Subject: Re: Finding Common Elements in Two Arrays
Posted by dan on Wed, 01 Jun 1994 23:23:48 GMT
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Subject: Finding Common Elements in Two Arrays
Newsgroup: comp.lang.idl-pvwave:

kucera@stars.gsfc.nasa.gov (Terry Kucera) writes :

> I'm looking for a quick way to compare two arrays in IDL, A and B,
> and determine which elements of B are also in A,
> so if:
> A=[2,1,3,5,3,8,2,5]
> B=[3,4,2,8,7,8]
> I would get [0,2,3,5], because 3, 2, and 8 are in A as well as B.

> I can do this with loops, but that takes too long for big arrays. Does anyone
> have a way to do this using array functions or perhaps an external routine?
> Terry Kucera
> kucera@stars.gsfc.nasa.gov

OK, basically what we have here is the problem of finding the intersection
of two sets of numbers. Assuming that the two sets contain non-negative
long or short integers, here is a slick (and tricky) way to do it :

```
IDL> A=[2,1,3,5,3,8,2,5]
IDL> B=[3,4,2,8,7,8]

IDL> ; PART 1.  Find the numbers common to both sets.

IDL> set_length = Max([Max(A), Max(B)]) + 1L
IDL> set_1 = Bytarr(set_length)
IDL> set_2 = Bytarr(set_length)
IDL> set_1(A) = 1B
IDL> set_2(B) = 1B
IDL> common_num = Where(set_1 AND set_2)
IDL> Print, common_num
       2       3       8

IDL> ; PART 2.  Find where the common numbers exist in array B.

IDL> index_arr1 = Replicate(1, N_Elements(B)) # common_num
IDL> index_arr2 = b # Replicate(1, N_Elements(common_num))
IDL> common_sub = Where(index_arr1 EQ index_arr2) MOD N_Elements(B)
IDL> Print, common_sub
       2       0       3       5
```

```
IDL> ; PART 3.  Get ALL the common numbers in array B (including duplicates)

IDL> Print, B(common_sub(SORT(common_sub)))
          3          2          8          8
```

Try it, you'll like it !

"If I don't read the net news, somebody else will."


```
 _____          _____   _____
 /    \    /\    |    \  |    \   (Dan Carr)
/         /__\   |____/  |____/   (Research Systems)
\        /    \  |    \  |    \   (Boulder, Colorado)
 \____/ /      \ |     \ |     \  (dan@rsinc.com)
```
