```
1          OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
68
69         /*PROBLEM 1*/;
70         *Import school 1 midterm data*;
71         DATA s1m;
72             INFILE '/home/u63559709/sasuser.v94/Week 3/school 1 midterm.csv' DSD firstobs=2;
73             INPUT ClassID ChildID Gender $ ClassAge $ Language $ m1 m2 m3 m4;
74         RUN;

NOTE: The infile '/home/u63559709/sasuser.v94/Week 3/school 1 midterm.csv' is:
      Filename=/home/u63559709/sasuser.v94/Week 3/school 1 midterm.csv,
      Owner Name=u63559709,Group Name=oda,
      Access Permission=-rw-r--r--,
      Last Modified=17Sep2023:15:38:31,
      File Size (bytes)=1287

NOTE: 27 records were read from the infile '/home/u63559709/sasuser.v94/Week 3/school 1 midterm.csv'.
      The minimum record length was 36.
      The maximum record length was 45.
NOTE: The data set WORK.S1M has 27 observations and 9 variables.
NOTE: DATA statement used (Total process time):
      real time           0.02 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              986.53k
      OS Memory           27048.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        718  Switch Count  2
      Page Faults                       0
      Page Reclaims                     153
      Page Swaps                        0
      Voluntary Context Switches        20
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


75
76         *Import school 2 midterm data*;
77         DATA s2m;
78             INFILE '/home/u63559709/sasuser.v94/Week 3/school 2 midterm.csv' DSD firstobs=2;
79             INPUT ClassID ChildID Gender $ ClassAge $ m1 m2 m3 m4;
80         RUN;

NOTE: The infile '/home/u63559709/sasuser.v94/Week 3/school 2 midterm.csv' is:
      Filename=/home/u63559709/sasuser.v94/Week 3/school 2 midterm.csv,
      Owner Name=u63559709,Group Name=oda,
      Access Permission=-rw-r--r--,
      Last Modified=17Sep2023:15:38:31,
      File Size (bytes)=3730

NOTE: 97 records were read from the infile '/home/u63559709/sasuser.v94/Week 3/school 2 midterm.csv'.
      The minimum record length was 35.
      The maximum record length was 37.
NOTE: The data set WORK.S2M has 97 observations and 8 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              873.50k
      OS Memory           27048.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        719  Switch Count  2
      Page Faults                       0
      Page Reclaims                     106
      Page Swaps                        0
      Voluntary Context Switches        14
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


81
```

```
82         *Import school 1 final data*;
83         DATA s1f;
84             INFILE '/home/u63559709/sasuser.v94/Week 3/school 1 final.csv' DSD firstobs=2;
85             INPUT ClassID ChildID Gender $ ClassAge $ Language $ f1 f2 f3 f4;
86         RUN;

NOTE: The infile '/home/u63559709/sasuser.v94/Week 3/school 1 final.csv' is:
      Filename=/home/u63559709/sasuser.v94/Week 3/school 1 final.csv,
      Owner Name=u63559709,Group Name=oda,
      Access Permission=-rw-r--r--,
      Last Modified=17Sep2023:15:38:31,
      File Size (bytes)=1056

NOTE: 22 records were read from the infile '/home/u63559709/sasuser.v94/Week 3/school 1 final.csv'.
      The minimum record length was 36.
      The maximum record length was 45.
NOTE: The data set WORK.S1F has 22 observations and 9 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              874.40k
      OS Memory           27048.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        720  Switch Count  2
      Page Faults                       0
      Page Reclaims                     94
      Page Swaps                        0
      Voluntary Context Switches        16
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


87
88         *Import school 2 final data*;
89         DATA s2f;
90             INFILE '/home/u63559709/sasuser.v94/Week 3/school 2 final.csv' DSD firstobs=2;
91             INPUT ClassID ChildID Gender $ ClassAge $ f1 f2 f3 f4;
92         RUN;

NOTE: The infile '/home/u63559709/sasuser.v94/Week 3/school 2 final.csv' is:
      Filename=/home/u63559709/sasuser.v94/Week 3/school 2 final.csv,
      Owner Name=u63559709,Group Name=oda,
      Access Permission=-rw-r--r--,
      Last Modified=17Sep2023:15:38:31,
      File Size (bytes)=3348

NOTE: 87 records were read from the infile '/home/u63559709/sasuser.v94/Week 3/school 2 final.csv'.
