商管程式設計（107-2）

第二次期中考

題目設計：盧信銘

國立台灣大學資管系

截止時間：2019 年 5 月 6 日下午 12 點 10 分

程式請上傳至 PDOGS (http://pdogs.ntu.im/judge/)。為各題上傳一份 Python 3.5 原始碼 (以複製貼上原始碼的方式上傳)。題目自己做。不接受紙本繳交，不接受遲交。請以英文或中文作答。作弊被確認者，整門課的成績將直接被評為 F，沒有第二種可能（也不能停修）。

本次期中考共有四題，總分最高一百分。如果你各題的分數加起來超過一百分的話，會以一百分計算。

所有題目的分數都由程式運算的正確性給分，一筆測試資料佔 2 分。你可以使用任何方法回答問題 (包含課堂上沒教的)。你可以使用 Python 內建的模組，如 math, datetime, csv, sys 等。然而，你不可以使用非 Python 內建的模組 (比如說 csvsorter, numpy 或 sklearn 等)，如有使用當題以 0 分計算。

第一題

(30 points) [生日星期幾] 寫一個程式，由使用者輸入生日資料，資料格式為 Year/Month/Day (如 2002/12/11)，每行一筆資料。你的程式必須不斷的由使用者讀入資料，直到使用者輸入 "BREAK" 為止。計算在這些資料中，有幾個日期是在星期一、星期二、...、星期六、星期日。然後輸出。輸出的格式範例如下

```
1 23
2 40
3 50
4 12
5 56
6 29
7 7
```

輸出共七行，各代表星期一(1)至星期日(7)。每行的第一個數字代表是星期幾，第二個數字代表有幾個。兩個數字間應有一個空格。如果輸入的資料不符合預期格式，應輸出 "DATA_ERROR"。

範例輸入

```
2019/04/01
2019/04/02
2019/04/03
2019/4/4
2019/4/5
2019/4/6
2019/4/7
```

```
2019/4/8
2019/4/9
2019/4/10
2029/4/11
2020/4/22
2020/4/23
BREAK
```

範例輸出

```
1 2
2 2
3 4
4 2
5 1
6 1
7 1
```

範例輸入

```
BREAK
```

範例輸出

```
1 0
2 0
3 0
4 0
5 0
6 0
7 0
```

範例輸入

```
101/1/2
102-3-4
BREAK
```

範例輸出

```
DATA_ERROR
```

第二題

(30 points) [去週期性] 在處理時間數列的資料時，我們時常會遇到數列有週期性。去除週期性的方法有很多，本題將考慮一個使用歷史中位數的去週期性方法。假設我們要處理週期為 C 的時間數列，則我們去週期性的方法為

$x_t = y_t - median([y_{t-c}, y_{t-2c}, y_{t-3c}, y_{t-4c}, y_{t-5c}])$，
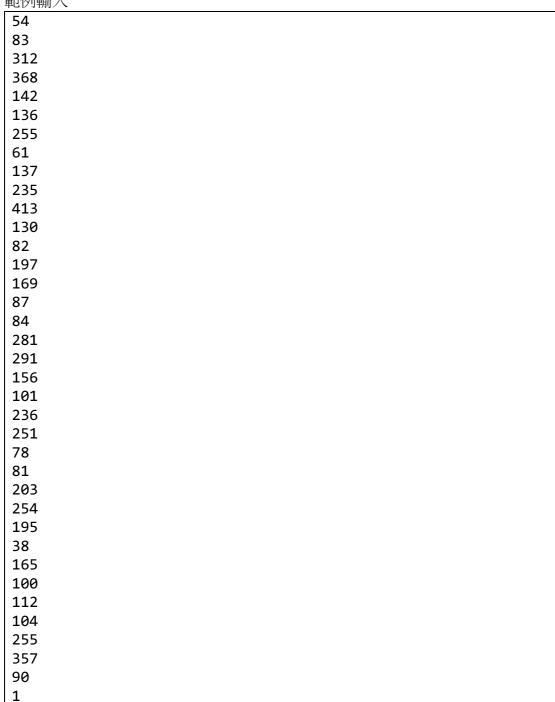
其中$y_1, y_2, \ldots, y_T$為一個時間數列，我們針對第 t 期的資料y_t 減去過去五個位在同一個週期位置的資料的中位數，得到第 t 期去週期的時間數列值x_t。

