Subject: Vectorizing Code
Posted by Steve Jones on Wed, 27 Feb 2002 22:44:52 GMT
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Is it possible to vectorize a simple double for-loop?

```
for i=0,nstate-1 do begin
  for j=0,nvec-1 do begin
    sa(i,j)=10.^2*exp(-abs(i-j)*dz/h)
  endfor
endfor
```

I tend to write a large number of such loops and my indexes have been steadily increasing of late... Is there a faster alternative? Thanks in advance

Subject: Re: Vectorizing Code
Posted by David Fanning on Thu, 28 Feb 2002 16:23:13 GMT
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Brother Bowman (k-bowman@null.tamu.edu) writes:

> I used to feel as you, lost among the REBINs and HISTOGRAMS with
> REVERSE_INDICES, but I have read the REBIN tutorial,
> brothers and sisters, and I have seen the light!

Amen, brother!

Just as a reminder to those of you who think you still have time to live your wicked ways, you can find both of JD's notorious tutorials here:

http://www.dfanning.com/documents/tips.html#Tutorials

You are sure to have an epiphany. :-)

Cheers,

David

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Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Vectorizing Code
Posted by Pavel A. Romashkin on Thu, 28 Feb 2002 17:26:35 GMT
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Kenneth Bowman wrote:
>
> I used to feel as you, lost among the REBINs and HISTOGRAMS with
> REVERSE_INDICES, but I have read the REBIN tutorial,
> brothers and sisters, and I have seen the light!

Uh, I didn't say that I am intimidated when I see Rebin. It is just that, like James absolutely correctly noted, on modern high-clock machines the loops often aren't slower than memory reallocations, especially when Rebin'ing large sized arrays.
And in the case like this one, I'd believe Rebin helps if I saw some clocking results. If the difference is more than a few milliseconds, I admit my defeat :-)
Pavel

Subject: Re: Vectorizing Code
Posted by robert.dimeo on Fri, 01 Mar 2002 13:40:35 GMT
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Hi Steve,

I vectorized it as follows:

```
u = 1+bytarr(nstate)
v = 1+bytarr(nvec)
d = u#(indgen(nvec)) - (indgen(nstate))#v
sa = 10.^2*exp(-abs(d)*dz/h)
```

Your way took 0.125 seconds on my pc for nstate = 500 and nvec = 120.
The vectorized way above took 0.03 seconds.

By the way, the rebin method proposed by Kenneth Bowman also took 0.03 seconds.

Hope this helps,

Rob

Steve Jones <no@email.com> wrote in message
news:<27022002244527274%no@email.com>...
> Is it possible to vectorize a simple double for-loop?
>
> for i=0,nstate-1 do begin

```
>    for j=0,nvec-1 do begin
>      sa(i,j)=10.^2*exp(-abs(i-j)*dz/h)
>    endfor
>  endfor
>
>  I tend to write a large number of such loops and my indexes have been
>  steadily increasing of late... Is there a faster alternative?  Thanks
>  in advance
```
