

```

1  *STEP 0 ;
2  /*****
2  ! *****/
3  /*1. Program Name:Vivek235_HW10_Program.sas
3  ! */
4  /* Program Location: C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
4  ! University\657\Homework\Assignment10\Vivek235_HW10_Program.sas */
5  /* Date Created: 4/2/17
5  ! */
6  /* Author: Vivek Kumar Gupta
6  ! */
7  /* Purpose:This exercise reinforces concepts covered in the first 16 lectures and brings
7  ! together a large number
8  of macro techniques into one assignment. */
9  /*****
9  ! *****/
10
11  *STEP 0 - Setup of libraries and filerefs. Use a filename statement to define the path to
11  ! the PDF output file.;
12  *1.Create the necessary library references for data sources and destination and file
12  ! references for output.;
13
14  /*STEP 5. If you do not already have A&M in the path to your output files, create a new
14  ! folder named
15  A&M.
16  Set up the fileref for your ODS PDF destination to point to a file in the A&M path.
17  Replace the 10 with a user defined macro variable reference and use the appropriate statement
18  at the beginning of your program to initialize the macro variable with the assignment number.
19  Use one of the macro functions described in chapter 2 to enclose part of the file path so
19  ! that
20  you do not get the message WARNING: Apparent symbolic reference M not resolved in
21  the log.
22  */
23  %let no=10;
24  %let filepath=%nrstr(C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
24  ! University\657\Homework\Assignment10\A&M\Vivek235_HW)&no._Output.pdf ;
25  libname orion 'C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
25  ! 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

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University\657\SQL Files
26 filename mymacro 'C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas A&M
26 ! University\657\Homework\Assignment10\macros';
27 filename pdfdev "&filepath";
28 ods escapechar='^';
29
30 *STEP 3. At the beginning of your program, set a system option that writes macro variable
30 ! values to the
31 SAS log as they are resolved and an option writes to the SAS log the text that is generated
31 ! by
32 macro execution.;
33
34 /*STEP 4. Use the appropriate option to set up your SAS session so it can find the autocall
34 ! macro program
35 saved in step 1.*/
36 option symbolgen mprint mcompilenote=all mautosource sasautos=(mymacro,sasautos);
37
38 /*Open destination device, set no bookmarks to be generated per the output*/
39 ods pdf file=pdfdev bookmarkgen=no ;
NOTE: Writing ODS PDF output to DISK destination "PDFDEV", printer "PDF".
40
41 /*STEP 6. Paste the line below into your program*/
42 %colormac(help);
NOTE: The macro COLORMAC completed compilation without errors.
      59 instructions 1648 bytes.
NOTE: The macro RGB completed compilation without errors.
      19 instructions 440 bytes.
NOTE: The macro HLS completed compilation without errors.
      59 instructions 1180 bytes.
NOTE: The macro HSV completed compilation without errors.
      59 instructions 1180 bytes.
NOTE: The macro CMYK completed compilation without errors.
      22 instructions 528 bytes.
NOTE: The macro CMY completed compilation without errors.
      33 instructions 716 bytes.
NOTE: The macro HLS2RGB completed compilation without errors.
      85 instructions 1796 bytes.
NOTE: The macro RGB2HLS completed compilation without errors.
      178 instructions 3664 bytes.
NOTE: The macro CNS completed compilation without errors.
      730 instructions 15312 bytes.

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NOTE: The macro GTRANWRD completed compilation without errors.
64 instructions 1444 bytes.
NOTE: The macro GINTEGER completed compilation without errors.
41 instructions 796 bytes.
NOTE: The macro GPCTFF completed compilation without errors.
26 instructions 496 bytes.
NOTE: The macro GPCT360 completed compilation without errors.
12 instructions 232 bytes.
NOTE: The macro GPCTBND completed compilation without errors.
26 instructions 464 bytes.
NOTE: The macro GHEX2 completed compilation without errors.
22 instructions 484 bytes.
NOTE: The macro GHEX3 completed compilation without errors.
26 instructions 556 bytes.
NOTE: The macro GHEX2INT completed compilation without errors.
79 instructions 1480 bytes.
NOTE: The macro RGBVALUE completed compilation without errors.
80 instructions 1712 bytes.
SYMBOLGEN: Macro variable P1 resolves to help
USAGE: %COLORMAC(NOMSG);

This macro causes all of the Color Utility macros
to be made available.

If %COLORMAC is called without any parameters,
a message is displayed on the log that the Color
Utility macros are available, and that help is
available by calling the %HELPCLR macro. If the NOMSG
NOMSG parameter is specified, no messages are
displayed.

SYMBOLGEN: Macro variable P1 resolves to help
43
44
45 /*STEP 7. Call your donate macro that was saved in the autocall library and use arguments
45 ! that will
46 produce the output dataset in the work library and select female donors hired between January
47 1, 1996 and December 31, 2005 (10 years time span).*/
48
49 %donate(work, female, 01Jan1996, 31Dec2005);
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
NOTE: The macro DONATE completed compilation without errors.
      19 instructions 1288 bytes.
MPRINT(DONATE):  proc sql;
SYMBOLGEN:  Macro variable LIBRARY resolves to work
SYMBOLGEN:  Macro variable GENDER resolves to female
SYMBOLGEN:  Macro variable STARTDATE resolves to 01Jan1996
SYMBOLGEN:  Macro variable GENDER resolves to female
SYMBOLGEN:  Macro variable STARTDATE resolves to 01Jan1996
SYMBOLGEN:  Macro variable ENDDATE resolves to 31Dec2005
MPRINT(DONATE):  create table work.Female1996 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="F" and not ep.employee_term_date and
ep.employee_hire_date between "01Jan1996"d and "31Dec2005"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 WORK.FEMALE1996 created, with 35 rows and 8 columns.

SYMBOLGEN:  Macro variable GENDER resolves to female
SYMBOLGEN:  Macro variable STARTDATE resolves to 01Jan1996
SYMBOLGEN:  Macro variable ENDDATE resolves to 31Dec2005
MPRINT(DONATE):  title "Donations of Female Employees Hired between 01Jan1996 and 31Dec2005";
SYMBOLGEN:  Macro variable SYSLAST resolves to WORK.FEMALE1996
MPRINT(DONATE):  footnote WORK.FEMALE1996;
SYMBOLGEN:  Macro variable LIBRARY resolves to work
SYMBOLGEN:  Macro variable GENDER resolves to female
SYMBOLGEN:  Macro variable STARTDATE resolves to 01Jan1996
MPRINT(DONATE):  select * from work.Female1996;
NOTE: Writing HTML Body file: sashtml.htm
MPRINT(DONATE):  quit;
NOTE: PROCEDURE SQL used (Total process time):
      real time          0.54 seconds
      cpu time           0.32 seconds

MPRINT(DONATE):  title;

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```

MPRINT(DONATE):  footnote;
50
51
52  /*STEP8. Use the catalog procedure to list macros that are stored in the WORK library.
53  These macros are created in the work library by the execution of colormac macro up above.  */
54
55  title "Compiled Macros in the Work Library";
56
57  proc catalog cat=work.sasmacr;
58  contents;
59  quit;

