Subject: Re: Sum to Arrays
Posted by steinhh on Sat, 20 May 1995 07:00:00 GMT
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In article <moleD8uArz.DFG@netcom.com>, mole@netcom.com (Aaron Birenboim) writes:
[...stuff deleted...]
|>
|> OK.... here's a tougher one to vectorize...
|>
|>
|>   I want CENTROIDS, FAST!!! I'm stuck with :
|>
|> x = fltarr(m)
|> for i=0,n do x = TOTAL(y(*,i) * findgen(n+1))
|>
|>   any ideas???
|>

I don't get it. Why x=fltarr(m), and then set x equal to a scalar n+1
times over? Why findgen(n+1) ?

Anyway, here are centroids for you:

Given e.g., I(x,y), an M x N array:

```
X = REBIN(REFORM(FINDGEN(M),M,1,/OVERWRITE),M,N,/SAMPLE) ; Gives you X(x,y)

CTROIDS_X = TOTAL(I*X,1)/TOTAL(I,1)   ; Gives an array of the centroids
                                      ; (the X centroid at each y index.)
CTROID_X  = TOTAL(I*X)/TOTAL(I)       ; Gives the X Centroid coordinate
                                      ; of the whole array.
;------------ or, for Y centroids

Y = REBIN(REFORM(FINDGEN(N),1,N,/OVERWRITE),M,N,/SAMPLE)  ; Gives you Y(x,y)

CTROIDS_Y = TOTAL(I*Y,2)/TOTAL(I,2)   ; Gives an array of Y centroids...
CTROID_Y  = TOTAL(I*Y)/TOTAL(I)       ; Gives the Y Centroid.
```

All vectorized. For some types of applications you should
add something small before dividing with the TOTAL(I,..), to
avoid division with zero, e.g., .../(TOTAL(I,1)+1e-22)

Stein Vidar