      The minimum record length was 35.
      The maximum record length was 37.
NOTE: The data set WORK.S2F has 87 observations and 8 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              873.50k
      OS Memory           27048.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        721  Switch Count  2
      Page Faults                       0
      Page Reclaims                     93
      Page Swaps                        0
      Voluntary Context Switches        14
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


93
94         /*PROBLEM 2*/;
95         *Sort some of the data to run properly*;
96         PROC SORT DATA=s1m;
97             BY ChildID;
98         RUN;
```

```
NOTE: There were 27 observations read from the data set WORK.S1M.
NOTE: The data set WORK.S1M has 27 observations and 9 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.01 seconds
      memory              930.93k
      OS Memory           27308.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        722  Switch Count  2
      Page Faults                       0
      Page Reclaims                     115
      Page Swaps                        0
      Voluntary Context Switches        11
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


99
100        PROC SORT DATA=s2m;
101            BY ChildID;
102        RUN;

NOTE: There were 97 observations read from the data set WORK.S2M.
NOTE: The data set WORK.S2M has 97 observations and 8 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              931.93k
      OS Memory           27308.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        723  Switch Count  2
      Page Faults                       0
      Page Reclaims                     116
      Page Swaps                        0
      Voluntary Context Switches        11
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


103
104        *Interleave s1m and s2m by ChildID*;
105        DATA midterm;
106            SET s1m s2m;
107            BY ChildID;
108            DROP Language;
109        RUN;

NOTE: There were 27 observations read from the data set WORK.S1M.
NOTE: There were 97 observations read from the data set WORK.S2M.
NOTE: The data set WORK.MIDTERM has 124 observations and 8 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              1489.62k
      OS Memory           27568.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        724  Switch Count  2
      Page Faults                       0
      Page Reclaims                     176
      Page Swaps                        0
      Voluntary Context Switches        11
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


110
111        *Print the dataset*;
112        PROC PRINT DATA=midterm;
```

```
113        TITLE "Interleaved Table M";
114        RUN;

NOTE: There were 124 observations read from the data set WORK.MIDTERM.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.11 seconds
      user cpu time       0.12 seconds
      system cpu time     0.00 seconds
      memory              1601.40k
      OS Memory           27048.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        725  Switch Count  1
      Page Faults                       0
      Page Reclaims                     77
      Page Swaps                        0
      Voluntary Context Switches        6
      Involuntary Context Switches      12
      Block Input Operations            0
      Block Output Operations           72


115
116        /*PROBLEM 3*/;
117        *Sort some of the data to run properly*;
118        PROC SORT DATA=s1f;
119            BY ChildID;
120        RUN;

NOTE: There were 22 observations read from the data set WORK.S1F.
NOTE: The data set WORK.S1F has 22 observations and 9 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              928.59k
      OS Memory           27308.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        726  Switch Count  2
      Page Faults                       0
      Page Reclaims                     115
      Page Swaps                        0
      Voluntary Context Switches        13
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


121
122        PROC SORT DATA=s2f;
123            BY ChildID;
124        RUN;

NOTE: There were 87 observations read from the data set WORK.S2F.
NOTE: The data set WORK.S2F has 87 observations and 8 variables.
NOTE: PROCEDURE SORT used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              1042.50k
      OS Memory           27308.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        727  Switch Count  2
      Page Faults                       0
      Page Reclaims                     116
      Page Swaps                        0
      Voluntary Context Switches        13
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


125
126        *Interleave s1f and s2f by ChildID*;
127        DATA final;
128        SET s1f s2f;
```

```
129        BY ChildID;
130        RUN;

NOTE: There were 22 observations read from the data set WORK.S1F.
