Assignemnt 8: Mongo Stocks 1

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1   Write-Up

Names of files:
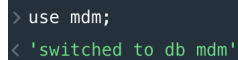phase1.js - code for phase 1
phase2.js - code for phase 2

Downloading the data:
In order to download the data I had to loop through the multidimensional array
and add each array as I was not able to add the multidimensional array in one
step. To get around the dot issue I simply removed the "." from all keys, but
from none of the values through a find and replace in the json file provided.

The Query:
Initially I decided to use an aggregation that prints the _id as "Company Name",
print the min stock price of each company, and print its corresponding date.
However, I had trouble printing its corresponding date so I instead began the
aggregation by sorting through "Low" prices in ascending order and then print-
ing the company name, the first price, and the first date in the list since it was
now sorted by "Low" price. I then sorted again to display the companies sorted
in increasing lexical order per the requirements.

2   Phase 1 Script

Figure 1: use mdm

```
> db.stocks.find().limit(1).pretty();
< { _id: ObjectId("60517eaac1db9121fe2ba2b0"),
    Date: '2013-01-02',
    'Ticker Symbol': 'A',
    'Company Name': 'Agilent Technologies Inc',
    Sector: 'Health Care',
    Open: 42.17,
    High: 42.17,
    Low: 41.15,
    Close: 41.88,
    Volume: 6287700,
    'Ex-Dividend': 0,
    'Split Ratio': 1,
    'Adj Open': 29.0547113965,
    'Adj High': 29.0547113965,
    'Adj Low': 28.3519415216,
    'Adj Close': 28.8549042752,
    'Adj Volume': 6287700 }
```

Figure 2: find 1 document

```
> const numberOfStocks = db.stocks.distinct('Ticker Symbol').length;
> print('number of ticker symbols', numberOfStocks);
< 'number of ticker symbols'
< 66
```

Figure 3: number of distinct ticker symbols

```
print('first ticker symbol', db.stocks.distinct('Ticker Symbol')[0]);
'first ticker symbol'
'A'
```

Figure 4: first ticker symbol

```
print('eleventh ticker symbol', db.stocks.distinct('Ticker Symbol')[10]);
'eleventh ticker symbol'
'ADM'
```

Figure 5: eleventh ticker symbol

```
> print('last ticker symbol', db.stocks.distinct('Ticker Symbol')[numberOfStocks - 1]);
< 'last ticker symbol'
< 'BEN'
```

Figure 6: last ticker symbol

3 Lowest Stock Prices With Date Sorted in Increasing Lexical Order

```
[
  { _id: 'A', low: 33.115, date: '2015-10-02' },
  { _id: 'AAL', low: 12.7, date: '2013-02-26' },
  { _id: 'AAP', low: 71.48, date: '2013-01-11' },
  { _id: 'AAPL', low: 89.47, date: '2016-05-12' },
  { _id: 'ABBV', low: 33.33, date: '2013-01-10' },
  { _id: 'ABC', low: 43.01, date: '2013-01-04' },
  { _id: 'ABT', low: 31.64, date: '2013-01-02' },
  { _id: 'ACN', low: 67.55, date: '2013-01-02' },
  { _id: 'ADBE', low: 37.36, date: '2013-01-18' },
  { _id: 'ADI', low: 41.71, date: '2013-01-16' },
  { _id: 'ADM', low: 27.9, date: '2013-01-08' },
  { _id: 'ADP', low: 57.75, date: '2013-01-02' },
  { _id: 'ADS', low: 146.39, date: '2013-01-02' },
  { _id: 'ADSK', low: 33.005, date: '2013-06-24' },
  { _id: 'AEE', low: 30.64, date: '2013-01-08' },
  { _id: 'AEP', low: 41.83, date: '2013-09-04' },
  { _id: 'AES', low: 8.22, date: '2016-01-20' },
  { _id: 'AET', low: 44.38, date: '2013-01-08' },
  { _id: 'AFL', low: 43.2, date: '2018-03-27' },
  { _id: 'AGN', low: 82.02, date: '2013-02-21' },
  { _id: 'AIG', low: 34.56, date: '2013-01-14' },
  { _id: 'AIV', low: 24.78, date: '2013-12-03' },
  { _id: 'AIZ', low: 34.825, date: '2013-01-08' },
  { _id: 'AJG', low: 34.97, date: '2013-01-02' },
  { _id: 'AKAM', low: 32.635, date: '2013-04-22' },
  { _id: 'ALB', low: 41.37, date: '2015-09-14' },
  { _id: 'ALGN', low: 25.61, date: '2013-01-14' },
  { _id: 'ALK', low: 40.69, date: '2014-10-15' },
  { _id: 'ALL', low: 40.65, date: '2013-01-02' },
  { _id: 'ALLE', low: 40.24, date: '2013-12-09' },
  { _id: 'ALXN', low: 81.82, date: '2013-02-19' },
  { _id: 'AMAT', low: 11.39, date: '2013-01-07' },
  { _id: 'AMD', low: 1.61, date: '2015-07-27' },
  { _id: 'AME', low: 38, date: '2013-01-02' },
  { _id: 'AMG', low: 115.97, date: '2016-02-11' },
  { _id: 'AMGN', low: 81.56, date: '2013-01-22' },
  { _id: 'AMP', low: 63.59, date: '2013-01-08' },
  { _id: 'AMT', low: 67.89, date: '2013-08-22' },
  { _id: 'AMZN', low: 245.75, date: '2013-05-01' },
  { _id: 'ANDV', low: 89.58, date: '2018-02-28' },
  { _id: 'ANSS', low: 68.33, date: '2013-01-02' },
  { _id: 'ANTM', low: 58.75, date: '2013-01-03' },
  { _id: 'AON', low: 54.6467, date: '2013-02-05' },
  { _id: 'AOS', low: 35.11, date: '2013-06-24' },
  { _id: 'APA', low: 32.195, date: '2016-01-20' },
  { _id: 'APC', low: 28.16, date: '2016-01-20' },
  { _id: 'APD', low: 84.04, date: '2013-04-03' },
  { _id: 'APH', low: 44.5, date: '2016-01-20' },
  { _id: 'APTV', low: 81.14, date: '2018-03-23' },
  { _id: 'ARE', low: 60.86, date: '2013-09-03' },
  { _id: 'ARNC', low: 6.14, date: '2016-01-20' },
  { _id: 'ATVI', low: 10.75, date: '2013-01-02' },
  { _id: 'AVB', low: 114.16, date: '2014-01-30' },
  { _id: 'AVGO', low: 30.57, date: '2013-04-22' },
  { _id: 'AVY', low: 35.25, date: '2013-01-02' },
  { _id: 'AWK', low: 36.96, date: '2013-01-25' },
  { _id: 'AXP', low: 50.27, date: '2016-02-11' },
  { _id: 'AYI', low: 62.39, date: '2013-01-08' },
  { _id: 'AZO', low: 341.98, date: '2013-01-11' },
  { _id: 'BA', low: 72.68, date: '2013-01-17' },
  { _id: 'BAC', low: 10.98, date: '2013-02-25' },
  { _id: 'BAX', low: 32.18, date: '2015-10-02' },
  { _id: 'BBT', low: 29.18, date: '2013-04-18' },
  { _id: 'BBY', low: 11.38, date: '2013-01-09' },
  { _id: 'BDX', low: 78.73, date: '2013-01-02' },
  { _id: 'BEN', low: 30.56, date: '2016-06-27' }
]
```

Figure 7: Phase 2 Output