

Stock index - a set of shares

Dow Jones Index	djx.txt, djx.csv
Nasdaq 100 Index	ndx.txt, ndx.csv
S&P 500 Index	spx.txt, spx.csv
Russell 1000 Index	rux.txt, rux.csv

Each stock has the following items (attributes)

- 1) Symbol
- 2) Name
- 3) Sector
- 4) Industry
- 5) Exchange
- 6) Options
- 7) "Market Cap [K\$]"
- 8) Volume
- 9) Price
- 10) Earnings
- 11) Price/Earnings
- 12) Dividend

Files with the extension "txt" have one items per line.

In files with the extension "csv" , all items of one share are on one line.

Which indexes contain the stock BK (Bank of New York Mellon Corp)?

Example of output:

rux.csv

spx.csv

Which firms do not pay dividends (N/A in item 12) in the Russell 1000 index (rux.csv)?

Example of output:

```
AAXN,"Axon Inc","Industrial Products","Protection - Safety",NASDAQ,Yes,6474552,456400,102.00,-0.55,0.00,N/A
ABMD,"Abiomed Inc",Medical,"Medical Instruments",NASDAQ,Yes,12748301,448700,283.00,3.72,78.09,N/A
ACAD,"Acadia Pharmaceutica",Medical,"Medical - Biomedical",NASDAQ,Yes,7319551,2099100,46.42,-1.47,0.00,N/A
ACGL,"Arch Capital Grp Ltd",Finance,"Insurance - Proprty & Casualty",NASDAQ,Yes,11955875,2236300,29.45,1.87,15.62,N/A
ACHC,"Acadia Healthcr Company",Medical,"Medical - Hospitals",NASDAQ,Yes,2577258,409200,28.97,1.99,15.19,N/A
```

List detailed information about stocks from the Russell 1000 index (rux.csv), whose symbols are stored in the LIST variable and are separated by a character ':'.

Example of input and output:

```
LIST="AAPL:IBM:DIS:ZM"

AAPL,"Apple Inc","Computers and Technology","Computer - Mini",NASDAQ,Yes,1927912160,143937797,111.20,3.30,35.47,0.205
DIS,"Walt Disney Company","Consumer Discretionary","Media Conglomerates",NYSE,Yes,214082752,11654600,118.47,3.28,37.59,0.880
IBM,"International Business Machines","Computers and Technology","Computer - Integrated Systems",NYSE,Yes,94980248,9427300,106.65,11.31,9.78,1.630
ZM,"Zoom Video Communications Cl A","Computers and Technology","Internet - Software",NASDAQ,Yes,146764080,8810000,516.01,0.87,619.53,N/A
```

Which firms represent the "Finance" sector (the 3rd item) in the Russell 1000 index (rux.csv)?

Example of output:

```
ACC,"American Campus Communities Inc",Finance,"REIT - Equity Trust Resident",NYSE,Yes,4946864,1962800,35.95,0.87,17.81,0.470
ACGL,"Arch Capital Grp Ltd",Finance,"Insurance - Proprty & Casualty",NASDAQ,Yes,11955875,2236300,29.45,1.87,15.62,N/A
AFG,"American Financial Group",Finance,"Insurance - Proprty & Casualty",NYSE,Yes,6515658,578400,73.59,7.40,10.00,0.500
AFL,"Aflac Inc",Finance,"Insurance - Accident & Health",NYSE,Yes,24345944,6813500,34.15,4.68,7.20,0.280
AGNC,"American Capital Age",Finance,"REIT - Mortgage Trusts",NASDAQ,Yes,7793904,8360199,14.03,2.31,5.63,0.120
...
```

Which companies representing the "Finance" sector (the 3rd item) in the Russell 1000 index (rux.csv) and do not pay dividends (N/A in item 12)?

Example of output:

```
ACGL,"Arch Capital Grp Ltd",Finance,"Insurance - Proprty & Casualty",NASDAQ,Yes,11955875,2236300,29.45,1.87,15.62,N/A
ATH,"Athene Holding Ltd",Finance,"Insurance - Life",NYSE,Yes,5982931,933800,30.80,5.43,5.89,N/A
BHF,"Brighthouse Financial Inc",Finance,"Insurance - Life",NASDAQ,Yes,2799993,1105300,30.10,7.80,3.80,N/A
BRK.B,"Berkshire Hathaway Cl B",Finance,"Insurance - Proprty & Casualty",NYSE,Yes,479314944,7538200,200.70,9.71,21.31,N/A
CACC,"Credit Acceptance",Finance,"Finance - Consumer Loans",NASDAQ,Yes,5530491,189900,313.36,36.40,8.92,N/A
...
```

Which companies representing the "Finance" sector (the 3rd item) in the Russell 1000 index (rux.csv) and do pay dividends?

