

# Assignment – Super Simple Stocks

## Requirements

1. Provide working source code that will :-
  - a. For a given stock,
    - i. calculate the dividend yield
    - ii. calculate the P/E Ratio
    - iii. record a trade, with timestamp, quantity of shares, buy or sell indicator and price
    - iv. Calculate Stock Price based on trades recorded 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. Formulas and data provided are simplified representations for the purpose of this exercise

**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 | $\frac{\text{Last Dividend}}{\text{Ticker Price}}$                                      | $\frac{\text{Fixed Dividend} \cdot \text{Par Value}}{\text{Ticker Price}}$ |
| P/E Ratio      |   | $\frac{\text{Ticker Price}}{\text{Dividend}}$                              |
| Geometric Mean |   | $\sqrt[n]{p_1 p_2 p_3 \dots p_n}$  |
| Stock Price    | $\frac{\sum_i \text{Trade Price}_i \times \text{Quantity}_i}{\sum_i \text{Quantity}_i}$ |  |