NOTE: There were 87 observations read from the data set WORK.S2F.
NOTE: The data set WORK.FINAL has 109 observations and 9 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              1486.84k
      OS Memory           27568.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        728  Switch Count  2
      Page Faults                       0
      Page Reclaims                     173
      Page Swaps                        0
      Voluntary Context Switches        11
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


131
132        *Print the dataset*;
133        PROC PRINT DATA=final;
134        TITLE "Interleaved Table F";
135        RUN;

NOTE: There were 109 observations read from the data set WORK.FINAL.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.11 seconds
      user cpu time       0.11 seconds
      system cpu time     0.00 seconds
      memory              970.68k
      OS Memory           27048.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        729  Switch Count  1
      Page Faults                       0
      Page Reclaims                     66
      Page Swaps                        0
      Voluntary Context Switches        6
      Involuntary Context Switches      1
      Block Input Operations            0
      Block Output Operations           64


136
137        /*PROBLEM 4*/;
138        *Merge the data sets midterm and final by ChildID. Name the new data set as assess and print it.*;
139        DATA assess;
140            MERGE midterm (IN=a) final (IN=b);
141            BY ChildID;
142            IF a AND b;
143        RUN;

NOTE: There were 124 observations read from the data set WORK.MIDTERM.
NOTE: There were 109 observations read from the data set WORK.FINAL.
NOTE: The data set WORK.ASSESS has 109 observations and 13 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              1396.84k
      OS Memory           27568.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        730  Switch Count  2
      Page Faults                       0
      Page Reclaims                     169
      Page Swaps                        0
      Voluntary Context Switches        15
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264
```

```
144
145         *Print the merged dataset*;
146         PROC PRINT DATA=assess;
147         TITLE "Merged Table #4";
148         RUN;

NOTE: There were 109 observations read from the data set WORK.ASSESS.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.14 seconds
      user cpu time       0.15 seconds
      system cpu time     0.00 seconds
      memory              815.03k
      OS Memory           27048.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        731  Switch Count  1
      Page Faults                       0
      Page Reclaims                     68
      Page Swaps                        0
      Voluntary Context Switches        8
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           96


149
150         /*PROBLEM 5*/
151         *Find the mean of each numerical variables in the data set assess*;
152         PROC MEANS DATA=assess MEAN;
153             VAR m1 m2 m3 m4 f1 f2 f3 f4;
154         RUN;

NOTE: There were 109 observations read from the data set WORK.ASSESS.
NOTE: PROCEDURE MEANS used (Total process time):
      real time           0.01 seconds
      user cpu time       0.02 seconds
      system cpu time     0.01 seconds
      memory              6299.50k
      OS Memory           32444.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        732  Switch Count  1
      Page Faults                       0
      Page Reclaims                     1389
      Page Swaps                        0
      Voluntary Context Switches        22
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           0


155
156         /*PROBLEM 6*/
157         *Update the data sets midterm with the data set final by ChildID. Print the updated data set*;
158         DATA updated_midterm;
159             MERGE midterm (IN=a) final (IN=b);
160             BY ChildID;
161             IF a;
162         RUN;

NOTE: There were 124 observations read from the data set WORK.MIDTERM.
NOTE: There were 109 observations read from the data set WORK.FINAL.
