

```

1      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
68
69      *
70      AST 503
71      Program 12
72      Zainab Akinjobi
73      SAS sgplot and other graphing procedures;
74
75      data graf1 ;
76
77      seed = 17717 ;
78
79      do city = 1 to 4 ;
80      do year = 2015 to 2019 ;
81
82      do reps = 1 to 4 ;
83      age = 21 + 16*uniform(seed) ;
84      income = ( age - 15 ) * 1.5 + 2.1*rannor(seed) ;
85      rann = uniform(seed) ;
86      if rann < 0.5 then educ = 'HS';
87      else educ = 'BS';
88
89      if educ = 'BS' then income = income + 5.6 ;
90
91      mortg = 2.3*rangam ( seed, 2.3 ) ;
92
93      output;
94      end;
95      end;
96      end;
97
98
99
100

```

NOTE: The data set WORK.GRAF1 has 80 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	704.75k
OS Memory	29604.00k
Timestamp	12/13/2021 03:34:34 AM
Step Count	156 Switch Count 2
Page Faults	0
Page Reclaims	89
Page Swaps	0
Voluntary Context Switches	10
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	264

```

101      data dat2 ;
102
103      seed = 17757 ;
104
105      do city = 1 to 4 ;
106      do month = 1 to 6 ;
107      hi_temp = 3+ 1.1 * month + .8*rannor(seed) ;
108      lo_temp = 0.8 * month + .8*rannor(seed) ;
109      output;
110      end;

```

```

111         end;
112
113
114
115
116         * series plot ----- ;
117
118

```

NOTE: The data set WORK.DAT2 has 24 observations and 5 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            707.87k
OS Memory          29604.00k
Timestamp          12/13/2021 03:34:34 AM
Step Count                157  Switch Count  2
Page Faults                0
Page Reclaims             90
Page Swaps                0
Voluntary Context Switches 10
Involuntary Context Switches 0
Block Input Operations     0
Block Output Operations    264

```

```

119         proc sgplot data = dat2 ;
120         series x = month y = hi_temp ;
121         series x = month y = lo_temp ;
122         title1 ' plot 7 series plot ' ;
123         where city = 1 ;
124
125
126         * sgpanel - - - - - ;
127
128
129

```

```

130         proc sgpanel data = graf1 ;

```

NOTE: PROCEDURE SGPLOT used (Total process time):

```

real time          0.10 seconds
user cpu time      0.05 seconds
system cpu time    0.01 seconds
memory            8397.00k
OS Memory          34096.00k
Timestamp          12/13/2021 03:34:34 AM
Step Count                158  Switch Count  2
Page Faults                0
Page Reclaims          1232
Page Swaps                0
Voluntary Context Switches 161
Involuntary Context Switches 0
Block Input Operations     0
Block Output Operations    488

```

NOTE: There were 6 observations read from the data set WORK.DAT2.

WHERE city=1;

```

131         panelby city / rows = 2 columns = 2 ;
132         reg x = age y = income ;
133         title1 ' panelby city , regression plot ' ;
134
135

```

```

136      proc sgpanel    data = graf1 ;
NOTE: PROCEDURE SGPANEL used (Total process time):
      real time          0.17 seconds
      user cpu time      0.08 seconds
      system cpu time    0.00 seconds
      memory             3260.78k
      OS Memory          34652.00k
      Timestamp          12/13/2021 03:34:35 AM
      Step Count         159   Switch Count   28
      Page Faults        0
      Page Reclaims      1353
      Page Swaps          0
      Voluntary Context Switches 298
      Involuntary Context Switches 3
      Block Input Operations 0
      Block Output Operations 1912

```

NOTE: There were 80 observations read from the data set WORK.GRAF1.

```

137      panelby city / rows = 2 columns = 2 ;
138      histogram mortg / nofill ;
139      title1 ' graph 9 . panelby city , histogram ' ;
140
141
142

```

```

143      proc sgpanel    data = dat2 ;
NOTE: PROCEDURE SGPANEL used (Total process time):
      real time          0.16 seconds
      user cpu time      0.07 seconds
      system cpu time    0.01 seconds
      memory             3481.78k
      OS Memory          35932.00k
      Timestamp          12/13/2021 03:34:35 AM
      Step Count         160   Switch Count   28
      Page Faults        0
      Page Reclaims      1132
      Page Swaps          0
      Voluntary Context Switches 277
      Involuntary Context Switches 0
      Block Input Operations 0
      Block Output Operations 1824

```

NOTE: There were 80 observations read from the data set WORK.GRAF1.

```

144      panelby city / rows = 2 columns = 2 ;
145      series x = month y = hi_temp ;
146      series x = month y = lo_temp ;
147      title1 ' panelby for series ' ;
148
149

```

```

150      proc sgpanel    data = graf1 ;
NOTE: PROCEDURE SGPANEL used (Total process time):
      real time          0.13 seconds
      user cpu time      0.05 seconds
      system cpu time    0.00 seconds
      memory             2952.40k
      OS Memory          35760.00k
      Timestamp          12/13/2021 03:34:35 AM
      Step Count         161   Switch Count   4
      Page Faults        0
      Page Reclaims      628
      Page Swaps          0
      Voluntary Context Switches 179

```

Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	784

NOTE: There were 24 observations read from the data set WORK.DAT2.

```

151      panelby city / rows  = 2  columns = 2 ;
152      vbox  income /  group = year  ;
153      title1  ' income trends by city and month ' ;
154
155
156
157      *  proc  sgscatter  - - - - - ;
158

```

```

159      proc sgscatter  data = graf1 ;

```

NOTE: PROCEDURE SGSPANEL used (Total process time):

real time	0.25 seconds
user cpu time	0.09 seconds
system cpu time	0.01 seconds
memory	3359.59k
OS Memory	35760.00k
Timestamp	12/13/2021 03:34:35 AM
Step Count	162
Switch Count	28
Page Faults	0
Page Reclaims	1027
Page Swaps	0
Voluntary Context Switches	883
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	1856

NOTE: There were 80 observations read from the data set WORK.GRAF1.

```

160      matrix  age  income  mortg  ;
161      title1  ' graphs to go with  proc corr ' ;
162
163      run;

```

NOTE: PROCEDURE SGSCATTER used (Total process time):

real time	0.16 seconds
user cpu time	0.04 seconds
system cpu time	0.00 seconds
memory	2329.56k
OS Memory	35416.00k
Timestamp	12/13/2021 03:34:35 AM
Step Count	163
Switch Count	2
Page Faults	0
Page Reclaims	359
Page Swaps	0
Voluntary Context Switches	152
Involuntary Context Switches	0
Block Input Operations	0
Block Output Operations	424

NOTE: There were 80 observations read from the data set WORK.GRAF1.

```

164
165      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
175

```