```
NOTE: This session is executing on the X64_10PRO  platform.



NOTE: Updated analytical products:

      SAS/STAT 14.3
      SAS/ETS 14.3
      SAS/OR 14.3
      SAS/IML 14.3
      SAS/QC 14.3

NOTE: Additional host information:

 X64_10PRO WIN 10.0.17763  Workstation

NOTE: SAS initialization used:
      real time           12.65 seconds
      cpu time            1.48 seconds

WARNING: One or more libraries specified in the concatenated library
SASHELP
WARNING: do not exist.  These libraries were removed from the
concatenation.
1
/*************************************************************/
2    /* Program Name: HW7
*/
3    /* Program Location: C:\Users\dsingh\Dropbox\Stat_604\Homework\HW3
*/
4    /* Date Created:  6/20/2019
*/
5    /* Author: Dhruv Singh
*/
6    /* Purpose:
*/
7
8    libname hwdata
'C:\Users\dsingh\Dropbox\Tamu\Stat_604\Homework\hwdata';
NOTE: Libref HWDATA was successfully assigned as follows:
      Engine:        V9
      Physical Name:
C:\Users\dsingh\Dropbox\Tamu\Stat_604\Homework\hwdata
9    filename report
9  !
'C:\Users\dsingh\Dropbox\Tamu\Stat_604\Homework\HW7_DueJune25\HW7DSingh_H
W
9  ! 07_PCoutput.pdf';
10
11   /* step 1: reading in data */
12
13   * reading in middle school data;
14   data mid;
15       set hwdata.ok_mid;
16       label Grade7 = "MidGrade7"
17           Grade8 = "MidGrade8"
18           Grade9 = "MidGrade9"
19           Grade10 = "MidGrade10"
20           Grade11 = "MidGrade11"
21           Grade12 = "MidGrade12";
```

```
22   run;

NOTE: There were 610 observations read from the data set HWDATA.OK_MID.
NOTE: The data set WORK.MID has 610 observations and 16 variables.
NOTE: DATA statement used (Total process time):
      real time           0.21 seconds
      cpu time            0.06 seconds


23
24   * sorting by merge vars ;
25   proc sort data = mid;
26       by mapcity school;
27   run;

NOTE: There were 610 observations read from the data set WORK.MID.
NOTE: The data set WORK.MID has 610 observations and 16 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time           0.07 seconds
      cpu time            0.01 seconds


28
29   * reading in high school data;
30   data high;
31       set hwdata.ok_high;
32       label Grade7 = "HSGrade7"
33           Grade8 = "HSGrade8"
34           Grade9 = "HSGrade9"
35           Grade10 = "HSGrade10"
36           Grade11 = "HSGrade11"
37           Grade12 = "HSGrade12";
38   run;

NOTE: There were 459 observations read from the data set HWDATA.OK_HIGH.
NOTE: The data set WORK.HIGH has 459 observations and 16 variables.
NOTE: DATA statement used (Total process time):
      real time           0.05 seconds
      cpu time            0.03 seconds


39   * sorting for merge;
40   proc sort data = high;
41       by mapcity school;
42   run;

NOTE: There were 459 observations read from the data set WORK.HIGH.
