```
1          OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
68
69         /* Homework 14 */
70         /* Yelizaveta Semikina */
71
72         /* Task 1 */
73         /* 1.a */
74
75         /** Import the stocks nasdaq file.  **/
76         FILENAME nasdaq "/home/u62830651/SAS_stocks_nasdaq.csv";
77
78         PROC IMPORT DATAFILE=nasdaq
79             OUT=nasdaq
80             DBMS=CSV
81             REPLACE;
82         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.
83          /*********************************************************************
84          *   PRODUCT:   SAS
85          *   VERSION:   9.4
86          *   CREATOR:   External File Interface
87          *   DATE:      29NOV22
88          *   DESC:      Generated SAS Datastep Code
89          *   TEMPLATE SOURCE:  (None Specified.)
90          *********************************************************************/
91             data WORK.NASDAQ    ;
92             %let _EFIERR_ = 0; /* set the ERROR detection macro variable */
93             infile NASDAQ delimiter = ',' MISSOVER DSD  firstobs=2 ;
94                informat Symbol $5. ;
95                informat Name $26. ;
96                informat Exchange $6. ;
97                informat Sector $22. ;
98                informat Price best32. ;
99                informat PricetoEarnings best32. ;
100               informat DividendYield best32. ;
101               informat EarningsperShare best32. ;
102               informat FiftytwoWeekHigh best32. ;
103               informat FiftytwoWeekLow best32. ;
104               informat MarketCap_000s best32. ;
105               informat EBITDA best32. ;
106               informat PricetoSales best32. ;
107               informat PricetoBook best32. ;
108               format Symbol $5. ;
109               format Name $26. ;
110               format Exchange $6. ;
111               format Sector $22. ;
112               format Price best12. ;
113               format PricetoEarnings best12. ;
114               format DividendYield best12. ;
115               format EarningsperShare best12. ;
116               format FiftytwoWeekHigh best12. ;
117               format FiftytwoWeekLow best12. ;
118               format MarketCap_000s best12. ;
119               format EBITDA best12. ;
120               format PricetoSales best12. ;
121               format PricetoBook best12. ;
122            input
123                        Symbol  $
124                        Name  $
125                        Exchange  $
126                        Sector  $
127                        Price
128                        PricetoEarnings
129                        DividendYield
130                        EarningsperShare
131                        FiftytwoWeekHigh
132                        FiftytwoWeekLow
133                        MarketCap_000s
134                        EBITDA
135                        PricetoSales
136                        PricetoBook
137            ;
138            if _ERROR_ then call symputx('_EFIERR_',1);  /* set ERROR detection macro variable */
139            run;

NOTE: The infile NASDAQ is:
      Filename=/home/u62830651/SAS_stocks_nasdaq.csv,
      Owner Name=u62830651,Group Name=oda,
      Access Permission=-rw-r--r--,
      Last Modified=28Nov2022:20:16:57,
      File Size (bytes)=8617

NOTE: 72 records were read from the infile NASDAQ.
      The minimum record length was 98.
```

```
      The maximum record length was 134.
NOTE: The data set WORK.NASDAQ has 72 observations and 14 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              9382.65k
      OS Memory           37148.00k
      Timestamp           11/29/2022 08:03:00 PM
      Step Count                        424  Switch Count  2
      Page Faults                       0
      Page Reclaims                     156
      Page Swaps                        0
      Voluntary Context Switches        11
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           272


72 rows created in WORK.NASDAQ from NASDAQ.



NOTE: WORK.NASDAQ data set was successfully created.
NOTE: The data set WORK.NASDAQ has 72 observations and 14 variables.
NOTE: PROCEDURE IMPORT used (Total process time):
      real time           0.06 seconds
      user cpu time       0.05 seconds
      system cpu time     0.01 seconds
      memory              9382.65k
      OS Memory           37408.00k
      Timestamp           11/29/2022 08:03:00 PM
      Step Count                        424  Switch Count  9
      Page Faults                       0
      Page Reclaims                     2704
      Page Swaps                        0
      Voluntary Context Switches        85
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           320


140
141        /** Import the stocks nyse file.  **/
142        FILENAME nyse "/home/u62830651/SAS_stocks_nyse.csv";
143
144        PROC IMPORT DATAFILE=nyse
145            OUT=nyse
146            DBMS=CSV
147            REPLACE;
148        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.
