Subject: Locating desired values in an array.
Posted by gpeterso on Thu, 24 Jul 2014 01:50:25 GMT
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So i have an array that is [2,58]. I need the number that is closet to -42 for each time the track number increases by one. So for example for track number 28742 I should get the third bin number of -42.6996. I am very confused on how to do approach this.

lat	track number
-45.9996	28742.0
-44.3502	28742.0
-42.6996	28742.0
-41.0498	28742.0
-39.3996	28742.0
-44.5354	28743.0
-42.8868	28743.0
-41.2346	28743.0
-39.5846	28743.0
-45.3804	28744.0
-43.7284	28744.0
-42.0808	28744.0
-40.4308	28744.0
-38.7792	28744.0
-45.4610	28745.0
-43.8098	28745.0
-42.1594	28745.0
-40.5126	28745.0
-38.8608	28745.0
-45.1552	28746.0
-43.5100	28746.0
-41.8678	28746.0
-40.2296	28746.0
-38.5952	28746.0
-44.9840	28747.0
-43.3334	28747.0
-40.0314	28747.0
-38.3800	28747.0
-45.8540	28748.0
-44.2030	28748.0
-42.5522	28748.0
-40.9032	28748.0
-39.2532	28748.0
-45.5312	28749.0
-43.9034	28749.0
-42.2568	28749.0
-40.6044	28749.0

```
-38.9540    28749.0
-44.8084    28750.0
-43.1594    28750.0
-41.5118    28750.0
-39.8642    28750.0
-38.2144    28750.0
-44.8434    28751.0
-43.1930    28751.0
-41.5444    28751.0
-39.8958    28751.0
-38.2454    28751.0
-44.8526    28752.0
-43.2026    28752.0
-41.5494    28752.0
-39.8990    28752.0
-38.2494    28752.0
-45.4156    28753.0
-43.7656    28753.0
-42.1140    28753.0
-40.4638    28753.0
-38.8128    28753.0
```

Subject: Re: Locating desired values in an array.
Posted by Moritz Fischer on Thu, 24 Jul 2014 06:26:49 GMT
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Unless you know more about the nature of those track numbers I'd loop
over them. You can get the track numbers using UNIQ() and then do
something like this:

tn = uniq(yourarray[1,*])
value = fltarr(n_elements(tn))

for i=0,n_elements(tn)-1 do begin

  subset = WHERE(yourarray[1,*] EQ tn[i])

  void = min(abs(yourarray[0,subset] + 42.), min_index)

  value[i] = yourarr[0, subset[min_index]]

end

Am 24.07.2014 03:50, schrieb gpeterso@ucsc.edu:
> So i have an array that is [2,58]. I need the number that is closet
> to -42 for each time the track number increases by one. So for

> example for track number 28742 I should get the third bin number of
> -42.6996. I am very confused on how to do approach this.
>
>
>

Here is a solution using Histogram and reverse indices.

```
;Create data
tn      = [replicate(3, 5), replicate(2, 3), replicate(9, 8)]
lat     = 42 + randomu(5, n_elements(tn))

;Histogram to find repeated track numbers
hist    = histogram(tn, MIN=0, REVERSE_INDICES=ri)

;Allocate memory to result.
nHist      = n_elements(hist)
theNumber = fltarr(nHist)
theIndex  = intarr(nHist) - 1

;Loop through each bin
for i = 0, nHist-1 do begin
    ;Only analyze bins with something in them
    if ri[i+1] gt ri[i] then begin
       ;Find the closest number and its index
       theNumber[i] = min( abs( 42 - abs(lat[ri[ri[i]:ri[i+1]-1]]) ), iMax )
       theIndex[i]  = ri[i] + iMax
    endif
endfor

;Weed out empty histogram bins
iKeep      = where(theIndex ne -1)
theNumber = theNumber[iKeep]
theIndex  = theIndex[iKeep]
```

When I try your way I get an error that says:
Attempt to subscript yourarray with subset is out if range

Subject: Re: Locating desired values in an array.
Posted by Moritz Fischer on Fri, 25 Jul 2014 08:16:24 GMT

Sorry, my bad. UNIQ returns indices, not values. So it's even simpler:

```
idx   = [-1,uniq( yourarray[1,*] )]
value = fltarr( n_elements(idx)-1 )

for i=0,n_elements(idx)-2 do begin

  void = min(abs( yourarray[0, idx[i]+1:idx[i+1]] + 42. ), min_index )

  value[i] = yourarray[0, idx[i]+1+min_index ]

end
```

However, note that this only works if the track numbers are sorted!
I'd stick to Matthew's approach, which is more generic!

Am 24.07.2014 20:19, schrieb gpeterso%ucsc.edu@gtempaccount.com:
> When I try your way I get an error that says: Attempt to subscript
> yourarray with subset is out if range
>