NOTE: The data set WORK.HIGH has 459 observations and 16 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time           0.04 seconds
      cpu time            0.00 seconds


43
44
45   /* step 2: merge into 3 data sets */
46   data matched_schools (drop = Teachers)
47       high_nomatch(keep = school mapcity mailcity county)
48       mid_nomatch(keep = school mapcity mailcity county);
49
```

```
50       * merge step;
51       merge mid(in=mid rename=(Grade7-Grade12=MidGrade7-MidGRade12
52                                PTRatio = MidPTRatio))
53       high(in=high rename=(Grade7-Grade12=HSGrade7-HSGRade12
54                                PTRatio = HSPTRatio));
55       by mapcity school;
56       drop Ungraded -- HStotal; *dropping by position;
57
58       * step 2a (i) ;
59       array h{*} hsgrade7-hsgrade12;
60       array m{*} midgrade7-midgrade12;
61
62       * array for sum ;
63       array grade{*} grade7-grade12;
64
65       *step 2a (ii) ;
66       do i = 1 to 6;
67           grade{i} = sum(h{i},m{i});
68       end;
69
70       * step 2a (iii) - (iv);
71       * array for imputing teachers for individual datasets;
72       array midimptchr{*} midimptchr7-midimptchr12;
73       array hsimptchr{*} hsimptchr7-hsimptchr12;
74
75       * array for imputed teachers total;
76       array imptchr{*} imptchr7-imptchr12;
77
78       * imputed teacher for each school;
79       do i = 1 to 6;
80           midimptchr{i} = m{i}/MidPTRatio;
81           hsimptchr{i} = h{i}/HSPTRatio;
82
83           imptchr{i} = sum(midimptchr{i},hsimptchr{i});
84       end;
85
86       * rounding up imputed teacher values;
87       teachertotal = ceil(sum(of imptchr7-imptchr12));
88       drop imptchr7-imptchr12 hsimptchr7-hsimptchr12
88 ! midimptchr7-midimptchr12 i;
89
90       * step 2a (v) ;
91       studenttotal = sum(of grade7-grade12);
92
93       * step 2a (vi) ;
94       format ptrrevised 6.2;
95       if (teachertotal ne 0) and (teachertotal ne .) then ptrrevised =
95 ! studenttotal/teachertotal;
96
97       * outputting merged datasets;
98       *drop mapcity midgrade7 -- grade12;
99
100      if mid=1 and high=1 then output matched_schools;
101
102      * step 2b ;
103      else if high=1 and mid=0 then output high_nomatch;
104
105      * step 2c ;
106      else if high=0 and mid=1 then output mid_nomatch;
107
```

```
108  run;

NOTE: Division by zero detected at line 81 column 28.
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NOTE: Division by zero detected at line 81 column 28.
NOTE: Division by zero detected at line 81 column 28.
mid=1 high=1 School=BOYNTON-MOTON MapCity=BOYNTON MailCity=BOYNTON
County=MUSKOGEE COUNTY Teachers=1.1 MidGrade7=9 MidGrade8=3 MidGrade9=.
MidGrade10=. MidGrade11=. MidGrade12=. Ungraded=. PreTotal=. ElemTotal=.
HSTotal=0 MidPTRatio=13.1 HSGrade7=. HSGrade8=. HSGrade9=0 HSGrade10=0
HSGrade11=0 HSGrade12=0 HSPTRatio=0 FIRST.MapCity=1 LAST.MapCity=1
FIRST.School=1 LAST.School=1 grade7=9 grade8=3 grade9=0 grade10=0
grade11=0
grade12=0 i=7 midimptchr7=0.6870229008 midimptchr8=0.2290076336
midimptchr9=.
midimptchr10=. midimptchr11=. midimptchr12=. hsimptchr7=. hsimptchr8=.
hsimptchr9=. hsimptchr10=. hsimptchr11=. hsimptchr12=.
imptchr7=0.6870229008
imptchr8=0.2290076336 imptchr9=. imptchr10=. imptchr11=. imptchr12=.
teachertotal=1 studenttotal=12 ptrrevised=12.00 _ERROR_=1 _N_=64
NOTE: Division by zero detected at line 80 column 29.
NOTE: Division by zero detected at line 80 column 29.
mid=1 high=0 School=SEMINOLE PLEASANT GROVE MapCity=SEMINOLE
MailCity=SEMINOLE
County=SEMINOLE COUNTY Teachers=5.3 MidGrade7=0 MidGrade8=0 MidGrade9=.
MidGrade10=. MidGrade11=. MidGrade12=. Ungraded=. PreTotal=0 ElemTotal=0
HSTotal=. MidPTRatio=0 HSGrade7=. HSGrade8=. HSGrade9=. HSGrade10=.
HSGrade11=.
HSGrade12=. HSPTRatio=. FIRST.MapCity=0 LAST.MapCity=0 FIRST.School=1
LAST.School=1 grade7=0 grade8=0 grade9=. grade10=. grade11=. grade12=.
i=7
midimptchr7=. midimptchr8=. midimptchr9=. midimptchr10=. midimptchr11=.
midimptchr12=. hsimptchr7=. hsimptchr8=. hsimptchr9=. hsimptchr10=.
hsimptchr11=. hsimptchr12=. imptchr7=. imptchr8=. imptchr9=. imptchr10=.
imptchr11=. imptchr12=. teachertotal=. studenttotal=0 ptrrevised=.
_ERROR_=1
_N_=535
NOTE: Missing values were generated as a result of performing an
operation on
      missing values.
      Each place is given by: (Number of times) at (Line):(Column).