149         /*************************************************************************
150         *   PRODUCT:   SAS
151         *   VERSION:   9.4
152         *   CREATOR:   External File Interface
153         *   DATE:      29NOV22
154         *   DESC:      Generated SAS Datastep Code
155         *   TEMPLATE SOURCE:  (None Specified.)
156         *************************************************************************/
157            data WORK.NYSE    ;
158            %let _EFIERR_ = 0; /* set the ERROR detection macro variable */
159            infile NYSE delimiter = ',' MISSOVER DSD  firstobs=2 ;
160               informat Symbol $4. ;
161               informat Name $35. ;
162               informat Exchange $4. ;
163               informat Sector $22. ;
164               informat Price best32. ;
165               informat PricetoEarnings best32. ;
166               informat DividendYield best32. ;
167               informat EarningsperShare best32. ;
168               informat FiftytwoWeekHigh best32. ;
169               informat FiftytwoWeekLow best32. ;
170               informat MarketCap_000s best32. ;
171               informat EBITDA best32. ;
172               informat PricetoSales best32. ;
173               informat PricetoBook best32. ;
174               format Symbol $4. ;
175               format Name $35. ;
176               format Exchange $4. ;
177               format Sector $22. ;
178               format Price best12. ;
179               format PricetoEarnings best12. ;
180               format DividendYield best12. ;
181               format EarningsperShare best12. ;
182               format FiftytwoWeekHigh best12. ;
```

```
183             format FiftytwoWeekLow best12. ;
184             format MarketCap_000s best12. ;
185             format EBITDA best12. ;
186             format PricetoSales best12. ;
187             format PricetoBook best12. ;
188          input
189                      Symbol  $
190                      Name  $
191                      Exchange  $
192                      Sector  $
193                      Price
194                      PricetoEarnings
195                      DividendYield
196                      EarningsperShare
197                      FiftytwoWeekHigh
198                      FiftytwoWeekLow
199                      MarketCap_000s
200                      EBITDA
201                      PricetoSales
202                      PricetoBook
203          ;
204          if _ERROR_ then call symputx('_EFIERR_',1);  /* set ERROR detection macro variable */
205          run;

NOTE: The infile NYSE is:
      Filename=/home/u62830651/SAS_stocks_nyse.csv,
      Owner Name=u62830651,Group Name=oda,
      Access Permission=-rw-r--r--,
      Last Modified=28Nov2022:20:16:57,
      File Size (bytes)=39419

NOTE: 359 records were read from the infile NYSE.
      The minimum record length was 86.
      The maximum record length was 140.
NOTE: The data set WORK.NYSE has 359 observations and 14 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              9498.81k
      OS Memory           37148.00k
      Timestamp           11/29/2022 08:03:00 PM
      Step Count                        425  Switch Count  2
      Page Faults                       0
      Page Reclaims                     154
      Page Swaps                        0
      Voluntary Context Switches        11
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


359 rows created in WORK.NYSE from NYSE.



NOTE: WORK.NYSE data set was successfully created.
NOTE: The data set WORK.NYSE has 359 observations and 14 variables.
NOTE: PROCEDURE IMPORT used (Total process time):
      real time           0.06 seconds
      user cpu time       0.05 seconds
      system cpu time     0.01 seconds
      memory              9498.81k
      OS Memory           37408.00k
      Timestamp           11/29/2022 08:03:00 PM
      Step Count                        425  Switch Count  10
      Page Faults                       0
      Page Reclaims                     2773
      Page Swaps                        0
      Voluntary Context Switches        75
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           296


206
207        /* 1.b */
208        DATA nasdaq;
209        LENGTH Exchange $30 Symbol $30 Name $35;
210        FORMAT Exchange $30. Symbol $30. Name $35.;
211        SET nasdaq;
212        RUN;

NOTE: There were 72 observations read from the data set WORK.NASDAQ.
