### Requirements

1. Provide working source code that will :-
   1. For a given stock,
      1. calculate the dividend yield
      2. calculate the P/E Ratio
      3. record a trade, with timestamp, quantity of shares, buy or sell indicator and price
      4. Calculate Stock Price based on trades recorded in past 15 minutes
   2. 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 |  |  |
| P/E Ratio |  | |
| Geometric Mean |  | |
| Stock Price |  | |