Subject: Determinant of a matrix
Posted by fd_luni on Wed, 20 Nov 2013 12:09:48 GMT

Hi

I want to check the linear independence of the columns on my matrix. I found the function DETERM() but this works only in cases where the matrix is NXN. In my case the matrix is NX4 (N-rows, 4-columns).

How can I calculate the determinant of that matrix?

Many Thanks
Ma

Subject: Re: Determinant of a matrix
Posted by Fabzi on Wed, 20 Nov 2013 12:44:56 GMT

On 20.11.2013 13:09, fd_luni@mail.com wrote:
> the function DETERM() works only in cases where the matrix is NXN

OMG what could be the reason for this choice? Once again, IDL developpers did everything wrong ;-)

Subject: Re: Determinant of a matrix
Posted by fd_luni on Wed, 20 Nov 2013 12:58:12 GMT

On Wednesday, 20 November 2013 12:44:56 UTC, Fabien wrote:
> On 20.11.2013 13:09, fd_luni@mail.com wrote:
>
>> the function DETERM() works only in cases where the matrix is NXN
>
>
>
> OMG what could be the reason for this choice? Once again, IDL
>
> developpers did everything wrong ;-)

I used some functions to create the data in this matrix and I want to check that the columns of this matrix are indeed linearly independent in order to make sure if there is a need to replace my functions with something else.

Subject: Re: Determinant of a matrix
Posted by lecacheux.alain on Wed, 20 Nov 2013 13:37:17 GMT

Le mercredi 20 novembre 2013 13:09:48 UTC+1, fd_...@mail.com a écrit :
> Hi
>
>
>
> I want to check the linear independence of the columns on my matrix. I found the function
DETERM() but this works only in cases where the matrix is NXN. In my case the matrix is NX4
(N-rows, 4-columns).
>
>
>
> How can I calculate the determinant of that matrix?
>
>
>
> Many Thanks
>
> Ma

> How can I calculate the determinant of that matrix?
You cannot, because determinant is not defined for a non square matrix.

> I want to check the linear independence of the columns on my matrix
What you are asking for is the rank of your matrix (i.e., mathematically, the number of
independent columns). Matrix rank can be determined by singular value decomposition: the rank
is the number of singular values which are not zero. In IDL, you can write:

if A is your matrix:
IDL> LA_SVD, A, W, U, V
IDL> rank_of_A = N_elements(W[where(W ne 0)])

alx.

Subject: Re: Determinant of a matrix
Posted by fd_luni on Wed, 20 Nov 2013 14:57:43 GMT

> What you are asking for is the rank of your matrix (i.e., mathematically, the number of
independent columns). Matrix rank can be determined by singular value decomposition: the rank
is the number of singular values which are not zero. In IDL, you can write:
>
>
>

> if A is your matrix:
>
> IDL> LA_SVD, A, W, U, V
>
> IDL> rank_of_A = N_elements(W[where(W ne 0)])
>
>
>
> alx.

I got 4 singular values so the rank(A)=4? This means that the four rows are linearly independent? The eigenvalues are look like this:
235042.27   10979.266   286.59332   7.6813673

Subject: Re: Determinant of a matrix
Posted by fd_luni on Wed, 20 Nov 2013 14:59:15 GMT
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>
>

> What you are asking for is the rank of your matrix (i.e., mathematically, the number of independent columns). Matrix rank can be determined by singular value decomposition: the rank is the number of singular values which are not zero. In IDL, you can write:
>
>
>
> if A is your matrix:
>
> IDL> LA_SVD, A, W, U, V
>
> IDL> rank_of_A = N_elements(W[where(W ne 0)])
>
>
>
> alx.

I got 4 singular values so the rank(A)=4? This means that the four rows are linearly independent? The singular values are look like this:
235042.27   10979.266   286.59332   7.6813673

Subject: Re: Determinant of a matrix
Posted by Craig Markwardt on Wed, 20 Nov 2013 15:40:01 GMT
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On Wednesday, November 20, 2013 4:09:48 AM UTC-8, fd_...@mail.com wrote:
> Hi
>
>
>
> I want to check the linear independence of the columns on my matrix. I found the function DETERM() but this works only in cases where the matrix is NXN. In my case the matrix is NX4 (N-rows, 4-columns).
>

Maria, are you going to delete your posts again?

Subject: Re: Determinant of a matrix
Posted by fd_luni on Wed, 20 Nov 2013 15:53:22 GMT
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> Maria, are you going to delete your posts again?

I had delete my post before because instead of singular values I wrote eigenvalues which is wrong designation. I didn't know how to edit my post that is why I had delete it and re post it correctly. I didn't know that we are not allowed to delete our posts. Sorry about that.

