Subject: Re: filling an empty array
Posted by Peter Mason on Thu, 04 May 2006 05:34:03 GMT
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JJMeyers2@gmail.com wrote:
> Hello,
>
> I have an empty array that I am trying to fill out with results from a
> conditional statement. Because I do not know the results of the
> condition (and I do not want to use pointers) I make a really big
> array and I fill it. When I compare the results though with the
> expected ones they are not correct (except the first value). Any
> ideas on what the problem might be?
>
> Here is the part of the code:
>
> index_data=intarr(32,1000)
>
> FOR i=0,31 DO BEGIN
> index_data(i)=
> where((dat_x(*,i) GE -0.1) AND (dat_x(*,i) LE 0.1) AND $
> (dat_y(*,i) GE -0.5) AND (dat_y(*,i) LE 0.5))
> ENDFOR
>
> The result of the 'where' statement is different for each of the i
> cases and when I hard-coded several integers and compared with the
> results of the loop they were different.
>
> Does anyone have any idea what the problem is?
>
> Thank you in advance,
> JJM

JJ, sorry if I sound critical but you mustn't build a single padded index
array like this, especially when that index array is only partially valid
and therefore unuseable without further extraction. You just mustn't.
Don't do it. The EPG will get you. There's got to be a better way.
Even doing the actual work row-by-row (i.e., create row's index array and
then use it) would be better.
Anyway, some discussion on the current setup.

You are indexing a two-dimensional array (INDEX_DATA) with a one-dimensional
index (I).
You *can* do this in IDL, but when you do it works like this: IDL treats
the array as one-dimensional (in this case an INTARR(32*1000)) and inserts
stuff accordingly, starting at the given index (I). Memory layout becomes
important.

Clearly you are getting a *lot* of overwriting here, as I is only increasing by 1 in each iteration.

You need to do 2D insertion, as in INDEX_DATA[i,0]=...
You might have to use REFORM(..., 1, ?) on the right-hand-side to get it 2-dimensional (with a leading dimension of 1).

It would be much better if INDEX_DATA was an INTARR(1000,32). Then you could do simple, efficient 2D insertion with INDEX_DATA[0,i]=..., or even 1D insertion with INDEX_DATA[i*1000L]=...

You ought to track WHERE's hit count in a separate 1D array as well. All those zero values in INDEX_DATA are valid indices and they will probably give you a headache downstream. Also, -1 (bad WHERE) is an invalid index and you would have to look for it.

There's probably a neat solution with HISTOGRAM but I'm not up to it :-)

Cheers
Peter Mason

Subject: Re: filling an empty array
Posted by greg michael on Thu, 04 May 2006 07:03:51 GMT
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...who are the EPG?

Subject: Re: filling an empty array
Posted by greg michael on Thu, 04 May 2006 07:27:41 GMT
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But this is a perfect job for pointers - why avoid them?

```
index_data=ptrarr(32)
dat_x=randomu(0,1000,32)*4-2
dat_y=randomu(0,1000,32)*4-2

FOR i=0,31 DO BEGIN
index_data(i)=ptr_new(where((dat_x(*,i) GE -0.1)  AND (dat_x(*,i) LE
0.1)  AND $
        (dat_y(*,i) GE -0.5)  AND (dat_y(*,i) LE 0.5)))
ENDFOR

IDL> print,*index_data[1]
```

```
       0       29       36       50       62
102      123      241      244      269      284
304      316      390      428      441      443
446      543
      544      546      553      564      577
634      685      695      709      717      738
745      752      773      799      852      965
```

regards,
Greg

Subject: Re: filling an empty array
Posted by JJMeyers2 on Thu, 04 May 2006 15:15:16 GMT
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Thank you Peter and Greg!
I am trying to avoid pointers because I have used them before and I
ended up making a mess of
my program! Builiding an array and then removing the extra 0 and -1
just sounds simpler:-). I guess there is no harm trying again.

Thank you again,
JJM

Subject: Re: filling an empty array
Posted by Peter Mason on Thu, 04 May 2006 21:24:40 GMT
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greg michael wrote:
> ...who are the EPG?

Sorry, I had the acronym wrong. EPA or IEPA.
http://www.dfanning.com/misc_tips/iepa.html