為了簡化問題，我們考慮的週期為 7 (C=7)。

寫一個程式，由使用者讀入一個時間數列，然後輸出去週期性的時間數列。讀入資料時每行一筆，直到遇到 "BREAK"為止。輸出時應去除前 C 期的資料，由第 C+1 期開始輸出。如果資料的歷史不足五個，則使用可取得的部分套入去週期性公式。比如說，如果要處理第 8 期的資料，則計算$x_8 = y_8 - y_1$。另外集合個數為偶數時，取位在中間的兩個數的平均數為中位數。

輸出時每行一個數字，四捨五入至小數第二位。如果輸入的資料含有非數值資料，則輸出 "DATA_ERROR"。如果資料內容皆為數值資料但小於八筆，則輸出 "NOT_ENOUGH_DATA"。

範例輸入

```
54
83
312
368
142
136
255
61
137
235
413
130
82
197
169
87
84
281
291
156
101
236
251
78
81
203
254
195
38
165
100
112
104
255
357
90
1
```

154
162
123
109
212
266
123
162
248
158
78
98
305
367
237
39
197
129
82
116
207
418
100
54
269
228
212
141
264
320
73
128
194
265
217
77
341
356
93
10
230
241
86
54
363
328
117
92
208

```
200
149
155
335
419
164
176
130
239
135
106
301
336
128
BREAK
```

範例輸出

```
7.00
54.00
-77.00
45.00
-12.00
-54.00
-58.00
111.50
-23.00
-189.50
-109.50
155.00
47.00
-125.00
175.00
164.00
-157.00
-287.00
61.00
118.00
-2.00
-77.00
53.00
-59.50
-212.50
-68.50
109.00
161.00
29.00
-136.00
54.00
-119.00
```

```
-19.00
-47.00
15.00
176.00
-14.00
62.00
86.00
28.00
-78.00
-99.00
136.00
244.00
137.00
-123.00
39.00
-27.00
-113.00
-120.00
42.00
264.00
-12.00
-104.00
140.00
33.00
96.00
-24.00
102.00
208.00
-50.00
-1.00
-18.00
53.00
76.00
-160.00
179.00
233.00
-35.00
-184.00
-35.00
34.00
-151.00
-194.00
205.00
200.00
19.00
-138.00
-9.00
-37.00
49.00
```

```
-42.00
206.00
302.00
-48.00
-32.00
-70.00
90.00
-20.00
-163.00
107.00
124.00
-80.00
```

範例輸入

```
97
71
257
368
184
108
269
154
149
279
352
77
78
264
207
85
100
235
298
185
19
209
105
169
103
322
293
192
125
157
113
199
182
368
283
```

213
1
119
254
138
163
355
255
159
115
150
181
105
168
218
314
86
180
119
140
167
125
330
303
141
156
260
137
183
58
224
332
144
1
220
268
147
109
251
246
165
175
159
187
163
38
356
371
173

171
264
208
150
98
272
388
236
94
137
126
206
31
322
319
228
85
143
240
98
168
297
278
161
59
193
242
212
102
243
304
128
89
166
188
203
57
378
412
75
89
133
104
193
182
329
398
233
74

```
108
269
102
165
289
260
116
1
192
221
114
126
246
352
84
179
BREAK
```

範例輸出

```
57.00
78.00
22.00
-16.00
-107.00
-30.00
-5.00
81.50
-25.00
-168.00
-125.00
167.50
92.00
-247.50
55.00
20.00
-88.00
-249.00
138.00
185.00
-72.00
-55.50
62.00
-100.00
-94.50
-59.00
221.50
55.00
59.00
-104.00
```

