Subject: Re: where help
Posted by davidf on Mon, 27 Jan 1997 08:00:00 GMT
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Phil Williams <williams@irc.chmcc.org> writes:

> How do I get the x,y coords from the result of where?
>
> Here's what I did:
> IDL> t = where(slice eq max(slice))

I'm really glad you asked this question! I am sure there is some nifty algorithm that everyone learns in CS101. But since I taught myself how to program, I don't know it. And I've always wanted to figure it out. So here goes...

Here is what I know (for a 2D array!). Arrays are stored in row order, so the column index varies the fastest. Suppose I create a 3 column by 4 row array and get its size, like this:

```
  data = FINDGEN(12)
  data = REFORM(data, 3, 4)
  PRINT, data
     0.00000      1.00000      2.00000
     3.00000      4.00000      5.00000
     6.00000      7.00000      8.00000
     9.00000      10.0000      11.0000
  s = SIZE(data)
```

OK, suppose I now do this:

```
  index = WHERE(data EQ 6)
```

The WHERE function returns the 1D index into the 2D array.

```
  PRINT, index
     6
```

So, the number 6 is located in index 6 (the 7th number in the array with zero-based subscripting). What is its 2D subscript? Well, if I divide index by how many columns there are in the array, and then take the whole part of that number, I will know its row number. In IDL terms:

```
  row = FIX(FLOAT(index)/s(1))
  PRINT, row
     2
```

To find the column number, I multiply the row number times
the number of columns in the array, and subtract that value
from the index. Again, in IDL terms:

```
col = index - (row * s(1))
PRINT, col
   0
```

That seem's right. Let's test it in the real world.

```
seed = -1L
data = RANDOMU(seed, 50, 100)
s = SIZE(data)
index = 124
PRINT, data(index)
    0.973124
```

Now for the test:

```
row = FIX(FLOAT(index)/s(1))
col = index - (row * s(1))
PRINT, col, row
       24       2
PRINT, data(col, row)
    0.973124
```

Hooray!

I don't know if its the algorithm they teach in CS101,
but it works for me. :-)

Cheers!

David

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