Subject: Re: Determinant of a matrix
Posted by Craig Markwardt on Wed, 20 Nov 2013 16:33:20 GMT
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On Wednesday, November 20, 2013 7:53:22 AM UTC-8, fd_...@mail.com wrote:
>> Maria, are you going to delete your posts again?
>
>
>
> I had delete my post before because instead of singular values I wrote eigenvalues which is wrong designation. I didn't know how to edit my post that is why I had delete it and re post it correctly. I didn't know that we are not allowed to delete our posts. Sorry about that.

Well, you deleted two posts in your "Derivatives" thread, not just one.

You can do whatever you want, but if you delete your posts, I'm going to recommend that people don't respond. Deleting one's posts is unfair to other readers and to people that try to respond to the post.

Nobody can edit posts. If you make an error - that's fine, everybody does - then just post a follow-up correcting the error.

CM

Subject: Re: Determinant of a matrix
Posted by   on Wed, 20 Nov 2013 16:46:54 GMT
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Den onsdagen den 20:e november 2013 kl. 17:33:20 UTC+1 skrev Craig Markwardt:
> On Wednesday, November 20, 2013 7:53:22 AM UTC-8, fd_...@mail.com wrote:
>
>>> Maria, are you going to delete your posts again?
>
>> I had delete my post before because instead of singular values I wrote eigenvalues which is wrong designation. I didn't know how to edit my post that is why I had delete it and re post it correctly. I didn't know that we are not allowed to delete our posts. Sorry about that.
>
> Well, you deleted two posts in your "Derivatives" thread, not just one.
>
> You can do whatever you want, but if you delete your posts, I'm going to recommend that people don't respond. Deleting one's posts is unfair to other readers and to people that try to respond to the post.
>
> Nobody can edit posts. If you make an error - that's fine, everybody does - then just post a follow-up correcting the error.

Deleting posts in google groups is also not very effective. They may disappear from google but many proper usenet news servers ignore such deletes. Which is another reason to do corrections in followups rather than by trying to replace posts with new versions.

Subject: Re: Determinant of a matrix
Posted by Paul Van Delst[1] on Wed, 20 Nov 2013 17:04:57 GMT
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On 11/20/13 11:46, Mats Löfdahl wrote:
> Den onsdagen den 20:e november 2013 kl. 17:33:20 UTC+1 skrev Craig
> Markwardt:
>> On Wednesday, November 20, 2013 7:53:22 AM UTC-8, fd_...@mail.com
>> wrote:
>>
>>>> Maria, are you going to delete your posts again?
>>
>>> I had delete my post before because instead of singular values I
>>> wrote eigenvalues which is wrong designation. I didn't know how
>>> to edit my post that is why I had delete it and re post it
>>> correctly. I didn't know that we are not allowed to delete our
>>> posts. Sorry about that.
>>
>> Well, you deleted two posts in your "Derivatives" thread, not just
>> one.
>>

>> You can do whatever you want, but if you delete your posts, I'm
>> going to recommend that people don't respond. Deleting one's posts
>> is unfair to other readers and to people that try to respond to the
>> post.
>>
>> Nobody can edit posts. If you make an error - that's fine,
>> everybody does - then just post a follow-up correcting the error.
>
> Deleting posts in google groups is also not very effective. They may
> disappear from google but many proper usenet news servers ignore such
> deletes. Which is another reason to do corrections in followups
> rather than by trying to replace posts with new versions.

Yeah, I was gonna ask about that. I get all the posts (including the
apparently deleted ones).

AFAICT, once you click "send", clicking "delete" is an exercise in
wishful thinking.

Craig needs to use a different news reader/provider/whatevs methinks. :o)

cheers,

paulv

Subject: Re: Determinant of a matrix
Posted by Craig Markwardt on Thu, 21 Nov 2013 02:33:08 GMT
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On Wednesday, November 20, 2013 9:04:57 AM UTC-8, Paul van Delst wrote:
> Craig needs to use a different news reader/provider/whatevs methinks. :o)

The servers I've used in the past have all been shut down, so now I default to Google Groups,
which does honor post cancellations. I know it's not "real" but I don't want to spend the time or the
money to get any "realler." :-)

Craig

Subject: Re: Determinant of a matrix
Posted by Paul Van Delst[1] on Thu, 21 Nov 2013 13:20:34 GMT
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On 11/20/13 21:33, Craig Markwardt wrote:
> On Wednesday, November 20, 2013 9:04:57 AM UTC-8, Paul van Delst
> wrote:

>> Craig needs to use a different news reader/provider/whatevs
>> methinks. :o)
>
> The servers I've used in the past have all been shut down, so now I
> default to Google Groups, which does honor post cancellations. I
> know it's not "real" but I don't want to spend the time or the money
> to get any "realler." :-)

FWIW, I use nntp.aioe.org through TBird.

It's free, provided you don't post a bzillion messages a day. Good spam
filters too.

cheers,

paulv