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Subject: Re: Replication question

Posted by [JD Smith](#) on Wed, 14 Sep 2005 23:50:18 GMT

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On Wed, 14 Sep 2005 18:09:02 -0500, Michael Wallace wrote:

> Hey guys,  
>  
> I know there's got to be an easy way to do this, but my brain is cramped  
> up right now. Given an array input, I'd like to output an array where the  
> index of the of the input array is replicated by the corresponding value  
> in the input array. The input array will always contain positive values.  
>  
> For example...  
> input: [1, 2, 1, 4]  
> output: [0, 1, 1, 2, 3, 3, 3, 3]  
>  
> input: [3, 3, 3, 1]  
> output: [0, 0, 0, 1, 1, 1, 2, 2, 2, 3]  
>  
> I know that I could loop over my input array, replicate the loop variable  
> by the value of the input array at each position and concatenate the  
> resulting arrays, but this solution does not seem like "The IDL Way". Any  
> dimensional jugglers out there know a nice looking solution?

This is the "chunk indexing problem", which is covered in the HISTOGRAM tutorial under "Using the i-Vector". The i-vector is the leading portion of the reverse indices vector (the part which, narcissistically, indexes itself). See:

[http://www.dfanning.com/tips/histogram\\_tutorial.html](http://www.dfanning.com/tips/histogram_tutorial.html)

It looks like this:

```
IDL> h=histogram(total(n,/CUMULATIVE)-1,/BINSIZE,MIN=0,REVERSE_IN DICES=ri)
IDL> i=ri[0:n_elements(h)-1]-ri[0]
```

Actually this very example points out a potential problem with the IDL way: it's not terribly transparent. I suppose if it were, it would not have a name with such cachet, and a special section devoted to it on David's site.

JD

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Subject: Re: Replication question

Posted by [Michael Wallace](#) on Thu, 15 Sep 2005 17:53:41 GMT

> This is the "chunk indexing problem", which is covered in the  
> HISTOGRAM tutorial under "Using the i-Vector". The i-vector is the  
> leading portion of the reverse indices vector (the part which,  
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> IDL> h=histogram(total(n,/CUMULATIVE)-1,/BINSIZE,MIN=0,REVERSE\_IN DICES=ri)  
> IDL> i=ri[0:n\_elements(h)-1]-ri[0]

My brain hurts just looking at that. I've tried to read the HISTOGRAM tutorial before, and I didn't get very far before my grey matter became grey goo. Maybe I'll be able to understand more now that I have a real problem I want to solve and will be reading that in a different light. It would be easy enough to stick that code in, but I really want to understand what's going on. With that in mind, I have written this haiku:

Histogram horror  
How can you understand it?  
Thank you JD Smith

-Mike

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Subject: Re: Replication question  
Posted by [David Fanning](#) on Thu, 15 Sep 2005 18:00:39 GMT  
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Michael Wallace writes:

> My brain hurts just looking at that. I've tried to read the HISTOGRAM  
> tutorial before, and I didn't get very far before my grey matter became  
> grey goo. Maybe I'll be able to understand more now that I have a real  
> problem I want to solve and will be reading that in a different light.  
> It would be easy enough to stick that code in, but I really want to  
> understand what's going on. With that in mind, I have written this haiku:  
>  
> Histogram horror  
> How can you understand it?  
> Thank you JD Smith

I read it 4-5 times a year, whether I need to or not, and I \*always\* learn something new from it. :-)

Cheers,

David

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David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

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