

## Super Simple Stocks Assignment

### Requirements

1. The Global Beverage Corporation Exchange is a new stock market trading in drinks companies.
  - a. Your company is building the object-oriented system to run that trading.
  - b. You have been assigned to build part of the core object model for a limited phase 1
2. Provide the complete source code that will:-
  - a. For a given stock,
    - i. Given any price as input, calculate the dividend yield
    - ii. Given any price as input, calculate the P/E Ratio
    - iii. Record a trade, with timestamp, quantity, buy or sell indicator and price
    - iv. Calculate Volume Weighted Stock Price based on trades in past 5 minutes
  - b. Calculate the GBCE All Share Index using the geometric mean of the Volume Weighted Stock Price for all stocks

### Constraints & Notes

1. Written in one of these languages - Java, C#, C++, Python
2. The source code should be suitable for forming part of the object model of a production application, and can be proven to meet the requirements.
3. No database, GUI or I/O is required, all data need only be held in memory
4. No prior knowledge of stock markets or trading is required – all formulas are provided below.
5. The code should provide only the functionality requested, however must be production quality.

**Table1. Sample data from the Global Beverage Corporation Exchange**

Stock Symbol	Type	Last Dividend	Fixed Dividend	Par Value
TEA	Common	0		100
POP	Common	8		100
ALE	Common	23		60
GIN	Preferred	8	2%	100
JOE	Common	13		250

*All number values in pennies*

**Table 2. Formula**

	Common	Preferred
Dividend Yield	$\frac{\text{Last Dividend}}{\text{Price}}$	$\frac{\text{Fixed Dividend} \cdot \text{Par Value}}{\text{Price}}$
P/E Ratio		$\frac{\text{Price}}{\text{Dividend}}$
Geometric Mean		$\sqrt[n]{p_1 p_2 p_3 \dots p_n}$
Volume Weighted Stock Price	$\frac{\sum_i \text{Traded Price}_i \times \text{Quantity}_i}{\sum_i \text{Quantity}_i}$	