
Subject: really stupid matrix question

Posted by [astroboy.20000](#) on Mon, 30 Oct 2017 17:49:26 GMT

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OK, before my head explodes, can anyone tell me the answer to this?

```
a=indgen(4,3)
print, a
0,1,2,3
4,5,6,7
8,9,10,11
```

OK, are the horizontal lines really vertical vectors? I think they would be based on idl being column-major, which means the columns are contiguous in memory. If I understand correctly.

If this is correct, then why does IDL print them out in rows????

Someone please shoot me.

Subject: Re: really stupid matrix question

Posted by [wlandsman](#) on Mon, 30 Oct 2017 19:46:59 GMT

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I have always has trouble remembering column-major and row-major (and thus never use the terms) so I hope I don't confuse things here. But from Wikipedia

https://en.wikipedia.org/wiki/Row-_and_column-major_order

"A general way to order objects with many attributes is to first group and order them by one attribute, and then, within each such group, group and order them by another attribute, etc. If more than one attribute participate in ordering, the *first* would be called major and the last minor."

In column major, you first order by column, and then say within column zero you order by rows. So in column major, the *rows* are contiguous in memory.

-Wayne

On Monday, October 30, 2017 at 1:49:27 PM UTC-4, Ann Nonymous wrote:

```
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> If this is correct, then why does IDL print them out in rows????
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Subject: Re: really stupid matrix question
Posted by [Burch](#) on Mon, 30 Oct 2017 20:15:07 GMT
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On Monday, October 30, 2017 at 12:49:27 PM UTC-5, Ann Nonymous wrote:

> OK, before my head explodes, can anyone tell me the answer to this?
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> OK, are the horizontal lines really vertical vectors? I think they would be based on idl being column-major, which means the columns are contiguous in memory. If I understand correctly.
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> If this is correct, then why does IDL print them out in rows????
>
> Someone please shoot me.

In IDL the first dimension is stored contiguously in memory. When printing, this dimension corresponds to the column (this is how IDL maps it, some other languages map the first dimension to rows when printing/displaying). For your example, the elements are stored in memory in the order [0, 0], [1, 0], [2, 0], [3, 0], [0, 1], [1, 1], [2, 1], [3, 1], [0, 2], [1, 2], [2, 2], [3, 2].

Note that how the creators of a language choose to DISPLAY an array is NOT THE SAME as whether or not the language is described as row- or column-major, which is based strictly on the mathematical [row, column] notation (which is the opposite of how IDL displays it). You can read more about this, and why it's particularly confusing in IDL, here:
http://www.harrisgeospatial.com/docs/Columns__Rows__and_Array.html

-Jeff

Subject: Re: really stupid matrix question
Posted by [astroboy.20000](#) on Tue, 31 Oct 2017 17:45:31 GMT
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Thanks for the help everyone. Please allow me another question:

x=findgen(5)

is x a column vector or a row vector? It prints out like its a row, of course, but I haven't found anything in the documentation that explicitly says which one it is. Saying that the first dimension is stored contiguously is a bit ambiguous.

Subject: Re: really stupid matrix question

Posted by [astroboy.20000](#) on Tue, 31 Oct 2017 17:46:59 GMT

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On Tuesday, October 31, 2017 at 1:45:33 PM UTC-4, Ann Nonymous wrote:

> Thanks for the help everyone. Please allow me another question:

>

> x=findgen(5)

>

> is x a column vector or a row vector? It prints out like its a row, of course, but I haven't found anything in the documentation that explicitly says which one it is. Saying that the first dimension is stored contiguously is a bit ambiguous.

I suppose it must be a row, since transpose(x) is clearly a column. Never mind. Thanks.

Subject: Re: really stupid matrix question

Posted by [benjamin.castellani](#) on Tue, 31 Oct 2017 19:51:13 GMT

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The first dimension of any array/vector is column index in IDL.

x = findgen(5)

produces an array with 5 Columns and 1 (Implied) Row.

I always remember Matlab is (Row Index, Column Index)--> RC --> RC Cars (childhood toy). IDL is the opposite of Matlab. CR --> ???

Do you have a mnemonic device for this one?

On Tuesday, October 31, 2017 at 11:47:00 AM UTC-6, Ann Nonymous wrote:

> On Tuesday, October 31, 2017 at 1:45:33 PM UTC-4, Ann Nonymous wrote:

>> Thanks for the help everyone. Please allow me another question:

>>

>> x=findgen(5)

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Subject: Re: really stupid matrix question

Posted by [astroboy.20000](#) on Wed, 01 Nov 2017 22:32:23 GMT

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On Tuesday, October 31, 2017 at 3:51:15 PM UTC-4, Ben Castellani wrote:

> The first dimension of any array/vector is column index in IDL.

>

> x = findgen(5)

>

> produces an array with 5 Columns and 1 (Implied) Row.

>

>

That makes sense, but I have to say its confusing that print,x prints everything on a single line, which of course makes it look like a row..... That's more convenient, of course.... Thanx!