-50.00
19.00
-46.00
-22.00
91.00
48.00
54.00
-4.00
-85.00
-1.00
-80.00
-96.00
9.00
209.00
-29.00
-19.00
-63.00
-45.00
-25.00
-88.00
173.00
188.00
-39.00
-25.00
97.00
-55.00
-30.00
-101.00
109.00
152.00
-12.00
-162.00
52.00
55.00
-12.00
-10.00
71.00
102.00
25.00
7.00
-59.00
28.00
48.00
-142.00
200.00
231.00
5.00
-12.00
77.00

45.00
-30.00
-58.00
107.00
215.00
65.00
-93.00
-71.00
-24.00
50.00
-229.00
147.00
136.00
81.00
-78.00
-7.00
34.00
-67.00
-52.00
61.00
91.00
24.00
-84.00
-47.00
77.00
37.00
-134.00
15.00
143.00
2.00
-117.00
-76.00
-24.00
-33.00
-186.00
217.00
284.00
-118.00
-77.00
-79.00
-132.00
-35.00
21.00
201.00
205.00
135.00
-114.00
-95.00
41.00

```
-80.00
22.00
96.00
94.00
-52.00
-107.00
-51.00
39.00
-51.00
-67.00
13.00
219.00
-20.00
-14.00
```

範例輸入
```
1
2
3
4
5
6
7
2
3
4
5
6
7
8
3
4
5
BREAK
```

範例輸出
```
1.00
1.00
1.00
1.00
1.00
1.00
1.00
1.50
1.50
1.50
```

範例輸入
```
1
```

```
2
4
DD
BREAK
```

範例輸出

```
DATA_ERROR
```

第三題

(30 points) [數字列] 寫一個程式，由使用者讀入一個文字檔的檔名，然後找尋檔案中包含最多數字與相關符號的列，依序（由多到少）印出其中十列，並在每列前以"@line_no: "註明其原本的列號（由 1 開始）。原文內容右方之空白（包含半形空格、tab 和換行符號）應移除。除此之外，不對內容做其他修改。如果有兩行的數字與相關符號與數量相同，依照其在文件中出現的先後排序。
文字檔是 UTF-8 編碼，且保證超過 10 列。我們定義數字與相關符號為下列字元：0123456789(),$

範例輸入

```
testfile1.txt
```

範例輸出

```
@831: Net Sales                                          $
72,167,233      $ 62,445,175        $ 38,744,129       $
23,214,020      $ 21,051,818
@838: Total Assets                                       $
12,879,737      $ 13,350,996        $ 10,205,006       $
6,432,589      $   5,783,427
@840: Long-term debt                                     $
5,576,663      $   5,597,490       $   3,119,578      $   1,128,977
$   1,208,864
@833: Income (loss) from continuing operations        $
302,984      $ (2,249,967)      $     537,529      $     191,627
$    (882,977)
@2709: Balance at June 30, 2001
4,065,612      $        4,066      $   7,269,556      $
(276,000)
@3464:      approximately $6,000, $0.00 and $0.00,
($2,497,000), ($0.63) and ($0.63) and
@3644: June 30, 2001                                     $
100,436        $       142,134        $       (85,915)        $
156,655
@2704: Balance at June 24, 2000
4,065,612            4,066          7,269,556
(276,000)
@2726: Balance at June 27, 1998                          $
(2,366,718)   $        13,477      $   2,175,441
```

```
@3517: 30, 2001, June 24, 2000 and June 26, 1999 was $1.36,
$2.84 and $1.87,
```

範例輸入

```
testfile2.txt
```

範例輸出

```
@2093: Balance at December 31, 1993     $69,406  $19,470,767
$(7,440,916)  $12,099,257
@2134: Balance at December 31, 1996     $87,758  $37,234,277
$  (929,496)  $36,392,539
@1287: 1995, and 1994 of $4,694,000, $3,604,000 and
$1,785,000,  respectively. The 1996
@1964:  of $141,504 in 1996, $93,491 in 1995 (Note 3)
9,377,777      9,233,015
@2106: Balance at December 31, 1994     70,390   19,519,056
(4,804,785)   14,784,661
@2126: Balance at December 31, 1995     87,216   37,060,652
(4,250,739)   32,897,129
@852: 1995  and 1994  were  approximately  $15,968,000,
$11,697,000  and  $9,566,000,
@1196: $9,846,000,  from $8,712,000 in 1995 and increased
20.6% in 1995 from $7,222,000
@1564: Daniel P. Sharkey    4,000   50,222   69,875  21,000
1,103,247      214,750
@1565: Ward C. Stevens ..   9,375  121,245   74,725   5,400
1,231,315       44,850
```