Example of output:

```
ACC,"American Campus Communities Inc",Finance,"REIT - Equity Trust Resident",NYSE,Yes,4946864,1962800,35.95,0.87,17.81,0.470
AFG,"American Financial Group",Finance,"Insurance - Proprty & Casualty",NYSE,Yes,6515658,578400,73.59,7.40,10.00,0.500
AFL,"Aflac Inc",Finance,"Insurance - Accident & Health",NYSE,Yes,24345944,6813500,34.15,4.68,7.20,0.280
AGNC,"American Capital Age",Finance,"REIT - Mortgage Trusts",NASDAQ,Yes,7793904,8360199,14.03,2.31,5.63,0.120
AGO,"Assured Guaranty Ltd",Finance,"Insurance - Multi Line",NYSE,Yes,2039925,729300,24.42,3.41,7.46,0.200
```

Add the prefix "Fin-" to the stock symbol representing the "Finance" sector in the Russell 1000 index (rux.csv)

Example of output:

```
...
ABT,"Abbott Laboratories",Medical,"Medical Products",NYSE,Yes,188419808,7104900,106.42,3.15,34.47,0.360
ACAD,"Acadia Pharmaceutica",Medical,"Medical - Biomedical",NASDAQ,Yes,7319551,2099100,46.42,-1.47,0.00,N/A
Fin-ACC,"American Campus Communities Inc",Finance,"REIT - Equity Trust Resident",NYSE,Yes,4946864,1962800,35.95,0.87,17.81,0.470
Fin-ACGL,"Arch Capital Grp Ltd",Finance,"Insurance - Proprty & Casualty",NASDAQ,Yes,11955875,2236300,29.45,1.87,15.62,N/A
ACHC,"Acadia Healthcr Company",Medical,"Medical - Hospitals",NASDAQ,Yes,2577258,409200,28.97,1.99,15.19,N/A
ACI,"Albertsons Companies Inc Cl A","Consumer Staples","Consumer Prdts - Misc Staple",NYSE,Yes,7141787,6076000,15.11,1.92,0.00,0.100
...
```



Replace the first word of each sentence with the string "FIRST" in the file text.txt.

Example of input and output:

Input file

Nulla dapibus mauris eu magna scelerisque, sit amet dignissim neque aliquam.  
Donec sodales, arcu et varius lacinia, ipsum nunc aliquam felis, aliquam  
gravida sem nulla in orci. Integer efficitur erat in nisi interdum, a  
iaculis felis suscipit. Suspendisse bibendum porttitor leo, ut aliquet arcu  
venenatis et. ...

Output

FIRST dapibus mauris eu magna scelerisque, sit amet dignissim neque aliquam.  
FIRST sodales, arcu et varius lacinia, ipsum nunc aliquam felis, aliquam  
gravida sem nulla in orci. FIRST efficitur erat in nisi interdum, a  
iaculis felis suscipit. FIRST bibendum porttitor leo, ut aliquet arcu  
venenatis et. ...

List the average price of shares representing the "Finance" sector in the Dow Jones index (file `djx.csv` where item 9 represents the price).

Example of output:

124.853

Modify stock prices in the Dow Jones index so that if the price is higher than 200, divide it by two, leave everything else unchanged.  
(the index is represented by the file djsx.csv, where item 9 represents the price)

Example of input and output:

Original file

```
# Dow Jones Industrials Average ($DOWI) downloaded from https://www.barchart.com/stocks/quotes/$DOWI on 2020/10/29
Symbol,Name,Sector,Industry,Exchange,Options,"Market Cap [K$]",Volume,Price,Earnings,Price/Earnings,Dividend
AAPL,"Apple Inc","Computers and Technology","Computer - Mini",NASDAQ,Yes,1927912160,143937797,111.20,3.30,35.47,0.205
AMGN,"Amgen Inc",Medical,"Medical - Biomedical",NASDAQ,Yes,126732464,2873900,216.38,15.72,14.22,1.600
AXP,"American Express Company",Finance,"Finance - Misc Services",NYSE,Yes,73756504,7037700,91.60,5.60,16.95,0.430
...
```

Output

```
# Dow Jones Industrials Average ($DOWI) downloaded from https://www.barchart.com/stocks/quotes/$DOWI on 2020/10/29
Symbol Name Sector Industry Exchange Options "Market Cap [K$]" Volume 0 Earnings Price/Earnings Dividend
AAPL,"Apple Inc","Computers and Technology","Computer - Mini",NASDAQ,Yes,1927912160,143937797,111.20,3.30,35.47,0.205
AMGN "Amgen Inc" Medical "Medical - Biomedical" NASDAQ Yes 126732464 2873900 108.19 15.72 14.22 1.600
AXP,"American Express Company",Finance,"Finance - Misc Services",NYSE,Yes,73756504,7037700,91.60,5.60,16.95,0.430
...
```