Subject: How does IDL do ...
Posted by ewilliams on Thu, 01 May 1997 07:00:00 GMT
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Hi all,

I am trying to put together a presentation for new IDL users that is a good introduction to using it for astronomical applications. One of the similar applications used in astro is IRAF. If anyone is familiar with IDL and IRAF would you be able to give me a rundown comparing the two, particularly when you might want to use one over the other. We have both apps in our working environment and I don't want to displace either, but I have never really used IRAF and I have a feeling that some things our users do in IRAF can be done faster in IDL. I already know that programing in IDL is much clearer.

I am also curious as to how IDL does matrix calculations. A simple example:

If you want to operate on an 2D array with FORTRAN you need to write nested loops to work through the rows and columns and work with each element.

In IDL you apply a function or WHERE statement to a whole array in one command.

I am wondering if IDL is still doing the nested loops anyway, and therefore not really any faster at doing the job?

Sorry if this is confusing. I am trying to convince others that IDL just does this kind of math faster. If anyone has an example that would be great.

Finally, I am also trying to sell IDL to students as one good tool learn not only for astronomy but to open up future job possibilities in other fields. I have mentioned the following fields:

astronomy
geology
bio medical imaging

Are these correct? Can anyone pass on a few more?

Thanks very much for any input. As you can see I am trying to get support in my department for using IDL on a much larger scale. In fact any selling points anyone might pass on would be good. Especially in the performance area.

--

Eric Williams
ewilliams@wesleyan.edu
See my website on my participation on the search for extrasolar planets:
http://cannon.sfsu.edu/~williams/planetsearch/planetsearch.h tml

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Subject: Re: How does IDL do ...
Posted by D.Kennedy on Thu, 08 May 1997 07:00:00 GMT
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In article <ewilliams-0105970753190001@ppp6.subnet252.wesleyan.edu>,
ewilliams@wesleyan.edu (Eric Williams) writes:
> Hi all,
>
> I am trying to put together a presentation for new IDL users that is a
> good introduction to using it for astronomical applications. One of the
> similar applications used in astro is IRAF. If anyone is familiar with IDL
> and IRAF would you be able to give me a rundown comparing the two,
> particularly when you might want to use one over the other. We have both
> apps in our working environment and I don't want to displace either, but I
> have never really used IRAF and I have a feeling that some things our
> users do in IRAF can be done faster in IDL. I already know that programing
> in IDL is much clearer.

Hmm I dunno , I'm a third year PhD student in Astronomy who uses
both IRAF and IDL. I get the feeling that for data reduction
using IDL would be re-inventing the wheel. Certainly when
faced with reducing an echelle spectroscopic observing tape
I'd reach for IRAF. Analysis may be a different thing depending
on what sort of work you do however I certainly use
IDL a lot for presenting results and working with results obtained
from the spectra.

I see IRAF and IDL as totally different types of package but again I
don't use IRAF for anything other than data reduction, at which it
is very good.

Different tools for different jobs. If IRAF has a _good_ task for it
then why use IDL? In my case I started using IDL as I could not
find software to do the (rather simple!) jobs I wanted with my
radio data.

Oh, and you left out a job area - programming!

--
David Kennedy, Dept. of Pure & Applied Physics, Queen's University of Belfast
Email: D.Kennedy@Queens-Belfast.ac.uk | URL: http://star.pst.qub.ac.uk/~dcjk/
Hi! I'm a .signature virus! Copy me into yours and join the fun!

Subject: Re: How does IDL do ...
Posted by davis on Sat, 10 May 1997 07:00:00 GMT
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On Fri, 02 May 1997 09:16:48 -0500, Liam Gumley <liam.gumley@ssec.wisc.edu>
wrote:
> Absolutely - don't try and sell IDL on the speed of execution - just
> tell people it's as fast as FORTRAN. Sell it on the basis of much faster
> development time (once you're up the learning curve a little bit).

While I agree that IDL reduces development time, it does not always
result in code that is as fast as FORTRAN. It is only (nearly) as
fast as FORTRAN if you are able to vectorize all operations. However,
if some function does not vectorize and it is called many times, the
resulting code can run many times slower than FORTRAN. For example,
an early version of the MARX AXAF simulator was written in IDL.
Unfortunately, it was not possible to vectorize one or two critical
pieces of the code (using the IDL 3.0 intrinsics; perhaps 5.0 provides
the necessary intrinsic functions to permit complete vectorization).
When the simulator was converted to C, it became about 20 times
faster.

Nevertheless, IDL (as well as freely available software such as
SciLab, RLab, and Octave) seem to be good protyping tools and allow
one to get useful work done without too much programming effort.

--John

Subject: Re: How does IDL do ...
Posted by David Foster on Tue, 13 May 1997 07:00:00 GMT
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John E. Davis wrote:
>
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> wrote:
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> Nevertheless, IDL (as well as freely available software such as
> SciLab, RLab, and Octave) seem to be good protyping tools and allow
> one to get useful work done without too much programming effort.
>
> --John

Keep in mind that in IDL it is always possible to code "critical
pieces of code" in C or Fortran and then link the code as a sharable
object. Granted, a function call is never as fast as in-line code,
but the overhead isn't much to speak of.

Dave
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