NOTE: The data set WORK.UPDATED_MIDTERM has 124 observations and 13 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              1397.87k
      OS Memory           27824.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                        733  Switch Count  2
      Page Faults                       0
      Page Reclaims                     165
      Page Swaps                        0
      Voluntary Context Switches        14
      Involuntary Context Switches      0
```

```
      Block Input Operations           0
      Block Output Operations          264


163
164       *Print the updated dataset*;
165       PROC PRINT DATA=updated_midterm;
166       TITLE "Merged Table #6";
167       RUN;

NOTE: There were 124 observations read from the data set WORK.UPDATED_MIDTERM.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.16 seconds
      user cpu time       0.17 seconds
      system cpu time     0.00 seconds
      memory              927.15k
      OS Memory           27304.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                       734  Switch Count  1
      Page Faults                      0
      Page Reclaims                    74
      Page Swaps                       0
      Voluntary Context Switches       6
      Involuntary Context Switches     0
      Block Input Operations           0
      Block Output Operations          96


168
169       /*PROBLEM 7*/
170       *Use OUTPUT statement and IF statement to regroup the data set assess
171       into 4 data sets PREK4, PREK3, Female, and Male. Print the 4 data sets*;
172       DATA PREK4 PREK3 Female Male;
173           SET assess;
174           IF ClassAge = 'Pre-K 4' THEN OUTPUT PREK4;
175           IF ClassAge = 'Pre-K 3' THEN OUTPUT PREK3;
176           IF Gender = 'Female' THEN OUTPUT Female;
177           IF Gender = 'Male' THEN OUTPUT Male;
178       RUN;

NOTE: There were 109 observations read from the data set WORK.ASSESS.
NOTE: The data set WORK.PREK4 has 40 observations and 13 variables.
NOTE: The data set WORK.PREK3 has 68 observations and 13 variables.
NOTE: The data set WORK.FEMALE has 52 observations and 13 variables.
NOTE: The data set WORK.MALE has 57 observations and 13 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.01 seconds
      system cpu time     0.00 seconds
      memory              1877.96k
      OS Memory           28344.00k
      Timestamp           09/18/2023 03:07:11 AM
      Step Count                       735  Switch Count  8
      Page Faults                      0
      Page Reclaims                    323
      Page Swaps                       0
      Voluntary Context Switches       48
      Involuntary Context Switches     0
      Block Input Operations           0
      Block Output Operations          1056


179
180       *Print the datasets*;
181       PROC PRINT DATA=PREK4; TITLE "PREK4 Dataset"; RUN;
NOTE: There were 40 observations read from the data set WORK.PREK4.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.06 seconds
      user cpu time       0.06 seconds
      system cpu time     0.00 seconds
      memory              881.50k
      OS Memory           27304.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                       736  Switch Count  1
      Page Faults                      0
```

```
      Page Reclaims                    70
      Page Swaps                       0
      Voluntary Context Switches       6
      Involuntary Context Switches     0
      Block Input Operations           0
      Block Output Operations          48


182        PROC PRINT DATA=PREK3; TITLE "PREK3 Dataset"; RUN;
NOTE: There were 68 observations read from the data set WORK.PREK3.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.09 seconds
      user cpu time       0.09 seconds
      system cpu time     0.00 seconds
      memory              657.25k
      OS Memory           27304.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                       737  Switch Count  1
      Page Faults                      0
      Page Reclaims                    64
      Page Swaps                       0
      Voluntary Context Switches       8
      Involuntary Context Switches     0
      Block Input Operations           0
      Block Output Operations          48


183        PROC PRINT DATA=Female; TITLE "Female Dataset"; RUN;
NOTE: There were 52 observations read from the data set WORK.FEMALE.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.07 seconds
      user cpu time       0.07 seconds
      system cpu time     0.00 seconds
      memory              545.12k
      OS Memory           27304.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                       738  Switch Count  1
      Page Faults                      0
      Page Reclaims                    64
      Page Swaps                       0
      Voluntary Context Switches       8
      Involuntary Context Switches     0
      Block Input Operations           0
      Block Output Operations          48


184        PROC PRINT DATA=Male; TITLE "Male Dataset"; RUN;
NOTE: There were 57 observations read from the data set WORK.MALE.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.08 seconds
      user cpu time       0.08 seconds
      system cpu time     0.00 seconds
      memory              657.25k
      OS Memory           27304.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                       739  Switch Count  1
      Page Faults                      0
      Page Reclaims                    64
      Page Swaps                       0
      Voluntary Context Switches       15
      Involuntary Context Switches     0
      Block Input Operations           0
      Block Output Operations          48


185
186        /*PROBLEM 8*/
187        *Use KEEP or DROP data step statements to select the two variables m2 and f2 from the data set assess.
