```
/*****************************************************************/
/* Program Name: HW7                                             */
/* Program Location: C:\Users\dsingh\Dropbox\Stat_604\Homework\HW3 */
/* Date Created:  6/20/2019                                      */
/* Author: Dhruv Singh                                           */
/* Purpose:                                                      */

libname hwdata 'C:\Users\dsingh\Dropbox\Tamu\Stat_604\Homework\hwdata';
filename report
'C:\Users\dsingh\Dropbox\Tamu\Stat_604\Homework\HW7_DueJune25\HW7DSingh_H
W07_PCoutput.pdf';

/* step 1: reading in data */

* reading in middle school data;
data mid;
      set hwdata.ok_mid;
      label Grade7 = "MidGrade7"
            Grade8 = "MidGrade8"
            Grade9 = "MidGrade9"
            Grade10 = "MidGrade10"
            Grade11 = "MidGrade11"
            Grade12 = "MidGrade12";
run;

* sorting by merge vars ;
proc sort data = mid;
      by mapcity school;
run;

* reading in high school data;
data high;
      set hwdata.ok_high;
      label Grade7 = "HSGrade7"
            Grade8 = "HSGrade8"
            Grade9 = "HSGrade9"
            Grade10 = "HSGrade10"
            Grade11 = "HSGrade11"
            Grade12 = "HSGrade12";
run;
* sorting for merge;
proc sort data = high;
      by mapcity school;
run;


/* step 2: merge into 3 data sets */
data matched_schools (drop = Teachers)
      high_nomatch(keep = school mapcity mailcity county)
      mid_nomatch(keep = school mapcity mailcity county);

      * merge step;
      merge mid(in=mid rename=(Grade7-Grade12=MidGrade7-MidGRade12
                                          PTRatio = MidPTRatio))
      high(in=high rename=(Grade7-Grade12=HSGrade7-HSGRade12
                                          PTRatio = HSPTRatio));
      by mapcity school;
      drop Ungraded -- HStotal; *dropping by position;

      * step 2a (i) ;
```

```
      array h{*} hsgrade7-hsgrade12;
      array m{*} midgrade7-midgrade12;

      * array for sum ;
      array grade{*} grade7-grade12;

      *step 2a (ii) ;
      do i = 1 to 6;
            grade{i} = sum(h{i},m{i});
      end;

      * step 2a (iii) - (iv);
      * array for imputing teachers for individual datasets;
      array midimptchr{*} midimptchr7-midimptchr12;
      array hsimptchr{*} hsimptchr7-hsimptchr12;

      * array for imputed teachers total;
      array imptchr{*} imptchr7-imptchr12;

      * imputed teacher for each school;
      do i = 1 to 6;
            midimptchr{i} = m{i}/MidPTRatio;
            hsimptchr{i} = h{i}/HSPTRatio;

            imptchr{i} = sum(midimptchr{i},hsimptchr{i});
      end;

      * rounding up imputed teacher values;
      teachertotal = ceil(sum(of imptchr7-imptchr12));
      drop imptchr7-imptchr12 hsimptchr7-hsimptchr12 midimptchr7-
midimptchr12 i;

      * step 2a (v) ;
      studenttotal = sum(of grade7-grade12);

      * step 2a (vi) ;
      format ptrrevised 6.2;
      if (teachertotal ne 0) and (teachertotal ne .) then ptrrevised =
studenttotal/teachertotal;

      * outputting merged datasets;
      *drop mapcity midgrade7 -- grade12;

      if mid=1 and high=1 then output matched_schools;

      * step 2b ;
      else if high=1 and mid=0 then output high_nomatch;

      * step 2c ;
      else if high=0 and mid=1 then output mid_nomatch;

run;


* formatting;

data matched_schools_fmtd (rename = (mapcity = City teachertotal =
Teachers studenttotal = Students ptrrevised = PupilTeacherRatio));
      set matched_schools;
      keep School mapcity County teachertotal studenttotal ptrrevised;
```

```
      label ptrrevised = "Pupil/Teacher Ratio"
            mapcity = "City";
run;


/* step 3: printing options */

/* step 4: sorting data */
proc sort data = matched_schools_fmtd;
      by descending PupilTeacherRatio Students;
run;


options orientation = landscape dtreset nonumber;
ods pdf file = report;

title 'Oklahoma Public Schools';
title3 'Twenty-five Schools with Highest Pupil/Teacher Ratios';
footnote 'Source: National Center for Education Statistics
(nces.ed.gov)';

/* step 5: printing top 25 */
proc print data = matched_schools_fmtd (obs=25);
run;

/* step 6: resetting options */
options nodate;
footnote;

/* step 7: proc freq */
title2 'Number of Schools by County';

proc freq data = matched_schools_fmtd;
      tables county / nocum ;
run;

/* step 8: proc means */
title3 'Analysis of Pupil/Teacher Ratio by County';

proc means data = matched_schools_fmtd n mean median;
class county;
run;

/* step 9: proc tab */
/*proc tabulate data = matched_schools_fmtd;*/
/*class county;*/
/*table school;*/
/*var PupilTeacherRatio Students;*/
/*run;*/

proc contents data=_all_;
run;

ods pdf close;
```