Subject: How to apply a function to an array?
Posted by W. Eremeev on Fri, 13 May 2005 08:37:16 GMT
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Suppose, I have a function with one scalar argument, returning a scalar
and an array of values.
I want to get another array with the same dimensions, containing
results of application of my function to the values in the first array.

R (www.r-project.org) has such functions (apply, lapply, sapply).
They take vectors or matrices and functions as arguments and return
arrays.

What about IDL?

Subject: Re: How to apply a function to an array?
Posted by Antonio Santiago on Fri, 13 May 2005 09:05:06 GMT
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W. Eremeev wrote:
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> What about IDL?
>
R is a functional programming language whereas IDL not. This means the
working philosophy is pretty diferent.

Sorry :(, but I dont know if there is a function or procedure in IDL
that executes an specified function over a set of data. Perhaps you must
think in terms of loops.

--

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Subject: Re: How to apply a function to an array?
Posted by Timm Weitkamp on Fri, 13 May 2005 09:25:51 GMT
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Today at 11:05, Antonio Santiago wrote:

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That said, any IDL function that returns a scalar expression for a single scalar argument should (and usually does) also accept an array as the argument, and return an array of the same dimensions. (Which eliminates the need for an "apply" function.)

Example: the SIN function.

```
IDL> a = !pi/4
IDL> print, sin(a)
     0.707107

IDL> b = [0, !pi/4, !pi/2]
IDL> print, sin(b)
     0.00000     0.707107      1.00000

IDL> c = findgen(2,3,4)
IDL> help, sin(c)
<Expression>    FLOAT     = Array[2, 3, 4]
```

The situation is different for functions that reduce the dimensions of the

input array (such as MAX or TOTAL). Some of these functions (the number is growing with every release of IDL) allow the user to specify a specific dimension of the input array to which the function should be applied. For those functions that don't, it is useful to have a look at Craig Markwardt's CMAPPLY routine.

Cheers,
Timm

--
Timm Weitkamp <http://people.web.psi.ch/weitkamp>
