
Subject: Re: Sort

Posted by [Martin Schultz](#) on Wed, 05 Nov 1997 08:00:00 GMT

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Content-Type: text/plain; charset=us-ascii

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Neil Winrow wrote:

>

> Can anybody please offer their help!

>

> I have three sets of data, X, Y, Z. I read these sets of data into one

> big array. I would like to sort one of the sets of data within the big

> array, lets say sort the Z data. Is it then possible for the

> corresponding values in the X and Y to also sort to the correct values.

> Hope someone can understand, and offer me a solution.

>

> Many Thanks In Advance

>

> Neil Winrow.

You can find a routine that does this in my EXPLORE package which you find on the web page given below. The relevant procedure is multisort.pro, and there is a widget "interface" for it in w_sort.pro. I just checked trough these again, and found that w_sort actually contains a copy of multisort (oh yes, I definitively have to clean this EXPLORE package...). I'll attach w_sort.pro to this message, feel free to ask for further help.

Regards,
Martin.

--

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Content-Type: text/plain; charset=us-ascii; name="w_sort.pro"

Content-Transfer-Encoding: 7bit

Content-Disposition: inline; filename="w_sort.pro"

; \$Id: w_calc.pro,v 1.0 1997/05/23 mgs \$

;+

; NAME:

; w_calc

; PURPOSE:

; creates a widget that defines a sort order for a data set

;

; CATEGORY:

; Modal widgets.

;

; CALLING SEQUENCE:

; widget = w_sort(parent)

;

; INPUTS:

; PARENT - The ID of the parent widget.

;

; KEYWORD PARAMETERS:

; UVALUE - Supplies the user value for the widget.

; VALUE - Supplies the initial entries of the list (string array)

;

; OUTPUTS:

; The ID of the created widget is returned.

; And an event info field that contains necessary information on
; the requested sort procedure (sort indices and reverse's)

;

; COMMON BLOCKS:

; None.

;

; SIDE EFFECTS:

;

; PROCEDURE:

;

; MODIFICATION HISTORY:

;-

;-----

; ===== here are the routines that actually do the work =====

```

pro multisort,data,index=index,revert=revert,level=level

; sorts a 2-dim data array (vars, obs) recursively for all indices passed
; in index. If no index field is passed, the data is sorted according to
; the first variable (index = 0)
; /revert produces a data set with reversed sort order in all indices
; the level keyword is for internal purposes only

if(n_elements(index) lt 1) then index = 0
if(not keyword_set(level)) then level=0
; handle revert parameter
if(n_elements(revert) eq 1 AND keyword_set(revert)) then revertall=1 $
else revertall = 0
if(n_elements(revert) gt 1 AND revert(0)) then revertthis=1 else revertthis=0
if(n_elements(revert) gt 1) then reverti = 1 else reverti=0

; due to peculiarities of the implementation, all revert indices following
; a set value must be reverted
if (reverti and level eq 0) then begin
  for i = 0,n_elements(revert)-2 do begin
    if(revert(i)) then for j=i+1,n_elements(revert)-1 do $
      if(revert(j)) then revert(j)=0 else revert(j) = 1
  endfor
endif

; perform simple sort
nind = n_elements(index)
x = data(index(0),*)
ind = sort(x)
data = data(*,ind)

; extract boundaries of equal values in major index
uind = uniq(x(ind))
uind = [ 0, uind ] ; add 0 as first startindex

; create subset of index terms for recursive sort
; if only one index was passed, the sort process is terminating
if nind gt 1 then begin
  subindex = index(1:nind-1)
  if (reverti) then subrevert = revert(1:nind-1) else subrevert=0
  if(n_elements(subrevert) eq 1) then subrevert = subrevert(0)
endif else goto,revertdata

; perform sort on subsets of data with equal major variable

```

```

for i=0,n_elements(uind)-2 do begin
  i1 = uind(i)+1
  i2 = uind(i+1)
  if(i2 ge i1) then begin
    subdat = data(*,i1:i2)
    multisort,subdat,index=subindex,revert=subrevert,level=level +1
  endif else subdat = data(*,uind(i))
  if (i eq 0) then newdat = transpose(subdat) $
  else newdat = [ newdat, transpose(subdat) ]
endfor

```

```

data = transpose(newdat)

```

```

; reverse data if positive sort completed and keyword revert set
revertdata:
; if(level eq 0 AND revertall) then data = reverse(data,2) $
; else if(revertthis) then data = reverse(data,2)
if(revertall OR revertthis) then data = reverse(data,2)

```

```

return
end

```

```

pro handle_sort,data,info

```

```

ind = where(info.index ge 0,count)
if (count le 0) then return ; no valid selection

```

```

index = info.index(ind)
revert = info.revert(ind)

```

```

multisort,data,index=index,revert=revert

```

```

return
end

```

```

pro sorttest,index=index,revert=revert

```

```

if(not keyword_set(index)) then index = [1,2]
if(not keyword_set(revert)) then revert=0

