Subject: Re: majority voting
Posted by ben.bighair on Wed, 11 Feb 2009 18:13:20 GMT
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```
On Feb 11, 11:14 am, mort canty <m.ca...@fz-juelich.de> wrote:
> Hi all,
>
  Given a 2-D array such as
>
       0
             1
                   1
                        2
                              1
>
       0
             2
                   1
                        1
                              1
>
                   2
                        2
       1
             0
                              1
> where the entries are labels, the columns represent items and the rows
> are voters, I want a IDL function that returns the majority vote labels.
> So here I should get
> 0 ? 1 2 1
> as output, where ? = "don't care". There must _not_ be a loop over
> columns. I've got a clumsy solution, but I'm sure there's an elegant one
> somewhere?
Hi,
```

This is incomplete as it doesn't flag the "don't care" crowd. I can't noodle that part out without column looping. Looping would make it easy to use something like...

for i = 0, ncol-1 do dontCare[i] = ARRAY_EQUAL(votes[i,*],votes[i,0])

but by your rules, that is out of bounds.

```
***BEGIN

x=[[0,1,1,2,1],$
[0,2,1,1,1],$
[1,0,2,2,1]]

sz = SIZE(x, /DIM)

votes = [[TOTAL(x EQ 0, 2)],$
[TOTAL(x EQ 1, 2)], $
[TOTAL(x EQ 2, 2)]]

mx = MAX(votes, mxldx,dim = 2)

majority = (array_indices(sz, mxldx, /dim))[1,*]

print, majority

***END
```

Cheers,

Subject: Re: majority voting

```
Posted by Jean H. on Wed, 11 Feb 2009 19:52:47 GMT
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ben.bighair wrote:
> On Feb 11, 11:14 am, mort canty <m.ca...@fz-juelich.de> wrote:
>> Hi all,
>>
>> Given a 2-D array such as
>>
        0
              1
                    1
                         2
                               1
>>
              2
        0
                    1
                         1
                               1
>>
                    2
                               1
>>
>> where the entries are labels, the columns represent items and the rows
>> are voters, I want a IDL function that returns the majority vote labels.
>> So here I should get
>>
>> 0 ? 1 2 1
>>
>> as output, where ? = "don't care". There must _not_ be a loop over
>> columns. I've got a clumsy solution, but I'm sure there's an elegant one
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> noodle that part out without column looping. Looping would make it
 easy to use something like...
>
  for i = 0, ncol-1 do dontCare[i] = ARRAY_EQUAL(votes[i,*],votes[i,0])
>
>
  but by your rules, that is out of bounds.
>
  ***BEGIN
> x=[[0,1,1,2,1],$
> [0,2,1,1,1],$
> [1,0,2,2,1]]
> sz = SIZE(x, /DIM)
> votes = [[TOTAL(x EQ 0, 2)],$
  [TOTAL(x EQ 1, 2)], $
 [TOTAL(x EQ 2, 2)]]
>
> mx = MAX(votes, mxldx,dim = 2)
> majority = (array_indices(sz, mxldx, /dim))[1,*]
> print, majority
```

```
***END
>
> Cheers,
> Ben
Ah ah, got it!
so, you get the votes, then:
sortID = sort nd(votes, 2)
mostVotes = votes[sortID]
mostvotes = mostVotes[*,2]; only the highest votes
shiftVotes = shift(votes[sortID],0,1); shift by 1, so that the 2nd
highest vote is now on the last line of the array
SecondMostVotes = shiftVotes[*,2] ;only the highest votes
ToLabel = where(secondMostVotes - mostVotes eq 0); When is the 2nd most
common vote the same as the 1st one
majority[toLabel] = 999
Jean
```

```
Subject: Re: majority voting
Posted by Mort Canty on Wed, 11 Feb 2009 21:53:02 GMT
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ben.bighair schrieb:
> On Feb 11, 11:14 am, mort canty <m.ca...@fz-juelich.de> wrote:
>> Hi all,
>>
>> Given a 2-D array such as
```

>> 1 0 1 2 >> 2 1 0 1 1 >> 2 1 >> >>

>> where the entries are labels, the columns represent items and the rows >> are voters, I want a IDL function that returns the majority vote labels.

>> So here I should get

>> >> 0 ? 1 2 1 >>

>> as output, where ? = "don't care". There must _not_ be a loop over >> columns. I've got a clumsy solution, but I'm sure there's an elegant one

>> somewhere?

```
>
> Hi.
>
> This is incomplete as it doesn't flag the "don't care" crowd. I can't
> noodle that part out without column looping. Looping would make it
> easy to use something like...
>
> for i = 0, ncol-1 do dontCare[i] = ARRAY_EQUAL(votes[i,*],votes[i,0])
> but by your rules, that is out of bounds.
>
> ***BEGIN
> x=[[0,1,1,2,1],$
> [0,2,1,1,1],$
> [1,0,2,2,1]]
> sz = SIZE(x, /DIM)
> votes = [[TOTAL(x EQ 0, 2)],$
> [TOTAL(x EQ 1, 2)], $
  [TOTAL(x EQ 2, 2)]]
> mx = MAX(votes, mxldx,dim = 2)
> majority = (array_indices(sz, mxldx, /dim))[1,*]
> print, majority
> ***END
>
> Cheers.
> Ben
Thanks Ben. What I meant by "don't care" is that I don't care which of
the labels that got equal votes is output. I think my solution is
essentially the same as yours, certainly not more elegant:
function majority_vote, A, num_labels
  n = n_{elements}(A[*,0])
  B = intarr(n,num_labels)
  for i=0,num_labels-1 do begin
    C = A*0
    idx = where(A eq i, count)
    if count gt 0 then C[idx] = 1
    B[*,i] = total(C,2)
  endfor
  void = max(B,labels,dimension=2)
  return, labels/n
end
I was probably hoping for some HISTOGRAM magic :-)
Mort
```