Subject: Re: Numerical Recipes Article
Posted by Paul E Howland on Wed, 05 Nov 1997 08:00:00 GMT
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Wayne Landsman wrote:

> In one example, they
> compare a "sort and select" algorithm, as coded in Fortran 77, Fortran
> 90, Mathematica, and IDL. The IDL code clearly wins out in terms of
> readability and simplicity -- they call it "almost crystaline in its
> clarity".

As both a Mathematica and IDL user, I too was interested to read this article. The principal reason for the IDL code "clearly winning" lies in the way they have written their code. A better Mathematica example would have been:

```
Reverse[#]&/@Select[Transpose[{vels,mags}], (100<#[[1]]<=200)&]
answer=%[[Ceiling[Length[%]/4]]][[1]]
```

which performs the sort and select without even having to explicitly call the Sort routine. I would argue that this is not much more complicated than the IDL example:

```
temp=mags(where(vels le 200. and vels gt 100., n))
answer=temp((sort(temp))(ceil(n/4)))
```

In fact, if the data structure had been better suited to Mathematica, ie. a two dimensional list (equivalent of FLTARR(2,m) in IDL), first row containing mags and second row vels, then suddenly Mathematica seems the more elegant:

```
Reverse[#]&/@Select[data, (100<#[[1]]<=200)&]
answer=%[[Ceiling[Length[%]/4]]][[1]]
```

compared with the required IDL:

```
temp=data(0,(where(data(1,*) le 200. and data(1,*) gt 100., n)))
answer=temp((sort(temp))(ceil(n/4)))
```

I think the important messages are:
1. Don't judge a product by a single test
2. Use the most appropriate tool for the job

I use both IDL and Mathematica, and would not dream of arguing that one is better than the other. It depends on what I want to do.

Interestingly enough, the article tends to argue that compiled languages

"have an important future in scientific programming" and "environments like IDL or Mathematica are additional great tools to have". I would have placed the emphasis the other way round.

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