Subject: row calculation in a 2D array
Posted by Jonas on Tue, 25 Aug 1998 07:00:00 GMT
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Probably a damn simple one, but anyway:

I want to perform the same operation on each sub-row in a 2D array.
Say I want to calculate the mean of element 4-7 in each row of a 10x10
array, and store the result in a 10 element-vector, where each element holds
the mean from the respective row

how is this done the smartest way, without using time-consuming loops?

sincerely
Jonas

Subject: Re: row calculation in a 2D array
Posted by Richard G. French on Mon, 31 Aug 1998 07:00:00 GMT
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I don't know what the execution time penalty is for doing this,
but I have often used

avg=reform(rebin(A[3:6,*],1,10))

not sure if the reform is essential in this example but in general
it is useful for making sure a vector is a one-D array.
Dick French

>>
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Subject: Re: row calculation in a 2D array
Posted by Vap User on Mon, 31 Aug 1998 07:00:00 GMT
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"Jonas" <jonas_2@hotmail.com> writes:

The general case may be hard, if not impossible. Depends on what you
mean by 'operation' below. To do it generally probably requires that
the operation be a linear combination of the elements of the
arrays. Anyway, this will work to find the average.

if A is your 10 by 10 array.

  tmpA=A[3:6,*] ; the sub-array

  avg=replicate(1, 4)##transpose(tmpA)/4.; the average.

  or, equivalently, but transposed,

  avg = transpose(replicate(1,4))#tmpA/4.

You should almost always be able to replace loops of summations with the
'#' (or '##') operator and a judicicious choice of multiplicand.

whd

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>
> sincerely
> Jonas
>
>

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I don't speak for JPL, it doesn't speak for me.
Well, not all the time, at least.
William Daffer <vapuser@haifung.jpl.nasa.gov>