範例輸入

```
testfile3.txt
```

範例輸出

```
@2125: Balances, December 31, 1993.......   1,891,663     $ 19
1,108,625   $ 11    $  5,235    $ (3,623) $ 1,642
@1365: Sales.........................   $ 2,088     $2,166
$ 2,092    $2,455     $2,417     $2,486     $2,635
$4,826
@2130: Balances, December 31, 1994.......   1,891,663      19
1,164,817      12       5,243     (1,838)   3,436
@2136: Balances, December 31, 1995.......   1,891,663      19
1,505,424      15       5,489      (838)    4,685
@1392:   calculation(1).............    4,525       4,549
4,558     4,700     5,697     6,758      6,750
6,708
@1295: 73.3% in 1996 to $1,286,000 and by 18.0% in 1995 to
$742,000 from $629,000 in
```

```
@1368:    Gross profit.................    1,396       1,421
1,445        1,741       1,485        1,538        1,667
2,775
@1378:      Total operating expenses...    1,024       1,109
1,094        1,382       1,326        1,440        1,490
2,227
@2147: Balances, December 31, 1996.......              --     $ --
6,350,180    $ 63       $ 21,248    $    167     $21,478
@2697: $ 0.166 - $14.880       633,244                      8.13
$  3.490          245,284              $0.858
```

第四題

(30 points) [日月轉換] 小珍需要處理由資料庫取得的資料檔。這個資料檔是使用 "CP950"編碼、<TAB>分隔欄位。每個檔案是一隻股票的日資料，包含證券代碼、簡稱、年月日、開盤價(元)、最高價(元)、最低價(元)、收盤價(元)、成交值(千元)。小珍的任務是將日資料轉換成月資料。轉換後用每月的第一個交易日作為一筆資料的日期，月的開盤價是當月第一個交易日的開盤價，最高價是當月所有交易日中最高價的最高價，最低價是當月所有交易日中最低價的最低價。收盤價是當月最後一個交易日的收盤價。成交值是當月所有交易日的成交值總和。下面是一家公司的範例資料。資料已經照日期排序。

證券代碼	簡稱	年月日	開盤價(元)		最高價(元)		最低價(元)
	收盤價(元)	成交值(千元)					
4938	和碩	20110103	29.32	29.42	29.21	29.28	89508
4938	和碩	20110104	29.42	29.56	29.28	29.42	107340
4938	和碩	20110105	29.42	29.42	28.16	28.72	193077
4938	和碩	20110106	28.93	29.00	28.02	28.20	259533
4938	和碩	20110107	28.02	28.16	27.22	27.32	330576
4938	和碩	20110110	27.60	27.99	26.76	27.11	292461
4938	和碩	20110111	27.22	27.95	27.08	27.81	207006
4938	和碩	20110112	27.99	28.09	27.46	27.50	182466
4938	和碩	20110113	27.99	28.16	27.67	28.02	340223

請寫一個程式，讓小珍可以依照上述的規則處理資料。這個程式由 input()讀入資料檔檔案路徑，然後對這個資料檔檔案內容處理之後印出結果。印出結果時不需列印標題列，且只需列印下面欄位：證券代碼、年月日、開盤價(元)、最高價(元)、最低價(元)、收盤價(元)、成交值(千元)。所有價格應列印兩位小數，交易量為整數，沒有小數點。日期應為 YYYYMMDD 格式 (與原來的格式相同)。欄位間用逗點分隔，除資料值外不能有多餘空白。輸出資料應依照日期排序。
範例資料請見附檔。