188        Name the selected data set as select_m2_f2. Print the first five observations.*;
189        DATA select_m2_f2;
190            SET assess;
191            KEEP m2 f2;
192        RUN;

NOTE: There were 109 observations read from the data set WORK.ASSESS.
```

```
NOTE: The data set WORK.SELECT_M2_F2 has 109 observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              964.65k
      OS Memory           27564.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                        740  Switch Count  2
      Page Faults                       0
      Page Reclaims                     127
      Page Swaps                        0
      Voluntary Context Switches        14
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


193
194        *Print the first five observations*;
195        PROC PRINT DATA=select_m2_f2 (OBS=5);
196        TITLE "First 5 _m2_f2";
197        RUN;

NOTE: There were 5 observations read from the data set WORK.SELECT_M2_F2.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.00 seconds
      user cpu time       0.01 seconds
      system cpu time     0.00 seconds
      memory              603.56k
      OS Memory           27304.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                        741  Switch Count  1
      Page Faults                       0
      Page Reclaims                     65
      Page Swaps                        0
      Voluntary Context Switches        8
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           0


198
199        /*PROBLEM 9*/
200        *Use KEEP or DROP data set options to select the two variables m3 and f3 from the data set assess.
201        Name the selected data set as select_m3_f3. Print the observations from
202        the 50th row to the 100th row.*;
203        DATA select_m3_f3;
204            SET assess (KEEP=m3 f3);
205        RUN;

NOTE: There were 109 observations read from the data set WORK.ASSESS.
NOTE: The data set WORK.SELECT_M3_F3 has 109 observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              948.06k
      OS Memory           27564.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                        742  Switch Count  2
      Page Faults                       0
      Page Reclaims                     130
      Page Swaps                        0
      Voluntary Context Switches        11
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


206
207        *Print observations from the 50th row to the 100th row*;
208        PROC PRINT DATA=select_m3_f3 (FIRSTOBS=50 OBS=100);
209        TITLE "Table _m3_f3";
210        RUN;
```

```
NOTE: There were 51 observations read from the data set WORK.SELECT_M3_F3.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.02 seconds
      user cpu time       0.03 seconds
      system cpu time     0.00 seconds
      memory              603.56k
      OS Memory           27304.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                        743  Switch Count  1
      Page Faults                       0
      Page Reclaims                     63
      Page Swaps                        0
      Voluntary Context Switches        8
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           16


211
212        /*Problem 10*/
213        *Add new variables and filter observations*;
214        DATA improvement;
215            SET assess;
216            d1 = f1 - m1;
217            d2 = f2 - m2;
218            IF d1 > 0 AND d2 > 0;
219        RUN;

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).
      1 at 216:13
NOTE: There were 109 observations read from the data set WORK.ASSESS.
NOTE: The data set WORK.IMPROVEMENT has 87 observations and 15 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              973.00k
      OS Memory           27564.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                        744  Switch Count  2
      Page Faults                       0
      Page Reclaims                     127
      Page Swaps                        0
      Voluntary Context Switches        16
      Involuntary Context Switches      2
      Block Input Operations            0
      Block Output Operations           264


220
221        *Print the dataset*
222        PROC PRINT DATA=improvement;
223        TITLE "Improvement";
224        RUN;
225
226
227        /*PROBLEM 11*/
228        *Merge midterm and final by ChildID with IN options to get the common part.*;
229        DATA both;
230            MERGE midterm (IN=a) final (IN=b);
231            BY ChildID;
232            IF a AND b;
233        RUN;

NOTE: There were 124 observations read from the data set WORK.MIDTERM.
NOTE: There were 109 observations read from the data set WORK.FINAL.
