```
1          OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
68
69         /* STAT 382 WORKSHEET 4 */
70
71
72         /* IMPORT DATASET */
73         TITLE1 'TASK 0: IMPORT DATASET';
74         FILENAME bears "/home/u62830651/sasuser.v94/Worksheet4/SAS_bears2021.csv";
75
76         PROC IMPORT DATAFILE=bears
77             OUT=bears
78             DBMS=CSV
79             REPLACE;
80         RUN;

NOTE: Unable to open parameter catalog: SASUSER.PARMS.PARMS.SLIST in update mode. Temporary parameter values will be saved to
WORK.PARMS.PARMS.SLIST.
81          /*************************************************************************
82          *   PRODUCT:   SAS
83          *   VERSION:   9.4
84          *   CREATOR:   External File Interface
85          *   DATE:      03DEC22
86          *   DESC:      Generated SAS Datastep Code
87          *   TEMPLATE SOURCE:  (None Specified.)
88          *************************************************************************/
89             data WORK.BEARS    ;
90             %let _EFIERR_ = 0; /* set the ERROR detection macro variable */
91             infile BEARS delimiter = ',' MISSOVER DSD  firstobs=2 ;
92                informat Num best32. ;
93                informat Player $22. ;
94                informat Age best32. ;
95                informat Position $2. ;
96                informat G_played best32. ;
97                informat G_started best32. ;
98                informat Int best32. ;
99                informat Int_Yds best32. ;
100               informat Int_TD best32. ;
101               informat Lng best32. ;
102               informat PD best32. ;
103               informat FF best32. ;
104               informat Fmb best32. ;
105               informat FR best32. ;
106               informat F_Yds best32. ;
107               informat F_TD best32. ;
108               informat Sacks best32. ;
109               informat Comb best32. ;
110               informat Solo best32. ;
111               informat Ast best32. ;
112               informat TFL best32. ;
113               informat QBHits best32. ;
114               format Num best12. ;
115               format Player $22. ;
116               format Age best12. ;
117               format Position $2. ;
118               format G_played best12. ;
119               format G_started best12. ;
120               format Int best12. ;
121               format Int_Yds best12. ;
122               format Int_TD best12. ;
123               format Lng best12. ;
124               format PD best12. ;
125               format FF best12. ;
126               format Fmb best12. ;
127               format FR best12. ;
128               format F_Yds best12. ;
129               format F_TD best12. ;
130               format Sacks best12. ;
131               format Comb best12. ;
132               format Solo best12. ;
133               format Ast best12. ;
134               format TFL best12. ;
135               format QBHits best12. ;
136            input
137                        Num
138                        Player  $
139                        Age
140                        Position  $
141                        G_played
142                        G_started
143                        Int
144                        Int_Yds
145                        Int_TD
146                        Lng
147                        PD
148                        FF
149                        Fmb
```

```
150                         FR
151                         F_Yds
152                         F_TD
153                         Sacks
154                         Comb
155                         Solo
156                         Ast
157                         TFL
158                         QBHits
159             ;
160             if _ERROR_ then call symputx('_EFIERR_',1);  /* set ERROR detection macro variable */
161             run;

NOTE: The infile BEARS is:
      Filename=/home/u62830651/sasuser.v94/Worksheet4/SAS_bears2021.csv,
      Owner Name=u62830651,Group Name=oda,
      Access Permission=-rw-r--r--,
      Last Modified=02Dec2022:12:29:08,
      File Size (bytes)=2609

NOTE: 44 records were read from the infile BEARS.
      The minimum record length was 44.
      The maximum record length was 72.
NOTE: The data set WORK.BEARS has 44 observations and 22 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              9291.18k
      OS Memory           37412.00k
      Timestamp           12/04/2022 12:44:49 AM
      Step Count                        71  Switch Count  2
      Page Faults                       0
      Page Reclaims                     112
      Page Swaps                        0
      Voluntary Context Switches        12
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


44 rows created in WORK.BEARS from BEARS.



NOTE: WORK.BEARS data set was successfully created.
NOTE: The data set WORK.BEARS has 44 observations and 22 variables.
