

Creating Generic Macros

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Coders' Corner

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Key goal

Build Macros with
Increased Functionality

Build More Generic
Macros

Support a Variable Set
of Parameters

Next up

Examples

Example

```
%let demovars = age race sex weight height;

data new;
  set old;
  rename %fdolst(vars = &demovars,
               stmt = %nrstr(&item = old_&item ));
run;
```



Example

```
data new;  
  set old;  
  rename %fdolst(vars = age race sex weight height,  
                stmt = %nrstr(&item = old_&item ));  
run;
```



Example

```
data new;  
  set old;  
  rename age = old_age  
    %fdolst(vars = race sex weight height,  
            stmt = %nrstr(&item = old_&item ));  
run;
```



Example

```
data new;  
  set old;  
  rename age = old_age  
         race = old_race  
         %fdolst(vars = sex weight height,  
                 stmt = %nrstr(&item = old_&item ));  
run;
```



Example

```
data new;  
  set old;  
  rename age = old_age  
         race = old_race  
         sex = old_sex  
  %fdolst(vars = weight height,  
          stmt = %nrstr(&item = old_&item ));  
run;
```



Example

```
data new;  
  set old;  
  rename age = old_age  
         race = old_race  
         sex = old_sex  
         weight = old_weight  
         %fdolst(vars = height,  
                 stmt = %nrstr(&item = old_&item ));  
run;
```



Example

```
data new;  
  set old;  
  rename age = old_age  
         race = old_race  
         sex = old_sex  
         weight = old_weight  
         height = old_height;  
run;
```



Example

```
%let summaryLevels = country siteid;

proc sort data=input;
  by &summaryLevels;
data summary;
  set input;
  by &summaryLevels;
  %fdolst(vars = &summaryLevels,
    stmt = %nrstr(if first.&item then total&item=0;));
  %fdolst(vars = &summaryLevels,
    stmt = %nrstr(total&item + amount;));
  %fdolst(vars = &summaryLevels,
    stmt = %nrstr(if last.&item then do;
      summaryLevel    = "Total/&item";
      summaryLevelNo  = &itemno;
      summaryTotal    = total&item;
      output;
    end;
    reverse = yes));
run;
```



Example

```
proc sort data=input;
  by country siteid;
data summary;
  set input;
  by country siteid;
  %fdolst(vars = country siteid,
    stmt = %nrstr(if first.&item then total&item=0;));
  %fdolst(vars = country siteid,
    stmt = %nrstr(total&item + amount;));
  %fdolst(vars = country siteid,
    stmt = %nrstr(if last.&item then do;
      summaryLevel    = "Total/&item";
      summaryLevelNo  = &itemno;
      summaryTotal    = total&item;
      output;
    end;
    reverse = yes));
run;
```



Example

```
proc sort data=input;
  by country siteid;
data summary;
  set input;
  by country siteid;
  if first.country then do; totalcountry=0; end;
  if first.siteid then do; totalsiteid=0; end;
  %fdolst(vars = country siteid,
    stmt = %nrstr(total&item + amount;));
  %fdolst(vars = country siteid,
    stmt = %nrstr(if last.&item then do;
      summaryLevel    = "Total/&item";
      summaryLevelNo  = &itemno;
      summaryTotal    = total&item;
      output;
    end;
    reverse = yes));
run;
```



Example

```
proc sort data=input;
  by country siteid;
data summary;
  set input;
  by country siteid;
  if first.country then do; totalcountry=0; end;
  if first.siteid then do; totalsiteid=0; end;
  totalcountry + amount;
  totalsiteid + amount;
  %fdolst(vars = country siteid,
    stmt = %nrstr(if last.&item then do;
      summaryLevel    = "Total/&item";
      summaryLevelNo  = &itemno;
      summaryTotal    = total&item;
      output;
    end;
    reverse = yes));
run;
```