NOTE: The data set WORK.BOTH has 109 observations and 13 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              1398.31k
      OS Memory           27824.00k
```

```
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                        745  Switch Count  2
      Page Faults                       0
      Page Reclaims                     170
      Page Swaps                        0
      Voluntary Context Switches        12
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


234
235         *Print the merged dataset*;
236         PROC PRINT DATA=both;
237         TITLE "Merged In";
238         RUN;

NOTE: There were 109 observations read from the data set WORK.BOTH.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.14 seconds
      user cpu time       0.14 seconds
      system cpu time     0.00 seconds
      memory              927.15k
      OS Memory           27304.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                        746  Switch Count  1
      Page Faults                       0
      Page Reclaims                     69
      Page Swaps                        0
      Voluntary Context Switches        7
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           96


239
240         /*PROBLEM 12*/
241         *Merge midterm and final by ChildID with IN options to get the data that are in midterm but not in final.*;
242         DATA right_merge;
243             MERGE midterm (IN=a) final (IN=b);
244             BY ChildID;
245             IF a AND NOT b;
246         RUN;

NOTE: There were 124 observations read from the data set WORK.MIDTERM.
NOTE: There were 109 observations read from the data set WORK.FINAL.
NOTE: The data set WORK.RIGHT_MERGE has 15 observations and 13 variables.
NOTE: DATA statement used (Total process time):
      real time           0.00 seconds
      user cpu time       0.00 seconds
      system cpu time     0.00 seconds
      memory              1397.65k
      OS Memory           27824.00k
      Timestamp           09/18/2023 03:07:12 AM
      Step Count                        747  Switch Count  2
      Page Faults                       0
      Page Reclaims                     170
      Page Swaps                        0
      Voluntary Context Switches        14
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


247
248         *Print the merged dataset*;
249         PROC PRINT DATA=right_merge;
250         TITLE "Right Merge";
251         RUN;

NOTE: There were 15 observations read from the data set WORK.RIGHT_MERGE.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.02 seconds
      user cpu time       0.03 seconds
      system cpu time     0.00 seconds
```

```
      memory             926.53k
      OS Memory          27304.00k
      Timestamp          09/18/2023 03:07:12 AM
      Step Count                       748  Switch Count  1
      Page Faults                      0
      Page Reclaims                    69
      Page Swaps                       0
      Voluntary Context Switches       9
      Involuntary Context Switches     0
      Block Input Operations           0
      Block Output Operations          0


252
253       /*PROBLEM 13*/
254       *Merge midterm and final by ChildID with IN options to get the data that
255       are in final but not in midterm. Name the merged data set as left_merge and print it.*;
256       DATA left_merge;
257           MERGE midterm (IN=a) final (IN=b);
258           BY ChildID;
259           IF b AND NOT a;
260       RUN;

NOTE: There were 124 observations read from the data set WORK.MIDTERM.
NOTE: There were 109 observations read from the data set WORK.FINAL.
NOTE: The data set WORK.LEFT_MERGE has 0 observations and 13 variables.
NOTE: DATA statement used (Total process time):
      real time          0.00 seconds
      user cpu time      0.00 seconds
      system cpu time    0.00 seconds
      memory             1510.43k
      OS Memory          27824.00k
      Timestamp          09/18/2023 03:07:12 AM
      Step Count                       749  Switch Count  2
      Page Faults                      0
      Page Reclaims                    170
      Page Swaps                       0
      Voluntary Context Switches       14
      Involuntary Context Switches     1
      Block Input Operations           0
      Block Output Operations          264


261
262       *Print the merged dataset*;
263       PROC PRINT DATA=left_merge;
264       TITLE "Left Merge";
265       RUN;

NOTE: No observations in data set WORK.LEFT_MERGE.
NOTE: PROCEDURE PRINT used (Total process time):
      real time          0.00 seconds
      user cpu time      0.00 seconds
      system cpu time    0.00 seconds
      memory             643.12k
      OS Memory          27304.00k
      Timestamp          09/18/2023 03:07:12 AM
      Step Count                       750  Switch Count  1
      Page Faults                      0
      Page Reclaims                    55
      Page Swaps                       0
      Voluntary Context Switches       9
      Involuntary Context Switches     0
      Block Input Operations           0
      Block Output Operations          0


266
267       OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
277
```