NOTE: PROCEDURE IMPORT used (Total process time):
      real time           0.08 seconds
      user cpu time       0.05 seconds
      system cpu time     0.02 seconds
      memory              9291.18k
      OS Memory           37672.00k
      Timestamp           12/04/2022 12:44:49 AM
      Step Count                        71  Switch Count  10
      Page Faults                       0
      Page Reclaims                     1945
      Page Swaps                        0
      Voluntary Context Switches        76
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           336


162
163
164
165
166         /* Question 2: Compute a 93% Confidence Interval for Mean Age */
167         TITLE1 'TASK 1: INFERENCE';
168         TITLE2 'Q2) 93% CI for Mean Age';
169
170         PROC UNIVARIATE DATA = bears
171         CIBASIC (ALPHA = 0.07 TYPE = TWOSIDED);
172         VAR Age;
173         RUN;

NOTE: PROCEDURE UNIVARIATE used (Total process time):
      real time           0.06 seconds
      user cpu time       0.06 seconds
      system cpu time     0.00 seconds
      memory              1791.93k
      OS Memory           33456.00k
      Timestamp           12/04/2022 12:44:50 AM
      Step Count                        72  Switch Count  0
      Page Faults                       0
      Page Reclaims                     54
      Page Swaps                        0
```

```
      Voluntary Context Switches        0
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           24


174
175         /* The 93% CI is:
176         26.46012 < mu < 28.67625
177         */
178
179
180
181
182         /* Question 3: Test the claim that the mean G_Played is
183         greater than 12 at a 7.5% significance level. */
184         TITLE2 'Q3) G_Played HT';
185
186         /* Hypotheses:
187         H0: mu = 12
188         H1: mu > 12
189         */
190
191
192         * Code;
193         PROC TTEST data=bears h0=12 sides=u plots;
194         var G_Played ;
195         run;

NOTE: PROCEDURE TTEST used (Total process time):
      real time           0.29 seconds
      user cpu time       0.14 seconds
      system cpu time     0.04 seconds
      memory              15391.87k
      OS Memory           44244.00k
      Timestamp           12/04/2022 12:44:50 AM
      Step Count                        73  Switch Count  24
      Page Faults                       0
      Page Reclaims                     14417
      Page Swaps                        0
      Voluntary Context Switches        608
      Involuntary Context Switches      1
      Block Input Operations            0
      Block Output Operations           1056


196
197
198         /*
199         P-value = 0.1045
200         Decision: Do not reject.
201         Conclusion: There is not enough evidence that the mean G_Played is greater than 12 at a 7.5% significance level.
202         */
203
204
205
206
207
208         /* Question 4: Code for MLR Model */
209         TITLE1 'TASK 2: MULTIPLE LINEAR REGRESSION';
210         TITLE2 'Q4) Code for Multiple Linear Regression Model';
211
212         PROC REG DATA=bears;
213         MODEL G_Started=G_Played Age;
214         RUN;

215
216
217
218         /* Question 5: Overall Model Analysis
219         Null Hypothesis: H0=Beta1=Beta2=0
220         Alternative Hypothesis: H1: at least one Betai !=0
221         Let 1 = G_Played and 2 = Age
222
223         Test Statistic = F=6.87
224         P-Value = 0.0027
225
226         Decision: Reject H0
227         Conclusion: There is evidence variable explaining some variability
228         */
229
230
231
232
233         /* Question 6: Individual Variable Analysis - If needed /*
234         /* Analysis for G_Played (if needed)
235         Null Hypothesis: H0=BetaG_Played=0
236         Alternative Hypothesis: H1=BetaG_Played!=0
```

```
237
238         Test Statistic = t= 3.57
239         P-Value = 0.0009
240
241         Decision: Reject H0
242         Conclusion: There is enough evidence that G_Played is important in explaining some of the
243         variability in G_Started.
244
245
246         If analysis is not needed, state so here:
247         */
248
249
250
251         /* Analysis for Age (if needed)
252         Null Hypothesis: H0=BetaAge=0
253         Alternative Hypothesis: H1=BetaAge!=0
254
255         Test Statistic = t = -0.45
256         P-Value = 0.6566
257
258         Decision: Do not reject H0
259         Conclusion: There is enough evidence that Age variable is not important in explaining some
260         of the variability in G_Started.
261
262         If analysis is not needed, state so here:
263         */
264
265
266
267
268
269         /* Question 7: Compute Pearson's and Spearman's Correlation Matrix */
270         TITLE2 'Q7) Pearson and Spearman Correlation Matrix';

NOTE: PROCEDURE REG used (Total process time):
      real time           0.37 seconds
      user cpu time       0.15 seconds
      system cpu time     0.04 seconds
      memory              11288.78k
      OS Memory           46828.00k
      Timestamp           12/04/2022 12:44:50 AM
      Step Count                        74  Switch Count  23
      Page Faults                       0
      Page Reclaims                     12255
      Page Swaps                        0
      Voluntary Context Switches        678
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           744


271         PROC CORR DATA=bears pearson spearman;
272         var G_Played Age G_Started;
273         RUN;

NOTE: PROCEDURE CORR used (Total process time):
      real time           0.05 seconds
      user cpu time       0.05 seconds
      system cpu time     0.00 seconds
      memory              875.46k
      OS Memory           40880.00k
      Timestamp           12/04/2022 12:44:50 AM
      Step Count                        75  Switch Count  0
      Page Faults                       0
      Page Reclaims                     66
      Page Swaps                        0
      Voluntary Context Switches        0
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           0


274
275
276
277         OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
287
```