Example

```
proc sort data=input;
  by country siteid;
data summary;
  set input;
  by country siteid;
  if first.country then do; totalcountry=0; end;
  if first.siteid then do; totalsiteid=0; end;
  totalcountry + amount;
  totalsiteid + amount;
  if last.siteid then do;
    summaryLevel = "Total/siteid";
    summaryLevelNo = 2;
    summaryTotal = totalsiteid;
    output;
  run;
  if last.country then do;
    summaryLevel = "Total/country";
    summaryLevelNo = 1;
    summaryTotal = totalcountry;
    output;
  run;
run;
```



Example

```
%macro compare(inds=,basevars=,comparevars=,outds=compare);
  data &outds;
    set &inds;
    keep _obs_ _compare_ _diff_;
    length _compare_ $40 _diff_ $200;
    %fdolst(vars = &baseVars,
            vars2 = &compareVars,
            stmt = %nrstr(if &item ne &item2 then do;
                          _obs_=_n_;
                          _compare_="&item vs &item2";
                          _diff_=catx(' <> ',&item,&item2);
                          output;
                        end;));
  run;
%mend;
```



Example

```
data input;
  length country $40 ctry $60 site $20 siteid $24 vst_dtc $8 svstdtc $17;
  infile cards dsd delimiter=',';
  input country ctry site siteid vst_dtc svstdtc;
  cards;
Belgium,Belgium,BE0001,BE-0001,20100421,20100422
Netherlands,The Netherlands,NL0001,NL0001,20100917,2010-09-17
  ;
run;

%compare(inds      = input,
         baseVars   = country siteid svstdtc,
         compareVars = ctry    site    vst_dtc);
```



Example

```
data compare;
  set input;
  keep _obs_ _compare_ _diff_;
  length _compare_ $40 _diff_ $200;
  if country ne ctry then do;
    _obs_ = _n_;
    _compare_ = "country vs ctry";
    _diff_ = catx(' vs ', country, ctry);
    output;
  end;
  if siteId ne site then do;
    _obs_ = _n_;
    _compare_ = "siteid vs site";
    _diff_ = catx(' vs ', siteid, site);
    output;
  end;
  if svstdtc ne vst_dtc then do;
    _obs_ = _n_;
    _compare_ = "svstdtc vs vst_dtc";
    _diff_ = catx(' vs ', svstdtc, vst_dtc);
    output;
  end;
run;
```



Next up

Three colored squares are arranged horizontally. The first square on the left is light blue. The middle square is green and contains the text 'Macro interface'. The third square on the right is orange.

Macro interface

Macro interface

```
%macro fdolst(vars      = ,  
               vars2    = ,  
               stmt      = %nrstr(&item ),  
               between   = ,  
               delim     = %str( ),  
               reverse   = NO,  
               startno   = 1);
```



Macro interface

vars

List of variables.
Referred in statement
by &item

vars2

Second list of
variables. Referred in
statement by &item2

stmt

SAS code to be
repeated for each
variable list in vars
and optionally vars2

between

Code that will go
between the repeated
code blocks

delim

Delimiter used to
separate the variables
in the lists vars and
vars2

reverse

Reverses the
repeated code,
starting with the last
variable in the vars list

startno

Start number for the
&itemno automatic
variable



Dynamic variables

&item

Replaced by the variable in the vars list for which the code is generated

&item2

Replaced by the variable in the vars2 list for which the code is generated

&itemno

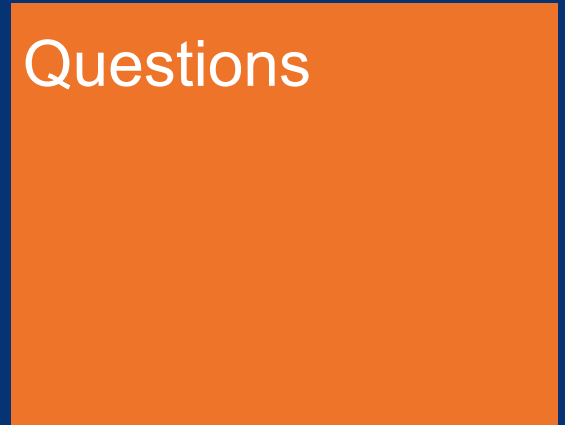
Replaced by the sequence number of the current item, starts at &startno value.

&zitemno

Replaced by a zero padded sequence number, 001, 002, 003,...



Next up



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