```
1    *STEP 0 ;
2    /*************************************************************************************************
2  ! ***************************/
3    /*1. Program Name:Vivek235_HW09_Program.sas
3  !                               */
4    /* Program Location: C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
4  ! University\657\Homework\Assignment09\Vivek235_HW09_Program.sas     */
5    /* Date Created: 3/24/17
5  !                            */
6    /* Author: Vivek Kumar Gupta
6  !                            */
7    /* Purpose:In this exercise practice transforming SAS code from traditional code to code with
7  ! macro variables
8    then on to become a stored macro program.               */
9    /*************************************************************************************************
9  ! ***************************/
10
11   *STEP 1 - Setup of libraries and filerefs.  Use a filename statement to define the path to the
11 ! PDF output file.;
12
13   *1.Create the necessary library references for data sources and destination and file references
13 ! for output.;
14   libname mydata  'C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
14 ! University\657\Homework\Assignment09\mydata' ; /*library storing the data*/
NOTE: Libref MYDATA was successfully assigned as follows:
      Engine:        V9
      Physical Name: C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
      University\657\Homework\Assignment09\mydata
15   libname orion 'C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
15 ! University\657\SQL Files' access=readonly;
NOTE: Libref ORION was successfully assigned as follows:
      Engine:        V9
      Physical Name: C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
      University\657\SQL Files
16   filename pdfdev 'C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
16 ! University\657\Homework\Assignment09\Vivek235_HW09_Output.pdf';
17
18   *STEP 1. Turn off page numbering and date printing to match the output formatting. Add an option
18 ! to resolve macro variables in the log.
19   Add options to permanently store the macros created in the library. For debug specify mprint
19 ! option otherwise it can be taken off
```

```
20   Per assignment needs set mprint option;
21   option nonumber nodate symbolgen mprint mcompilenote=all mstored sasmstore=mydata;;
22
23   /*Open destination device, set no bookmarks to be generated per the output*/
24   ods pdf file=pdfdev bookmarkgen=no ;
NOTE: Writing ODS PDF output to DISK destination "PDFDEV", printer "PDF".
25
26   /*STEP 2. Copy the PROC SQL code that was used to create the view in Assignment 8 and paste it
26 ! into this
27   program. Generalize the code rather than using hardcoded values*/
28
29   %let gender=F; /*Values M or F*/
30   %let startdate=01Jan2006;
31   %let enddate=31Dec2006;
32   %let datalib=mydata;
33
34   proc sql ;
35   create table &datalib..donations
SYMBOLGEN:  Macro variable DATALIB resolves to mydata
36   as
37   select ep.employee_id label ='ID'
38           ,edd.employee_name label ='Name'
39           , ep.salary format dollar8.
40           ,ed.Qtr1
41           ,ed.Qtr2
42           ,ed.Qtr3
43           ,ed.Qtr4
44           ,sum(ed.Qtr1,ed.Qtr2,ed.Qtr3,ed.Qtr4) as tot_donation label ='Ann. Donation'
45   from orion.employee_payroll as ep
46   join orion.employee_addresses as edd
47           on ep.employee_id=edd.employee_id
48   left join orion.employee_donations as ed
49           on ep.employee_id=ed.employee_id
50   where ep.employee_gender="&gender"
SYMBOLGEN:  Macro variable GENDER resolves to F
51           and not ep.employee_term_date
52           and ep.employee_hire_date between "&startdate"d and "&enddate"d
SYMBOLGEN:  Macro variable STARTDATE resolves to 01Jan2006
SYMBOLGEN:  Macro variable ENDDATE resolves to 31Dec2006
53   order by employee_id
54   ;
```

```
NOTE: Invalid (or missing) arguments to the SUM function have caused the function to return a missing
      value.
NOTE: Table MYDATA.DONATIONS created, with 35 rows and 8 columns.

55   quit;
NOTE: PROCEDURE SQL used (Total process time):
      real time           0.09 seconds
      cpu time            0.09 seconds


56
57   /*STEP 3.Use a PROC PRINT to print the data portion of the data set by using the SYSLAST macro
57 ! variable.*/
58   title 'Data Portion of the &SYSLAST Data Set';
59
60   proc print data=&syslast ;
NOTE: Writing HTML Body file: sashtml.htm
SYMBOLGEN:  Macro variable SYSLAST resolves to MYDATA.DONATIONS
61   run;

NOTE: There were 35 observations read from the data set MYDATA.DONATIONS.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.40 seconds
      cpu time            0.28 seconds


62
63   /*STEP 4. Create a macro with arguments and other changes as directed by instructions. Also add
63 ! housekeeping in the macro itself*/
64   %macro donations(library,gender,startdate,enddate);
65   proc sql;
66   create table &library..%sysfunc(propcase(&gender))%substr(&startdate,6)
67   as
68   select ep.employee_id label ='ID'
69           ,edd.employee_name label ='Name'
70           , ep.salary format dollar8.
