Subject: Re: Array operation question
Posted by K. Bowman on Fri, 07 Feb 2003 14:29:28 GMT

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In article <b207km$enf$1@news.ox.ac.uk>,
 Edd Edmondson <eddedmondson@hotmail.com> wrote:

> It's yet another question about how to get an efficient operation on an
> array:
>
> I have one array
> q=[num1,num2,num3,num4]
> and an array
> r=[[num1a,num1b,num1c...],[num2a,num2b..],[num3a...],[num4a..]]
> and I want to find w=r-q such that
> w=[[num1a-num1,num1b-num1,num1c-num1...],[num2a-num2..],[num3a- num3..]..]
>
> Is there an efficient way of doing it without expanding q so that it is
> the same dimension as r? That'd be very expensive in terms of memory for
> me, unfortunately. I could loop over the 4 elements of q and r and do that
> seperately but I'd quite like to eliminate that last loop.
>
> I've tried various things but all fall victim to the 'feature' mentioned
> earlier that IDL will make the result have the dimensions of the smaller
> array.

The first rule of thumb of optimization is "optimize the innermost
loop", so

```
FOR j = 0, nj-1 DO w[0,j] = r[*,j]-q[j]
```

will be pretty efficient if the first dimension or r is large. (Note
that the zero on the lhs is important for efficiency.)

Ken Bowman