NOTE: The data set WORK.NASDAQ has 72 observations and 14 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              1069.65k
      OS Memory           32428.00k
      Timestamp           11/29/2022 08:03:00 PM
      Step Count                        426  Switch Count  2
      Page Faults                       0
      Page Reclaims                     121
      Page Swaps                        0
      Voluntary Context Switches        12
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


213
214        DATA nyse;
215        LENGTH Exchange $30 SYMBOL $30;
216        FORMAT Exchange $30. SYMBOL $30.;
217        SET nyse;
218        RUN;

NOTE: There were 359 observations read from the data set WORK.NYSE.
NOTE: The data set WORK.NYSE has 359 observations and 14 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              959.09k
      OS Memory           32428.00k
      Timestamp           11/29/2022 08:03:00 PM
      Step Count                        427  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


219
220        /* 1.c */
221        DATA stocks;
222        SET NYSE NASDAQ;

NOTE: There were 359 observations read from the data set WORK.NYSE.
NOTE: There were 72 observations read from the data set WORK.NASDAQ.
NOTE: The data set WORK.STOCKS has 431 observations and 14 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              1407.46k
      OS Memory           32688.00k
      Timestamp           11/29/2022 08:03:00 PM
      Step Count                        428  Switch Count  2
      Page Faults                       0
      Page Reclaims                     136
      Page Swaps                        0
      Voluntary Context Switches        12
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


223        PROC PRINT DATA = stocks;
224        RUN;

NOTE: There were 431 observations read from the data set WORK.STOCKS.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.92 seconds
      user cpu time       0.92 seconds
      system cpu time     0.00 seconds
      memory              1356.71k
      OS Memory           32168.00k
      Timestamp           11/29/2022 08:03:01 PM
      Step Count                        429  Switch Count  0
      Page Faults                       0
      Page Reclaims                     61
      Page Swaps                        0
      Voluntary Context Switches        0
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           424


225
226        /* 1.d */
```

```
227         PROC SORT DATA = stocks out=stocks;
228         by sector;
229         RUN;

NOTE: There were 431 observations read from the data set WORK.STOCKS.
NOTE: The data set WORK.STOCKS has 431 observations and 14 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              1188.43k
      OS Memory           32688.00k
      Timestamp           11/29/2022 08:03:01 PM
      Step Count                        430  Switch Count  2
      Page Faults                       0
      Page Reclaims                     126
      Page Swaps                        0
      Voluntary Context Switches        17
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           272


230
231         /* 1.e */
232         DATA SectorVolatility;
233         INFILE datalines dlm=',' dsd;
234         LENGTH Sector $22.;
235         LENGTH Sector_Volatility $30.;
236         INPUT Sector $ Sector_Volatility $ @@;
237         datalines;

NOTE: SAS went to a new line when INPUT statement reached past the end of a line.
NOTE: The data set WORK.SECTORVOLATILITY has 11 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              842.65k
      OS Memory           32168.00k
      Timestamp           11/29/2022 08:03:01 PM
      Step Count                        431  Switch Count  2
      Page Faults                       0
      Page Reclaims                     90
      Page Swaps                        0
      Voluntary Context Switches        13
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


249         ;
250         RUN;
251         PROC PRINT DATA = SectorVolatility;
252         RUN;

NOTE: There were 11 observations read from the data set WORK.SECTORVOLATILITY.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.01 seconds
      user cpu time       0.02 seconds
      system cpu time     0.00 seconds
      memory              834.25k
      OS Memory           32168.00k
      Timestamp           11/29/2022 08:03:01 PM
      Step Count                        432  Switch Count  0
      Page Faults                       0
      Page Reclaims                     61
      Page Swaps                        0
      Voluntary Context Switches        0
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           0


253
254         /* 1.f */
255         PROC SORT DATA = SectorVolatility out=SectorVolatility;
256         by sector;
257         RUN;

NOTE: There were 11 observations read from the data set WORK.SECTORVOLATILITY.
