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CREATING TRULY GENERIC SAS MACROS

Introduction

- ⦿ Significant impact on the functionality of macros
- ⦿ The %fdolst macro function allowed me to create truly generic macros
- ⦿ Handling a variable number of parameters or variables in a macro can inflate the lines of code needed

The macro interface

```
%fdo1st(vars      = ,  
        vars2     = ,  
        stmt      = %nrstr(&item ),  
        between   = ,  
        delim     = %str( ),  
        reverse   = NO,  
        startno   = 1);
```

Example

Macro code:

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

```
Data new;
```

```
  set old;
```

```
  rename %fdolst(vars = &demovars,  
                stmt = %nrstr(&item = old_&item ));
```

```
Run;
```

Compiled code:

```
Data new;
```

```
  set old;
```

```
  rename age=old_age race=old_race sex=old_sex weight=old_weight  
         height=old_height;
```

```
Run;
```

Example

Macro code:

```
%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   = "&item";  
                        summaryLevelNo = &itemno;  
                        summaryTotal   = total&item;  
                        output;  
                        end;  
          reverse = yes));
```

```
Run;
```

Example

Compiled code:

```
Proc sort data=input;  
  by country siteId;  
Data summary  
  set input;  
  by country siteId;  
  if first.country then do; totalcountry=0; end; ①  
  if first.siteId then do; totalsiteId=0; end;  
  totalCountry + amount; ②  
  totalsiteId + amount;  
  if last.siteId then do; ③  
    summaryLevel = "siteID";  
    summaryLevelNo = 2;  
    summaryTotal = totalsiteId;  
    output;  
  run;  
  if last.country then do;  
    summaryLevel = "country";  
    summaryLevelNo = 1;  
    summaryTotal = totalcountry;  
    output;  
  run;
```

Run;

Example

A compare tool

```

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;

%macro compare(inds=,basevars=,comparevars=);
  Data compare;
    set input;
    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;
%compare(inds = input,
  baseVars = country siteid svstdtc,
  compareVars = ctry site vst_dtc);

```

Compiled code

```
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;
```



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