```

NOTE: PROCEDURE CATALOG used (Total process time):

real time	0.04 seconds
cpu time	0.04 seconds

```

60
61  /*STEP 9. Use a data step to create a new table called salary_f9605 based on the Female1996
61 ! dataset
62  created in step 7 and as instructed in assignment*/
63
64  data work.salary_f9605;
65  set work.female1996 (keep= employee_id employee_name salary);
66  if _N_=1 then do;
67  call symputx('empId',employee_id);
68  call symputx('salary',salary);
69  call symputx(cats('NAME',employee_id),catx(' ',scan(employee_name,-1),scan(employee_name,1)))
69 ! ;
70  end;
71  call symputx(cats('NAME',employee_id),catx(' ',scan(employee_name,-1),scan(employee_name,1)))
71 ! ;
72  if input(symget('salary'),10.) < salary then do;
73  call symputx('empId',employee_id);
74  call symputx('salary',salary);
75  end;
76  run;

```

NOTE: There were 35 observations read from the data set WORK.FEMALE1996.

NOTE: The data set WORK.SALARY_F9605 has 35 observations and 3 variables.

NOTE: DATA statement used (Total process time):

```
real time      0.04 seconds
cpu time       0.04 seconds
```

```
77
78 /*STEP 10.Use the print procedure to print the data portion of the salary_f9605 dataset.Use
79 ! the macro
79 variables created above to automatically populate the title. Use an indirect macro reference
79 ! to
SYMBOLGEN: Macro variable SALARY resolves to 87420
80 display the name of the highest paid employee and a macro reference to display the highest
81 salary in the second line of the title. */
SYMBOLGEN: && resolves to &.
SYMBOLGEN: Macro variable EMPID resolves to 120719
82
83 title "Salary Analysis of Selected Employees ^n
SYMBOLGEN: Macro variable NAME120719 resolves to Roya Ridley
84 Top Salary = %sysfunc(putn(&salary,dollar8.)) to: &NAME&empid";
85
86
87 proc print data=work.salary_f9605 label noobs;
88 var employee_id
89 employee_name
90 salary;
91 run;
```

```
NOTE: There were 35 observations read from the data set WORK.SALARY_F9605.
NOTE: PROCEDURE PRINT used (Total process time):
      real time      0.03 seconds
      cpu time       0.03 seconds
```

```
92
93 /*House keeping. Resetting defaults*/
94 title;
95 footnote;
96 option number date nosymbolgen nomprint mcompilenote=none;
97 run;
98
99 /**Close the device*/
100 ods pdf close;
```

NOTE: ODS PDF printed 3 pages to C:\Users\vigupta\OneDrive\Learning\DataScience\Statistics Texas
A&M University\657\Homework\Assignment10\A&M\Vivek235_HW10_Output.pdf.