```

```

col0 = findgen(20)
col1 = [ 1, 2, 3, 4, 1, 2, 3, 4, 1, 2, 3, 4, 1, 2, 3, 4 ]
col2 = [ 2, 2, 2, 3, 5, 4, 3, 2, 2, 2, 4, 3, 3, 3, 5, 4, 4, 3, 3, 1 ]
col3 = [ 8, 7, 6, 5, 4, 3, 2, 1, 8, 7, 6, 5, 4, 3, 2, 1, 8, 7, 6, 5 ]

```

```
data = [ transpose(col0),transpose(col1),transpose(col2),transpose(col3) ]
```

```
multisort,data,index=index,revert=revert
```

```
for i=0,n_elements(data(0,*))-1 do $  
  print,fix(data(0,i)),data(1,i),data(2,i),data(3,i)
```

```
print
```

```
return  
end
```

```
; ===== and here comes the widgety stuff =====
```

```
FUNCTION xsort_event, event
```

```
returnval = 0 ; default: behave like a procedure
```

```
; get state  
stateholder = widget_info(event.handler,/child)  
widget_control,stateholder,get_uvalue=state,/no_copy
```

```
if (event.id eq state.ids(0)) then begin ; button pressed (OK or cancel)
```

```
  if(event.value eq 0) then begin
```

```
    ids = state.ids
```

```
    ltype = state.ltype
```

```
    if(ltype) then begin
```

```
      x1 = widget_info(ids(1),/list_select)-1
```

```
      x2 = widget_info(ids(2),/list_select)-1
```

```
      x3 = widget_info(ids(3),/list_select)-1
```

```
    endif else begin
```

```
      x1 = widget_info(ids(1),/droplist_select)-1
```

```
      x2 = widget_info(ids(2),/droplist_select)-1
```

```
      x3 = widget_info(ids(3),/droplist_select)-1
```

```
    endelse
```

```
    widget_control,ids(4),get_value=r1
```

```
    widget_control,ids(5),get_value=r2
```

```
    widget_control,ids(6),get_value=r3
```

```
    index = [x1, x2, x3]
```

```
    revert = [r1, r2, r3]
```

```
    result = { index:index, revert:revert }
```

```
  endif else result = 0
```

```
returnval = { id:0L, top:event.top, $  
             handler:0L, value:1-event.value, info:result }
```

endif

; restore state

widget_control,stateholder,set_uvalue=state,/no_copy

return,returnval

end

;-----

FUNCTION w_sort, UVALUE=uval, SPECIES=species

; pass a species list that provides the possible arguments

ON_ERROR, 2 ;return to caller

; Defaults for keywords

IF NOT (KEYWORD_SET(uval)) THEN uval = 0

if (not keyword_set(species)) then title = "

sstr = species

; decide whether to use droplist or list for species

if (n_elements(sstr) gt 25) then ltype=1 else ltype=0

sstr = [' ', sstr]

base = widget_base(/column,uvalue=uval,event_func="xsort_event", \$
title='SORT')

if(ltype) then lower = widget_base(base,/row) \$

else lower = widget_base(base,/row,ysize=80)

dumbase = widget_base(lower,/column)

dum = widget_label(dumbase,value = 'PRIMARY KEY')

if(ltype) then begin

 x1 = widget_list(dumbase,value = sstr,ysize=9)

 widget_control,x1,set_list_select=1

endif else begin

 x1 = widget_droplist(dumbase,value = sstr)

 widget_control,x1,set_droplist_select=1

endelse

r1 = cw_bgroup(dumbase,/nonexclusive,['reverse'])

dumbase = widget_base(lower,/column)

dum = widget_label(dumbase,value = 'SECONDARY KEY')

if(ltype) then begin

```

    x2 = widget_list(dumbase,value =sstr,ysize=9)
    widget_control,x1,set_list_select=1
endif else begin
    x2 = widget_droplist(dumbase,value =sstr)
    widget_control,x1,set_droplist_select=1
endelse
r2 = cw_bgroup(dumbase,/nonexclusive,['reverse'])

dumbase = widget_base(lower,/column)
dum = widget_label(dumbase,value = 'TERTIARY KEY')
if(ltype) then begin
    x3 = widget_list(dumbase,value =sstr,ysize=9)
    widget_control,x1,set_list_select=1
endif else begin
    x3 = widget_droplist(dumbase,value =sstr)
    widget_control,x1,set_droplist_select=1
endelse
r3 = cw_bgroup(dumbase,/nonexclusive,['reverse'])

; OK and Cancel buttons
but = cw_bgroup(base,/row,[' OK ','Cancel'],space=10)

; set ids in state structure
ids = [ but, x1, x2, x3, r1, r2, r3 ]
state = { ltype:ltype, ids:ids }
widget_control,widget_info(base,/child),set_uvalue=state,/no_copy

return,base
end

```

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