範例輸入
```
stock1.txt
```

範例輸出

```
4938,20110103,29.32,29.56,26.66,28.09,4318643
4938,20110208,28.09,28.20,23.50,24.52,4873806
4938,20110301,24.66,25.36,21.33,23.36,6501906
4938,20110401,23.47,24.48,20.88,21.16,3455453
4938,20110503,21.02,22.14,20.39,21.61,3471850
4938,20110601,21.61,22.73,19.62,20.84,2971961
4938,20110701,20.84,25.22,20.32,23.22,7599233
4938,20110801,23.47,24.10,17.30,19.69,4031329
4938,20110901,19.72,22.71,18.63,21.12,3512899
4938,20111003,20.49,25.62,19.86,24.22,4004822
4938,20111101,23.70,25.03,19.86,22.93,3753742
4938,20111201,24.37,25.11,22.15,24.33,3339271
4938,20120102,24.11,27.76,23.92,26.43,5516991
4938,20120201,26.43,29.76,26.21,29.54,7927719
4938,20120301,29.54,35.52,27.69,33.97,15693534
4938,20120402,33.49,34.41,30.75,31.23,8536427
4938,20120502,31.23,32.82,29.24,30.61,10965123
4938,20120601,30.27,32.49,27.69,28.72,9832057
4938,20120702,28.61,29.83,24.96,29.02,9651003
4938,20120801,28.98,31.46,26.69,27.73,10378630
4938,20120903,27.73,30.31,27.43,28.17,8220312
4938,20121001,28.21,30.86,26.29,27.25,9911370
4938,20121101,26.58,29.46,25.99,27.99,9082106
4938,20121203,27.99,28.17,26.51,27.73,5203118
4938,20130102,27.80,30.27,27.65,28.87,8493698
4938,20130201,28.87,30.53,28.72,29.54,4241907
4938,20130301,29.54,34.11,29.20,34.11,11574969
4938,20130401,33.82,35.96,31.75,35.66,15528722
4938,20130502,35.89,40.91,35.22,40.09,16293318
4938,20130603,39.50,39.87,34.56,36.55,10464923
4938,20130701,36.55,38.91,32.67,32.71,14460531
4938,20130801,32.71,35.96,32.30,34.19,8804118
4938,20130902,33.97,34.89,30.09,31.16,12602584
4938,20131001,31.38,32.75,29.84,31.30,8966212
4938,20131101,31.76,31.99,25.90,28.16,8813567
4938,20131202,28.16,29.73,27.17,29.39,5961157
4938,20140102,29.31,32.98,28.96,30.50,7743615
4938,20140205,29.16,31.76,28.93,31.15,5122580
4938,20140303,30.99,34.70,30.76,34.70,10189346
4938,20140401,34.82,36.12,33.98,35.01,9383300
4938,20140502,35.28,45.00,35.05,44.38,18471366
4938,20140603,45.15,45.15,40.79,43.62,13036772
4938,20140701,43.77,48.06,42.39,44.00,15847865
4938,20140801,43.24,49.51,42.09,48.52,12871429
4938,20140901,49.36,49.36,42.90,44.82,16049080
4938,20141001,44.58,46.50,40.18,44.18,15771883
```

```
4938,20141103,43.86,60.26,43.22,57.46,27990108
4938,20141201,56.50,60.18,54.66,58.42,21643681
4938,20150105,58.42,69.23,57.06,68.03,23177715
4938,20150202,67.15,70.59,62.74,68.99,16103259
4938,20150302,69.31,74.43,66.99,67.79,22152871
4938,20150401,67.31,76.03,66.18,73.07,15071439
4938,20150504,73.95,75.87,70.43,73.31,14559507
4938,20150601,73.31,73.55,67.71,72.27,13516776
4938,20150701,71.87,78.75,64.82,71.07,18907503
4938,20150803,72.03,76.71,59.69,70.59,24096478
4938,20150901,71.18,74.20,66.32,67.24,13375976
4938,20151001,68.16,72.44,65.56,66.90,22928397
4938,20151102,66.23,72.52,65.81,72.18,16899344
4938,20151201,72.44,74.87,60.53,61.37,15081918
```

