

EmStocksService is a service that is to provide the following functionality:

Read stocks prices from different data streams, process the prices for each stock based on a set of rules to decide on the price to use for each stock and publish the selected value for each stock to a number of subscribers. Your task is to implement the component of the service that process the stock prices based on the following rules:

- Prices for each stock are received from all the prices streams, meaning that for the same stock multiple values might be received at the same time. There is a configuration in the system about which is the primary stream to be used for each stock based on an order of preference. In the case that the primary stream becomes unavailable another one must be selected as the new primary based on the configured order of preference.
- The service must publish a stock price at a maximum rate of one value per a configured time period i.e. 1 value per 50 milliseconds at maximum
- If there is no change in a stock's price value then no value should be published during a configured time i.e. based on the above rule if for a time period of 150 milliseconds the service receives at times 1, 100, 140 the same value for a stock price, only one value should be published.
- A change of the prices stream used as the primary source for a stock must take place and the next prices stream per the configured order of preference must become the new primary in the following cases:
  - o The difference between two continuous prices is greater than a configured threshold value (value specified as a percentage)
  - o There is a delay in the time the next price is received greater than a configured threshold value i.e. for a threshold value of 30 seconds a price is received at 11:00:00 and the next price at 11:00:50.
- In the case that a change in the used data stream takes place, the service must publish the last price received from one of the other data streams based on the configured order of preference.
- There should be provision that it might be required the service to make available the maximum, minimum prices as well as the maximum fluctuations both negative and positive of a stock's price at a request basis (separately from the publishing of the current price)
- The threshold values for the maximum rate a price is to be published, the time period during which no value should be published while the price does not change, the price difference threshold, the time delay period and the information about the data streams in place for each stock and their order of preference are to be read from a database but you can assume that the implementation of the data access layer for retrieving all these values is in place.
- Please read the comments in the provided solution which you should use as a starting point and write in comments any assumptions you are making. Note that no database is required and no implementation for the read operations from the database.