Subject: Re: fast array comparison
Posted by Sean Raffuse on Sun, 08 Dec 2002 20:32:07 GMT
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David,

Thanks for this. It works almost perfectly. I am a little confused though.
It seems that the indices keyword returns the indices of the requested array
and not the available array.

"David Fanning" <david@dfanning.com> wrote in message
news:MPG.185d3307aad96bee989a51@news.frii.com...
> Sean Raffuse (sean@me.wustl.edu) writes:
>
>> Let's say I have two arrays.
>>
>> requested_array = [5,6,7,8,9,10]
>> available_array = [3,7,8,9,12,13,16]
>>
>> What is the absolute fastest way to determine the indices of
available_array
>> that contain values in requested_array? The indices need not match.
i.e.,
>> if the two arrays above were used, I would like to return index=[1,2,3]
>> because the requested values 7, 8 and 9 are in the available array.
>
> The absolute fastest way MUST involve histograms, so
> I maintain with a great deal of confidence (say, in the 40-50
> percent range) that this is the fastest possible algorithm:
>
> ** ************
> FUNCTION SetIntersection, a, b, Indices=indices
> minab = Min(a, Max=maxa) > Min(b, Max=maxb) ;Only need intersection of
> ranges
> maxab = maxa < maxb
>
> ; If either set is empty, or ranges don't intersect: result = NULL.
>
> IF maxab LT minab OR maxab LT 0 THEN RETURN, -1
> r = Where((Histogram(a, Min=minab, Max=maxab) NE 0) AND $
> (Histogram(b, Min=minab, Max=maxab) NE 0), count)
> IF Arg_Present(indices) THEN $
> indices = Where((Histogram(a, Min=minab, Max=maxab) NE 0))
> IF count EQ 0 THEN RETURN, -1 ELSE RETURN, r + minab
> END
> ** ************
>

> Use it like this:
>
>
> IDL> request_array = [5,6,7,8,9,10]
> IDL> avail_array = [3,7,8,9,12,13,16]
> IDL> int = setintersection(avail_array, request_array, Indices=i)
> IDL> print, int, i
> 7 8 9
> 2 3 4
>
> Cheers,
>
> David
>
> --
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