範例輸入

```
stock2.txt
```

範例輸出

```
1417,20110103,11.01,11.84,9.95,10.22,1723182
1417,20110208,10.32,10.69,9.21,9.67,453302
1417,20110301,9.67,9.76,8.07,9.19,450208
1417,20110401,9.19,10.13,9.19,9.39,425042
1417,20110503,9.34,9.76,8.68,9.02,289562
1417,20110601,9.09,9.10,8.30,8.68,135035
1417,20110701,8.68,10.27,8.65,9.81,796982
1417,20110801,9.99,10.36,8.06,9.53,866166
1417,20110901,9.53,9.62,7.58,7.79,255565
1417,20111003,7.64,8.60,7.45,8.37,220186
1417,20111101,8.37,8.88,7.89,8.23,442764
1417,20111201,8.60,8.64,7.12,7.68,221640
1417,20120102,7.68,8.21,7.64,8.10,288276
1417,20120201,8.10,10.59,8.10,10.36,1573612
1417,20120301,10.18,10.64,8.74,9.09,1033548
1417,20120402,9.09,9.21,7.96,9.21,346020
1417,20120502,9.34,9.76,8.35,9.34,417885
1417,20120601,9.30,9.53,8.51,9.14,271098
1417,20120702,9.19,10.13,9.18,10.13,486227
1417,20120801,10.13,10.87,9.71,9.90,1041701
1417,20120903,9.85,10.22,9.53,9.58,485679
1417,20121001,9.58,9.99,8.47,8.53,410709
1417,20121101,8.51,8.83,8.13,8.69,228377
1417,20121203,8.72,9.23,8.59,8.84,386379
1417,20130102,8.97,9.34,8.64,8.69,246106
1417,20130201,8.79,8.82,8.49,8.51,90644
1417,20130301,8.56,8.74,8.25,8.64,179504
1417,20130401,8.69,8.82,8.38,8.77,186228
1417,20130502,8.77,9.11,8.68,8.84,333558
1417,20130603,8.75,8.85,8.42,8.56,126672
```

```
1417,20130701,8.52,8.97,8.49,8.82,184039
1417,20130801,8.82,8.88,8.17,8.25,110749
1417,20130902,8.28,8.71,8.25,8.51,94939
1417,20131001,8.53,9.22,8.53,8.65,256102
1417,20131101,8.69,8.69,8.18,8.31,156854
1417,20131202,8.32,8.79,8.25,8.47,249762
1417,20140102,8.48,8.84,8.23,8.27,320136
1417,20140205,8.20,8.46,8.20,8.27,117240
1417,20140303,8.27,8.35,7.97,8.27,133293
1417,20140401,8.27,8.32,7.81,7.87,93286
1417,20140502,7.91,8.27,7.85,8.20,129147
1417,20140603,8.22,8.53,7.97,8.24,244876
1417,20140701,8.25,8.58,8.14,8.48,205976
1417,20140801,8.42,8.50,8.08,8.27,89949
1417,20140901,8.27,8.32,8.00,8.08,69930
1417,20141001,8.09,8.26,7.40,7.79,75235
1417,20141103,7.79,7.93,7.51,7.60,49596
1417,20141201,7.52,8.15,7.50,8.04,106020
1417,20150105,8.01,8.15,7.80,7.88,68047
1417,20150202,7.82,8.64,7.82,8.64,151278
1417,20150302,8.75,8.85,8.10,8.17,284624
1417,20150401,8.12,9.04,8.06,8.82,321779
1417,20150504,8.76,8.78,7.46,7.73,203015
1417,20150601,7.73,7.97,6.70,7.10,127221
1417,20150701,7.13,7.54,6.24,6.90,84048
1417,20150803,6.81,6.97,5.19,5.59,76702
1417,20150901,5.55,6.14,5.54,5.79,65332
1417,20151001,5.75,6.25,5.72,5.88,96545
1417,20151102,5.84,6.05,4.80,4.87,77320
1417,20151201,4.88,5.54,4.46,5.23,157675
```

