Example Assignment – Super Simple Stock Market

Requirements

1. Provide working 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 of shares, buy or sell indicator and traded price
      iv. Calculate Volume Weighted Stock Price based on trades in past 15 minutes
   b. Calculate the GBCE All Share Index using the geometric mean of prices for all stocks

Constraints & Notes

1. Written in one of these languages:
   - Java, C#, C++, Python
2. No database or GUI is required, all data need only be held in memory
3. No prior knowledge of stock markets or trading is required – all formulas are provided below.

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	$\dfrac{Last\ Dividend}{Price}$	$\dfrac{Fixed\ Dividend\,.\,Par\ Value}{Price}$
P/E Ratio	$\dfrac{Price}{Dividend}$	
Geometric Mean	$\sqrt[n]{p_1 p_2 p_3 \ldots p_n}$	
Volume Weighted Stock Price	$\dfrac{\sum_i Traded\ Price_i \times Quantity_i}{\sum_i Quantity_i}$	

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