Subject: Re: question about array interpolation
Posted by David Fanning on Wed, 14 Jan 2009 20:03:04 GMT

Hu writes:

> Supposing that I got an array X=[1,2,
> 0,0,5,6,0,8,9,0,9,8,0,0,0,0,3,2,0] ,is there any functions in IDL that
> can change array X into Y=[1,2,3,4,5,6,7,8,9,10,9,8,7,6,5,4,3,2,1] ?
>
> at first, I through it looks like an interpolation question, but after
> I tried a few interpolation functions like INTERPOLATE, INTERPOL . I
> do not get the ideal answer, So... post it here

I'm pretty sure there is no function on Earth that can
convert X into Y, but I'm waiting with bated breath,
just like you. :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: question about array interpolation
Posted by Hu on Wed, 14 Jan 2009 20:16:44 GMT

On Jan 14, 3:03 pm, David Fanning <n...@dfanning.com> wrote:
> Hu writes:
>> Supposing that I got an array X=[1,2,
>> 0,0,5,6,0,8,9,0,9,8,0,0,0,0,3,2,0] ,is there any functions in IDL that
>> can change array X into Y=[1,2,3,4,5,6,7,8,9,10,9,8,7,6,5,4,3,2,1] ?
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>> I tried a few interpolation functions like INTERPOLATE, INTERPOL . I
>> do not get the ideal answer, So... post it here
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> I'm pretty sure there is no function on Earth that can
> convert X into Y, but I'm waiting with bated breath,
> just like you. :-)
>
> Cheers,
>

> David
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming:http://www.dfanning.com/
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Oh, that's depressing.
I mean, it looks like a simple question, but really not.
anyway, thanks you, David.

Subject: Re: question about array interpolation
Posted by David Fanning on Wed, 14 Jan 2009 20:40:50 GMT
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Hu writes:

> Oh, that's depressing.
> I mean, it looks like a simple question, but really not.
> anyway, thanks you, David.

I'm clearly missing something. What looks simple to you?
How would you describe what you want to do in words?

x = [1,2,0,0,5,6,0,8,9, 0,9,8,0,0,0,0,3,2,0]
y = [1,2,3,4,5,6,7,8,9,10,9,8,7,6,5,4,3,2,1]

I just don't see any relationship between those
two arrays at all. I've got to start eating more
of the fish oil tablets or something.

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: question about array interpolation
Posted by Michael Galloy on Wed, 14 Jan 2009 20:44:22 GMT
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On Jan 14, 1:40 pm, David Fanning <n...@dfanning.com> wrote:

> Hu writes:
>> Oh, that's depressing.
>> I mean, it looks like a simple question, but really not.
>> anyway, thanks you, David.
>
> I'm clearly missing something. What looks simple to you?
> How would you describe what you want to do in words?
>
> x = [1,2,0,0,5,6,0,8,9, 0,9,8,0,0,0,0,3,2,0]
> y = [1,2,3,4,5,6,7,8,9,10,9,8,7,6,5,4,3,2,1]
>
> I just don't see any relationship between those
> two arrays at all. I've got to start eating more
> of the fish oil tablets or something.

I think the zeros are meant to be undefined values that should be
replaced by an interpolated value.

Mike
--
www.michaelgalloy.com
Tech-X Corporation
Associate Research Scientist

Subject: Re: question about array interpolation
Posted by David Fanning on Wed, 14 Jan 2009 20:48:55 GMT
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mgalloy@gmail.com writes:

> I think the zeros are meant to be undefined values that should be
> replaced by an interpolated value.

Oh, alright. I'm going back to bed now.