NOTE: The data set WORK.SECTORVOLATILITY has 11 observations and 2 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              1074.68k
      OS Memory           32688.00k
```

```
      Timestamp           11/29/2022 08:03:01 PM
      Step Count                        433  Switch Count  2
      Page Faults                       0
      Page Reclaims                     147
      Page Swaps                        0
      Voluntary Context Switches        12
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           272


258
259        /* 1.g */
260        DATA stocks2;
261        MERGE stocks SectorVolatility;

NOTE: There were 431 observations read from the data set WORK.STOCKS.
NOTE: There were 11 observations read from the data set WORK.SECTORVOLATILITY.
NOTE: The data set WORK.STOCKS2 has 431 observations and 15 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              1318.84k
      OS Memory           32688.00k
      Timestamp           11/29/2022 08:03:01 PM
      Step Count                        434  Switch Count  2
      Page Faults                       0
      Page Reclaims                     133
      Page Swaps                        0
      Voluntary Context Switches        10
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


262        PROC SORT DATA = stocks2 out=stocks2;
263        by sector;
264        RUN;

NOTE: There were 431 observations read from the data set WORK.STOCKS2.
NOTE: The data set WORK.STOCKS2 has 431 observations and 15 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              1188.62k
      OS Memory           32688.00k
      Timestamp           11/29/2022 08:03:01 PM
      Step Count                        435  Switch Count  2
      Page Faults                       0
      Page Reclaims                     123
      Page Swaps                        0
      Voluntary Context Switches        9
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           272


265        PROC PRINT DATA = stocks2;
266        RUN;

NOTE: There were 431 observations read from the data set WORK.STOCKS2.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           1.00 seconds
      user cpu time       1.01 seconds
      system cpu time     0.00 seconds
      memory              927.34k
      OS Memory           32168.00k
      Timestamp           11/29/2022 08:03:02 PM
      Step Count                        436  Switch Count  0
      Page Faults                       0
      Page Reclaims                     61
      Page Swaps                        0
      Voluntary Context Switches        0
      Involuntary Context Switches      1
      Block Input Operations            0
      Block Output Operations           448


267
268
269
270        /* Task 2 */
271        /* 2.2 */
272        DATA STOCKS_DIVFIX;
273        SET STOCKS2;
274        IF DividendYield = . THEN DividendYield = 0;
```

```
NOTE: There were 431 observations read from the data set WORK.STOCKS2.
NOTE: The data set WORK.STOCKS_DIVFIX has 431 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              957.68k
      OS Memory           32428.00k
      Timestamp           11/29/2022 08:03:02 PM
      Step Count                        437  Switch Count  2
      Page Faults                       0
      Page Reclaims                     98
      Page Swaps                        0
      Voluntary Context Switches        13
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


275        PROC PRINT DATA = stocks_divfix;
276        RUN;

NOTE: There were 431 observations read from the data set WORK.STOCKS_DIVFIX.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           1.04 seconds
      user cpu time       1.03 seconds
      system cpu time     0.02 seconds
      memory              833.46k
      OS Memory           32168.00k
      Timestamp           11/29/2022 08:03:03 PM
      Step Count                        438  Switch Count  0
      Page Faults                       0
      Page Reclaims                     60
      Page Swaps                        0
      Voluntary Context Switches        0
      Involuntary Context Switches      1
      Block Input Operations            0
      Block Output Operations           456


277
278        /* 2.3 */
279        DATA STOCKS_CLEAN;
280        SET STOCKS_DIVFIX;
281        IF PricetoEarnings = . THEN DELETE;
282        IF PricetoBook = . THEN DELETE;

NOTE: There were 431 observations read from the data set WORK.STOCKS_DIVFIX.