      1138 at 67:20   2956 at 80:29   2380 at 81:28   1160 at 83:22
      5 at 87:20      5 at 87:25
NOTE: Mathematical operations could not be performed at the following
places.
      The results of the operations have been set to missing values.
      Each place is given by: (Number of times) at (Line):(Column).
      2 at 80:29   4 at 81:28
NOTE: There were 610 observations read from the data set WORK.MID.
NOTE: There were 459 observations read from the data set WORK.HIGH.
NOTE: The data set WORK.MATCHED_SCHOOLS has 375 observations and 27
variables.
NOTE: The data set WORK.HIGH_NOMATCH has 87 observations and 4 variables.
NOTE: The data set WORK.MID_NOMATCH has 235 observations and 4 variables.
NOTE: DATA statement used (Total process time):
      real time           0.26 seconds
      cpu time            0.20 seconds


109
```

```
110
111  * formatting;
112
113  data matched_schools_fmtd (rename = (mapcity = City teachertotal =
113! Teachers studenttotal = Students ptrrevised = PupilTeacherRatio));
114      set matched_schools;
115      keep School mapcity County teachertotal studenttotal ptrrevised;
116      label ptrrevised = "Pupil/Teacher Ratio"
117          mapcity = "City";
118  run;

NOTE: There were 375 observations read from the data set
WORK.MATCHED_SCHOOLS.
NOTE: The data set WORK.MATCHED_SCHOOLS_FMTD has 375 observations and 6
      variables.
NOTE: DATA statement used (Total process time):
      real time           0.06 seconds
      cpu time            0.03 seconds


119
120
121  /* step 3: printing options */
122
123  /* step 4: sorting data */
124  proc sort data = matched_schools_fmtd;
125      by descending PupilTeacherRatio Students;
126  run;

NOTE: There were 375 observations read from the data set
      WORK.MATCHED_SCHOOLS_FMTD.
NOTE: The data set WORK.MATCHED_SCHOOLS_FMTD has 375 observations and 6
      variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time           0.05 seconds
      cpu time            0.03 seconds


127
128
129  options orientation = landscape dtreset nonumber;
130  ods pdf file = report;
NOTE: Writing ODS PDF output to DISK destination "REPORT",
      printer "PDF".
131
132  title 'Oklahoma Public Schools';
133  title3 'Twenty-five Schools with Highest Pupil/Teacher
133! Ratios';
134  footnote 'Source: National Center for Education Statistics
134! (nces.ed.gov)';
135
136  /* step 5: printing top 25 */
137  proc print data = matched_schools_fmtd (obs=25);
NOTE: Writing HTML Body file: sashtml.htm
138  run;

NOTE: There were 25 observations read from the data set
      WORK.MATCHED_SCHOOLS_FMTD.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.88 seconds
```

```
      cpu time            0.31 seconds


139
140  /* step 6: resetting options */
141  options nodate;
142  footnote;
143
144  /* step 7: proc freq */
145  title2 'Number of Schools by County';
146
147  proc freq data = matched_schools_fmtd;
148      tables county / nocum ;
149  run;

NOTE: There were 375 observations read from the data set
      WORK.MATCHED_SCHOOLS_FMTD.
NOTE: PROCEDURE FREQ used (Total process time):
      real time           0.12 seconds
      cpu time            0.04 seconds


150
151  /* step 8: proc means */
152  title3 'Analysis of Pupil/Teacher Ratio by County';
153
154  proc means data = matched_schools_fmtd n mean median;
155  class county;
156  run;

NOTE: There were 375 observations read from the data set
      WORK.MATCHED_SCHOOLS_FMTD.
NOTE: PROCEDURE MEANS used (Total process time):
      real time           0.23 seconds
      cpu time            0.17 seconds


157
158  /* step 9: proc tab */
159  /*proc tabulate data = matched_schools_fmtd;*/
160  /*class county;*/
161  /*table school;*/
162  /*var PupilTeacherRatio Students;*/
163  /*run;*/
164
165  proc contents data=_all_;
166  run;

NOTE: PROCEDURE CONTENTS used (Total process time):
      real time           0.50 seconds
      cpu time            0.17 seconds


167
168  ods pdf close;
NOTE: ODS PDF printed 26 pages to
      C:\Users\dsingh\Dropbox\Tamu\Stat_604\Homework\HW7_DueJune
      25\HW7DSingh_HW07_PCoutput.pdf.
```