Subject: Re: How to find second minimum elements in an array in IDL?
Posted by Conor on Thu, 15 Jan 2009 17:36:41 GMT
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On Jan 14, 10:53 am, "mgal...@gmail.com" <mgal...@gmail.com> wrote:
> On Jan 14, 8:26 am, Hu <jha...@gmail.com> wrote:
>
>> Supposing that there is an array X=[9,2,3,5,1,6,8,4,7], how can I find
>> the first and second minimums (in this array are elements 1 and 2) in
>> this vector?
>
>> I use this to find the first minimum (element 1):
>
>> index = where(X eq min(X))
>> minimum_first=X[index]
>
>> But, how can i find the elements 2 ?
>> thanks
>
> For a general approach for finding the n smallest elements of an array
> (using HISTOGRAM and REVERSE_INDICES!), try:
>
> http://michaelgalloy.com/2006/06/02/finding-the-n-smallest-e lements-i...
>
> Mike
> --www.michaelgalloy.com
> Tech-X Corporation
> Associate Research Scientist

I was curious, so I checked out your routine Mike. It looks good but one problem - a for loop! I'm pretty sure you can replace:

```
nCandidates = 0L
for bin = 0L, nBins - 1L do begin
   nCandidates += h[bin]
   if (nCandidates ge n) then break
endfor
```

with:

```
max( total( h, /cumulative ) < n, bin )
```

which should work because max will return the first maximum value. Of course, I was too lazy to see if the max(total()) method is actually faster (since it involves a couple different compuatations), but oh well, sometimes laziness wins :)