NOTE: The data set WORK.STOCKS_CLEAN has 423 observations and 15 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              958.65k
      OS Memory           32428.00k
      Timestamp           11/29/2022 08:03:03 PM
      Step Count                        439  Switch Count  2
      Page Faults                       0
      Page Reclaims                     98
      Page Swaps                        0
      Voluntary Context Switches        17
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


283        PROC PRINT DATA = STOCKS_CLEAN;
284        RUN;

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.99 seconds
      user cpu time       1.00 seconds
      system cpu time     0.00 seconds
      memory              721.46k
      OS Memory           32168.00k
      Timestamp           11/29/2022 08:03:04 PM
      Step Count                        440  Switch Count  0
      Page Faults                       0
      Page Reclaims                     60
      Page Swaps                        0
      Voluntary Context Switches        0
      Involuntary Context Switches      1
      Block Input Operations            0
      Block Output Operations           432
```

```
285
286
287
288         /* Task 3 */
289         /* 3.4 */
290         DATA stocks_clean;
291         SET stocks_clean;
292         Spread=FiftytwoWeekHigh-FiftytwoWeekLow;

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.
NOTE: The data set WORK.STOCKS_CLEAN has 423 observations and 16 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              960.43k
      OS Memory           32428.00k
      Timestamp           11/29/2022 08:03:04 PM
      Step Count                        441  Switch Count  2
      Page Faults                       0
      Page Reclaims                     98
      Page Swaps                        0
      Voluntary Context Switches        15
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


293         PROC PRINT DATA = STOCKS_CLEAN;
294         RUN;

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           1.07 seconds
      user cpu time       1.05 seconds
      system cpu time     0.01 seconds
      memory              838.62k
      OS Memory           32168.00k
      Timestamp           11/29/2022 08:03:05 PM
      Step Count                        442  Switch Count  0
      Page Faults                       0
      Page Reclaims                     60
      Page Swaps                        0
      Voluntary Context Switches        3
      Involuntary Context Switches      1
      Block Input Operations            0
      Block Output Operations           464


295
296         /* 3.5 */
297         DATA stocks_clean;
298         SET stocks_clean;
299         LENGTH Earnings_Category $6.;
300         IF EarningsperShare<0 THEN Earnings_Category = "Loss";
301         IF EarningsperShare>=0 AND EarningsperShare<3 THEN Earnings_Category = "Small";
302         IF EarningsperShare>=3 AND EarningsperShare<10 THEN Earnings_Category = "Good";
303         IF EarningsperShare>=10 THEN Earnings_Category = "Strong";

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.
NOTE: The data set WORK.STOCKS_CLEAN has 423 observations and 17 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              1076.53k
      OS Memory           32428.00k
      Timestamp           11/29/2022 08:03:05 PM
      Step Count                        443  Switch Count  2
      Page Faults                       0
      Page Reclaims                     97
      Page Swaps                        0
      Voluntary Context Switches        16
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


304         PROC PRINT DATA = STOCKS_CLEAN;
305         RUN;

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           1.08 seconds
      user cpu time       1.09 seconds
      system cpu time     0.01 seconds
      memory              846.37k
      OS Memory           32168.00k
```

```
      Timestamp           11/29/2022 08:03:07 PM
      Step Count                        444  Switch Count  0
      Page Faults                       0
      Page Reclaims                     61
      Page Swaps                        0
      Voluntary Context Switches        0
      Involuntary Context Switches      8
      Block Input Operations            0
      Block Output Operations           496


306
307        /* 3.6 */
308        DATA dividends;
309        SET stocks_clean;
310        KEEP Symbol Name Exchange Sector DividendYield;
311        WHERE DividendYield > 0;
312        IF DividendYield = 0 THEN DELETE;

NOTE: There were 365 observations read from the data set WORK.STOCKS_CLEAN.