71           ,ed.Qtr1
72           ,ed.Qtr2
73           ,ed.Qtr3
74           ,ed.Qtr4
75           ,sum(ed.Qtr1,ed.Qtr2,ed.Qtr3,ed.Qtr4) as tot_donation label ='Ann. Donation'
```

```
76   from orion.employee_payroll as ep
77   join orion.employee_addresses as edd
78           on ep.employee_id=edd.employee_id
79   left join orion.employee_donations as ed
80           on ep.employee_id=ed.employee_id
81   where ep.employee_gender="%upcase(%substr(&gender,1,1))"
82           and not ep.employee_term_date
83           and ep.employee_hire_date between "&startdate"d and "&enddate"d
84   order by employee_id
85   ;
86   title "Donations of %sysfunc(propcase(&gender)) Employees Hired between &startdate and &enddate";
87   footnote %upcase(&syslast);
88   select * from &library..%sysfunc(propcase(&gender))%substr(&startdate,6);
89
90
91   quit;
92   title;
93   footnote;
94   %mend donations;
NOTE: The macro DONATIONS completed compilation without errors.
      19 instructions 1352 bytes.
95
96   /*STEP 5. Call the macro*/
97   %donations(mydata, male, 01Jan1974, 30Jun1974);
MPRINT(DONATIONS):   proc sql;
SYMBOLGEN:  Macro variable LIBRARY resolves to mydata
SYMBOLGEN:  Macro variable GENDER resolves to male
SYMBOLGEN:  Macro variable STARTDATE resolves to 01Jan1974
SYMBOLGEN:  Macro variable GENDER resolves to male
SYMBOLGEN:  Macro variable STARTDATE resolves to 01Jan1974
SYMBOLGEN:  Macro variable ENDDATE resolves to 30Jun1974
MPRINT(DONATIONS):   create table mydata.Male1974 as select ep.employee_id label ='ID'
,edd.employee_name label ='Name' , ep.salary format dollar8. ,ed.Qtr1 ,ed.Qtr2 ,ed.Qtr3 ,ed.Qtr4
,sum(ed.Qtr1,ed.Qtr2,ed.Qtr3,ed.Qtr4) as tot_donation label ='Ann. Donation' from
orion.employee_payroll as ep join orion.employee_addresses as edd on ep.employee_id=edd.employee_id
left join orion.employee_donations as ed on ep.employee_id=ed.employee_id where
ep.employee_gender="M" and not ep.employee_term_date and ep.employee_hire_date between "01Jan1974"d
and "30Jun1974"d order by employee_id ;
NOTE: Invalid (or missing) arguments to the SUM function have caused the function to return a missing
      value.
NOTE: Table MYDATA.MALE1974 created, with 21 rows and 8 columns.
```

```
SYMBOLGEN:  Macro variable GENDER resolves to male
SYMBOLGEN:  Macro variable STARTDATE resolves to 01Jan1974
SYMBOLGEN:  Macro variable ENDDATE resolves to 30Jun1974
MPRINT(DONATIONS):   title "Donations of Male Employees Hired between 01Jan1974 and 30Jun1974";
SYMBOLGEN:  Macro variable SYSLAST resolves to MYDATA.MALE1974
MPRINT(DONATIONS):   footnote MYDATA.MALE1974;
SYMBOLGEN:  Macro variable LIBRARY resolves to mydata
SYMBOLGEN:  Macro variable GENDER resolves to male
SYMBOLGEN:  Macro variable STARTDATE resolves to 01Jan1974
MPRINT(DONATIONS):   select * from mydata.Male1974;
MPRINT(DONATIONS):   quit;
NOTE: PROCEDURE SQL used (Total process time):
      real time           0.08 seconds
      cpu time            0.07 seconds


MPRINT(DONATIONS):   title;
MPRINT(DONATIONS):   footnote;
98
99   /*STEP 6. Store the macro*/
100  %macro donations(library,gender,startdate,enddate)/ store ;
101  proc sql;
102  create table &library..%sysfunc(propcase(&gender))%substr(&startdate,6)
103  as
104  select ep.employee_id label ='ID'
105          ,edd.employee_name label ='Name'
106          , ep.salary format dollar8.
107          ,ed.Qtr1
108          ,ed.Qtr2
109          ,ed.Qtr3
110          ,ed.Qtr4
111          ,sum(ed.Qtr1,ed.Qtr2,ed.Qtr3,ed.Qtr4) as tot_donation label ='Ann. Donation'
112  from orion.employee_payroll as ep
113  join orion.employee_addresses as edd
114          on ep.employee_id=edd.employee_id
115  left join orion.employee_donations as ed
116          on ep.employee_id=ed.employee_id
117  where ep.employee_gender="%upcase(%substr(&gender,1,1))"
118          and not ep.employee_term_date
119          and ep.employee_hire_date between "&startdate"d and "&enddate"d
```

```
120  order by employee_id
121  ;
122  title "Donations of %sysfunc(propcase(&gender)) Employees Hired between &startdate and &enddate";
123  footnote %upcase(&syslast);
124  select * from &library..%sysfunc(propcase(&gender))%substr(&startdate,6);
125
126  quit;
127  title;
128  footnote;
129  %mend donations;
NOTE: The macro DONATIONS completed compilation without errors.
      19 instructions 1352 bytes.
130
131  /*STEP 7. List all the macros created in permanent library*/
132  title "Compiled Macros in My Permanent Library";
133
134  proc catalog cat=mydata.sasmacr;
135  contents;
136  quit;

NOTE: PROCEDURE CATALOG used (Total process time):
      real time           0.02 seconds
      cpu time            0.01 seconds


137
138  /*House keeping. Resetting defaults*/
139  title;
140  footnote;
141  option number date nosymbolgen nomprint mcompilenote=none;
142
143  /**Close the device*/
144  ods pdf close;
NOTE: ODS PDF printed 3 pages to C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
      University\657\Homework\Assignment09\Vivek235_HW09_Output.pdf.
```