Markwardt on Tue, 07 Aug 2012 15:37:31 GMT
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On Tuesday, August 7, 2012 9:33:13 AM UTC-4, Helder wrote:
> Dear all,
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> well, I'm tangled up with something quite stupid, but I don't want to reinvent the wheel (for the 10th time today...).
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> (in the above example FirstNonZeroElement should be 3 and MyFormat would be '(f05.3)'.

ALOG10(ABS(X)) should give you this information. But to be general, you need to handle ABS(X) LT 1 and ABS(X) GT 1 separately. And also, the X LT 0 case demands one extra digit for the '-' symbol.

Some extra rounding logic may be needed.

Craig

Subject: Re: Most significant digit and formatting floating point output
Posted by Helder Marchetto on Wed, 08 Aug 2012 20:20:28 GMT
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On Tuesday, August 7, 2012 5:37:31 PM UTC+2, Craig Markwardt wrote:
> On Tuesday, August 7, 2012 9:33:13 AM UTC-4, Helder wrote:
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>
>
>
> Some extra rounding logic may be needed.
>
>
>
> Craig

Hi Craig,
thanks, that is what I was looking for.
Cheers,
Helder