      WHERE DividendYield>0;
NOTE: The data set WORK.DIVIDENDS has 365 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              971.18k
      OS Memory           32428.00k
      Timestamp           11/29/2022 08:03:07 PM
      Step Count                        445  Switch Count  5
      Page Faults                       0
      Page Reclaims                     111
      Page Swaps                        0
      Voluntary Context Switches        22
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           264


313        PROC PRINT DATA = dividends;
314        RUN;

NOTE: There were 365 observations read from the data set WORK.DIVIDENDS.
NOTE: PROCEDURE PRINT used (Total process time):
      real time           0.37 seconds
      user cpu time       0.38 seconds
      system cpu time     0.00 seconds
      memory              845.68k
      OS Memory           32168.00k
      Timestamp           11/29/2022 08:03:07 PM
      Step Count                        446  Switch Count  0
      Page Faults                       0
      Page Reclaims                     60
      Page Swaps                        0
      Voluntary Context Switches        0
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           144


315
316
317
318        /* Task 4 */
319        /* 4.7 */
320        PROC FREQ DATA=stocks_clean;
321            TABLE Sector;
322        RUN;

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.
NOTE: PROCEDURE FREQ used (Total process time):
      real time           0.02 seconds
      user cpu time       0.02 seconds
      system cpu time     0.00 seconds
      memory              933.93k
      OS Memory           32428.00k
      Timestamp           11/29/2022 08:03:07 PM
      Step Count                        447  Switch Count  2
      Page Faults                       0
      Page Reclaims                     119
      Page Swaps                        0
      Voluntary Context Switches        17
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           280


323
```

```
324         /* 4.8 */
325         proc sgplot data=stocks_clean;
326          vbar Sector;
327         run;

NOTE: PROCEDURE SGPLOT used (Total process time):
      real time           0.11 seconds
      user cpu time       0.06 seconds
      system cpu time     0.01 seconds
      memory              7641.62k
      OS Memory           37168.00k
      Timestamp           11/29/2022 08:03:07 PM
      Step Count                        448  Switch Count  2
      Page Faults                       0
      Page Reclaims                     1514
      Page Swaps                        0
      Voluntary Context Switches        176
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           632

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.

328
329         /* 4.9 */
330         PROC MEANS DATA=stocks_clean MEAN MEDIAN;
331         var Price;
332         by Sector;
333         RUN;

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.
NOTE: PROCEDURE MEANS used (Total process time):
      real time           0.05 seconds
      user cpu time       0.05 seconds
      system cpu time     0.00 seconds
      memory              2004.54k
      OS Memory           37292.00k
      Timestamp           11/29/2022 08:03:07 PM
      Step Count                        449  Switch Count  12
      Page Faults                       0
      Page Reclaims                     215
      Page Swaps                        0
      Voluntary Context Switches        34
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           16


334
335         /* 4.10 */
336         proc sgplot data=stocks_clean;
337         histogram EarningsperShare;
338         run;

NOTE: PROCEDURE SGPLOT used (Total process time):
      real time           0.08 seconds
      user cpu time       0.04 seconds
      system cpu time     0.01 seconds
      memory              2231.21k
      OS Memory           37424.00k
      Timestamp           11/29/2022 08:03:07 PM
      Step Count                        450  Switch Count  1
      Page Faults                       0
      Page Reclaims                     359
      Page Swaps                        0
      Voluntary Context Switches        132
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           400

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.

339
340         /* 4.11 */
341         proc sgplot data=stocks_clean;
342         hbox FiftytwoWeekHigh;
343         run;

NOTE: PROCEDURE SGPLOT used (Total process time):
      real time           0.09 seconds
      user cpu time       0.04 seconds
      system cpu time     0.00 seconds
      memory              2294.21k
      OS Memory           37424.00k
      Timestamp           11/29/2022 08:03:07 PM
      Step Count                        451  Switch Count  1
      Page Faults                       0
      Page Reclaims                     294
```

```
      Page Swaps                        0
      Voluntary Context Switches        238
      Involuntary Context Switches      0
      Block Input Operations            0
      Block Output Operations           408

NOTE: There were 423 observations read from the data set WORK.STOCKS_CLEAN.

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364        OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
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```