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: question about array interpolation

Posted by Hu on Wed, 14 Jan 2009 20:54:54 GMT

On Jan 14, 3:44 pm, "mgal...@gmail.com" <mgal...@gmail.com> wrote:
> On Jan 14, 1:40 pm, David Fanning <n...@dfanning.com> wrote:
>
>> Hu writes:
>>> Oh, that's depressing.
>>> I mean, it looks like a simple question, but really not.
>>> anyway, thanks you, David.
>
>> I'm clearly missing something. What looks simple to you?
>> How would you describe what you want to do in words?
>
>> x = [1,2,0,0,5,6,0,8,9, 0,9,8,0,0,0,0,3,2,0]
>> y = [1,2,3,4,5,6,7,8,9,10,9,8,7,6,5,4,3,2,1]
>
>> I just don't see any relationship between those
>> two arrays at all. I've got to start eating more
>> of the fish oil tablets or something.
>
> I think the zeros are meant to be undefined values that should be
> replaced by an interpolated value.
>
> Mike
> --www.michaelgalloy.com
> Tech-X Corporation
> Associate Research Scientist

Yes, mike got it,we can replace 'zero's as other unmeaningful symbols,
I just want to replace these unmeaningful symbols with interpolated
values from the known values.

sorry for any misunderstanding in my questions.

Subject: Re: question about array interpolation
Posted by Michael Galloy on Wed, 14 Jan 2009 21:52:01 GMT

On Jan 14, 1:54 pm, Hu <jha...@gmail.com> wrote:
> On Jan 14, 3:44 pm, "mgal...@gmail.com" <mgal...@gmail.com> wrote:
>
>
>
>> On Jan 14, 1:40 pm, David Fanning <n...@dfanning.com> wrote:
>
>>> Hu writes:

>>>> Oh, that's depressing.
>>>> I mean, it looks like a simple question, but really not.
>>>> anyway, thanks you, David.
>
>>> I'm clearly missing something. What looks simple to you?
>>> How would you describe what you want to do in words?
>
>>> x = [1,2,0,0,5,6,0,8,9, 0,9,8,0,0,0,0,3,2,0]
>>> y = [1,2,3,4,5,6,7,8,9,10,9,8,7,6,5,4,3,2,1]
>
>>> I just don't see any relationship between those
>>> two arrays at all. I've got to start eating more
>>> of the fish oil tablets or something.
>
>> I think the zeros are meant to be undefined values that should be
>> replaced by an interpolated value.
>
>> Mike
>> --www.michaelgalloy.com
>> Tech-X Corporation
>> Associate Research Scientist
>
> Yes, mike got it,we can replace 'zero's as other unmeaningful symbols,
> I just want to replace these unmeaningful symbols with interpolated
> values from the known values.
>
> sorry for any misunderstanding in my questions.

OK, how about:

ind = where(x ne 0, count, complement=c)
result = interpol(x[ind], ind, c)

y = x
y[c] = result
print, y

Mike
--
www.michaelgalloy.com
Tech-X Corporation
Associate Research Scientist

David Fanning wrote:
> x = [1,2,0,0,5,6,0,8,9, 0,9,8,0,0,0,0,3,2,0]
> y = [1,2,3,4,5,6,7,8,9,10,9,8,7,6,5,4,3,2,1]

I think he wants to interpolate where x is 0,
taking the non-zero elements of x as his data to
interpolate from, i.e. 1,2,0,0,5 becomes 1,2,3,4,5.
That does not explain why 9,0,9 beocmes 9,10,9.

chl

Subject: Re: question about array interpolation
Posted by Carsten Lechte on Thu, 15 Jan 2009 09:17:19 GMT

Hu wrote:
> Yes, mike got it,we can replace 'zero's as other unmeaningful symbols,
> I just want to replace these unmeaningful symbols with interpolated
> values from the known values.

how about this:

```
IDL> x = [1,2,0,0,5,6,0,8,9, 0,9,8,0,0,0,0,3,2,0]
IDL> xi = where( x gt 0)
IDL> xv = x[xi]
IDL> print, xi, xv
       0       1       4       5       7       8      10
      11      16      17
       1       2       5       6       8       9       9
       8       3       2
```

good data is in xi, xv

```
IDL> yi = where( x eq 0)
IDL> yv = interpol( xv, xi, yi)
% Compiled module: INTERPOL.
IDL> print, yv
       3       4       7       9       7       6       5
       4       1
```

merge data in xv with yv:

```
IDL> y = x
IDL> y[yi] = yv
IDL> print, y
       1       2       3       4       5       6       7
```

```
      8        9        9        9        8        7
         6        5        4        3        2        1
IDL>
```

note: this does not "complete the hill" in 8 9 0 9 8 to 8 9 10 9 8, but linearly interpolates to 8 9 9 9 8.

chl