Subject: Re: Adding x,y events to a 2d array (quickly)
Posted by Dick Jackson on Thu, 07 Nov 2013 19:27:00 GMT
View Forum Message <> Reply to Message

Oliver,

You have a good question, and I think this code illustrates it a little more
plainly, starting each time with an array of zero values:

```
counts=fltarr(3,3)
counts[[1,1,2],[1,1,2]] ++
Print, 'counts[[1,1,2],[1,1,2]] ++:'
Print, counts

counts=fltarr(3,3)
counts[[1,1,2],[1,1,2]] += 1
Print, 'counts[[1,1,2],[1,1,2]] += 1:'
Print, counts

counts=fltarr(3,3)
counts[[1,1,2],[1,1,2]] += [1,1,1]
Print, 'counts[[1,1,2],[1,1,2]] += [1,1,1]:'
Print, counts

counts=fltarr(3,3)
counts[[1,1,2],[1,1,2]] += [10,20,30]
Print, 'counts[[1,1,2],[1,1,2]] += [10,20,30]:'
Print, counts
```

The result of this is:

```
counts[[1,1,2],[1,1,2]] ++:
    0.000000    0.000000    0.000000
    0.000000    2.00000     0.000000
    0.000000    0.000000    1.00000
counts[[1,1,2],[1,1,2]] += 1:
    0.000000    0.000000    0.000000
    0.000000    1.00000     0.000000
    0.000000    0.000000    1.00000
counts[[1,1,2],[1,1,2]] += [1,1,1]:
    0.000000    0.000000    0.000000
    0.000000    1.00000     0.000000
    0.000000    0.000000    1.00000
counts[[1,1,2],[1,1,2]] += [10,20,30]:
    0.000000    0.000000    0.000000
    0.000000    20.0000     0.000000
    0.000000    0.000000    30.0000
```

It seems that ++ increments for each (x,y) pair as you expect. However, the +=
operation seems to be creating a set of result values by adding the set of
original values to the given scalar or vector, and then copying the results into
the array. In this way, when [1,1] is assigned values twice by this copying,
only the last value persists.

I seem to recall someone explaining this behaviour before, and thanks to
Russell, I realize one good way of getting *part* of what you (reasonably!) want
to do. If all of your 'e' values were equal, then you can find how many counts
of each (x,y) pair exist by using Hist_ND:
(http://tir.astro.utoledo.edu/idl/hist_nd.pro)

```
IDL> Print, Hist_ND(Transpose([[1,1,2],[1,1,2]]), 1, Min=0)
        0       0       0
        0       2       0
        0       0       1
```

But, in general, to add a varying set of 'e' values to those (x,y) locations...
I have to think a bit...

Cheers,
-Dick

Dick Jackson Software Consulting
Victoria, BC, Canada
www.d-jackson.com

oliver wrote, On 2013-11-07, 4:45am:
> Hi
>
> This may be a much answered question, but searching for an answer has failed me.
>
> I have 3 (very large) arrays giving x values, y values and energy values.
>
> I wish to create two 2d arrays - one of total (summed) energy for a particular x,y value, and one
of total counts per x,y value.
>
> An example of what I tried is below:
>
> x=[1,1,2]
> y=[1,1,2]
> e=[10,10,10]
>
> To create the 'counts' value, i used the following:
>
> counts=fltarr(5,5)
>
> counts(x,y)++

>
> This works. You end up with a value of 2 at position(1,1) and a value of 1 at position (2,2).
>
> I hoped to get the 'total energy' value by doing the following:
>
> totalenergy=fltarr(5,5)
>
> totalenergy(x,y)+=e
>
> However, this does not work. The final array only contains the last energy value added at each
point.
>
> Is there an IDL trick I'm missing that allows you to incrementally add values to an array quickly?
>
> Thanks
>
> Oliver
>

--

Cheers,
-Dick

Dick Jackson Software Consulting
Victoria, BC, Canada
www.d-jackson.com