範例輸入
```
stock3.txt
```

範例輸出
```
1503,20110103,30.77,31.11,29.09,29.40,572134
1503,20110208,29.40,29.55,26.92,27.42,363244
1503,20110301,27.45,28.18,26.05,27.65,605806
1503,20110401,27.68,28.18,26.24,27.42,586081
1503,20110503,27.45,28.67,27.26,27.99,375529
1503,20110601,27.99,28.14,26.77,27.57,419856
1503,20110701,27.72,29.09,27.45,28.34,532284
1503,20110801,28.74,29.45,23.78,26.22,559309
1503,20110901,26.22,26.46,23.46,24.49,271578
1503,20111003,24.09,25.20,23.70,24.64,151940
1503,20111101,24.68,25.67,23.70,23.78,167944
1503,20111201,24.05,25.20,23.27,25.20,201460
1503,20120102,25.12,25.59,24.49,25.35,125718
1503,20120201,25.43,26.57,25.35,26.06,233054
```

```
1503,20120301,26.14,26.53,25.23,25.55,203271
1503,20120402,25.59,28.27,24.72,27.40,385576
1503,20120502,27.48,27.99,26.69,27.99,167092
1503,20120601,27.91,27.99,26.61,27.64,120494
1503,20120702,27.64,28.40,27.32,28.28,194049
1503,20120801,28.08,28.52,28.04,28.36,146571
1503,20120903,28.36,30.15,28.16,28.36,148228
1503,20121001,28.52,30.52,27.42,28.28,254556
1503,20121101,27.87,29.58,27.71,29.30,190219
1503,20121203,29.30,29.42,27.99,29.34,123171
1503,20130102,29.34,29.42,28.81,29.09,87280
1503,20130201,29.14,29.34,29.01,29.26,64341
1503,20130301,29.30,29.30,27.02,29.01,130604
1503,20130401,28.77,29.99,28.52,28.97,123810
1503,20130502,28.89,29.42,28.77,29.09,134999
1503,20130603,28.81,29.46,28.28,28.81,205747
1503,20130701,28.52,29.57,28.32,29.52,206213
1503,20130801,29.52,30.24,29.11,30.20,113277
1503,20130902,30.28,31.12,30.11,31.12,168873
1503,20131001,31.03,32.42,30.99,31.16,186991
1503,20131101,31.16,31.96,30.87,31.62,92797
1503,20131202,31.62,31.87,31.29,31.87,100728
1503,20140102,31.87,32.04,31.16,31.71,90839
1503,20140205,31.62,31.75,31.12,31.29,113027
1503,20140303,31.24,31.54,30.62,31.16,156104
1503,20140401,31.16,31.33,29.73,30.62,213940
1503,20140502,30.70,31.03,30.36,30.66,118644
1503,20140603,30.62,31.71,30.45,31.62,141402
1503,20140701,31.66,35.36,31.29,34.76,368153
1503,20140801,33.93,36.45,33.02,35.76,551672
1503,20140901,35.71,36.10,35.02,35.93,133498
1503,20141001,35.76,35.93,33.67,34.54,151919
1503,20141103,34.54,34.84,34.19,34.71,83145
1503,20141201,34.32,34.80,33.93,34.36,112075
1503,20150105,34.36,34.62,33.67,34.54,77366
1503,20150202,34.54,34.80,34.28,34.71,41491
1503,20150302,34.62,35.06,34.45,34.76,63222
1503,20150401,34.62,36.36,34.45,36.06,112760
1503,20150504,36.36,36.36,32.97,33.23,300248
1503,20150601,33.32,33.67,32.88,33.41,145271
1503,20150701,33.41,34.17,33.15,33.98,88802
1503,20150803,33.71,35.16,33.44,35.16,145090
1503,20150901,35.12,36.56,34.93,36.20,126549
1503,20151001,36.20,36.65,35.79,36.11,40105
1503,20151102,36.11,36.56,34.71,35.84,56377
1503,20151201,35.43,36.11,35.07,35.93,64072
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