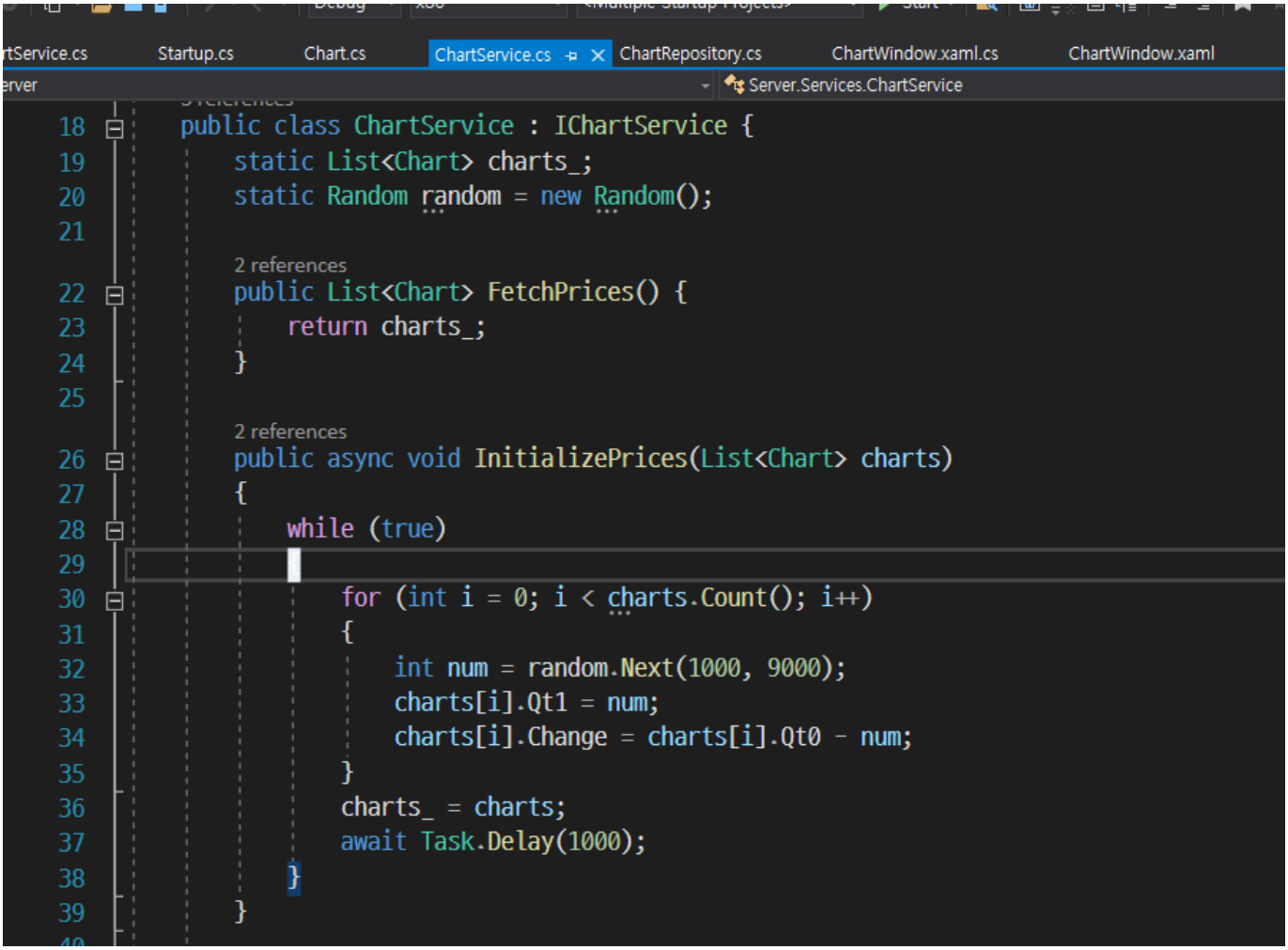
Code Review

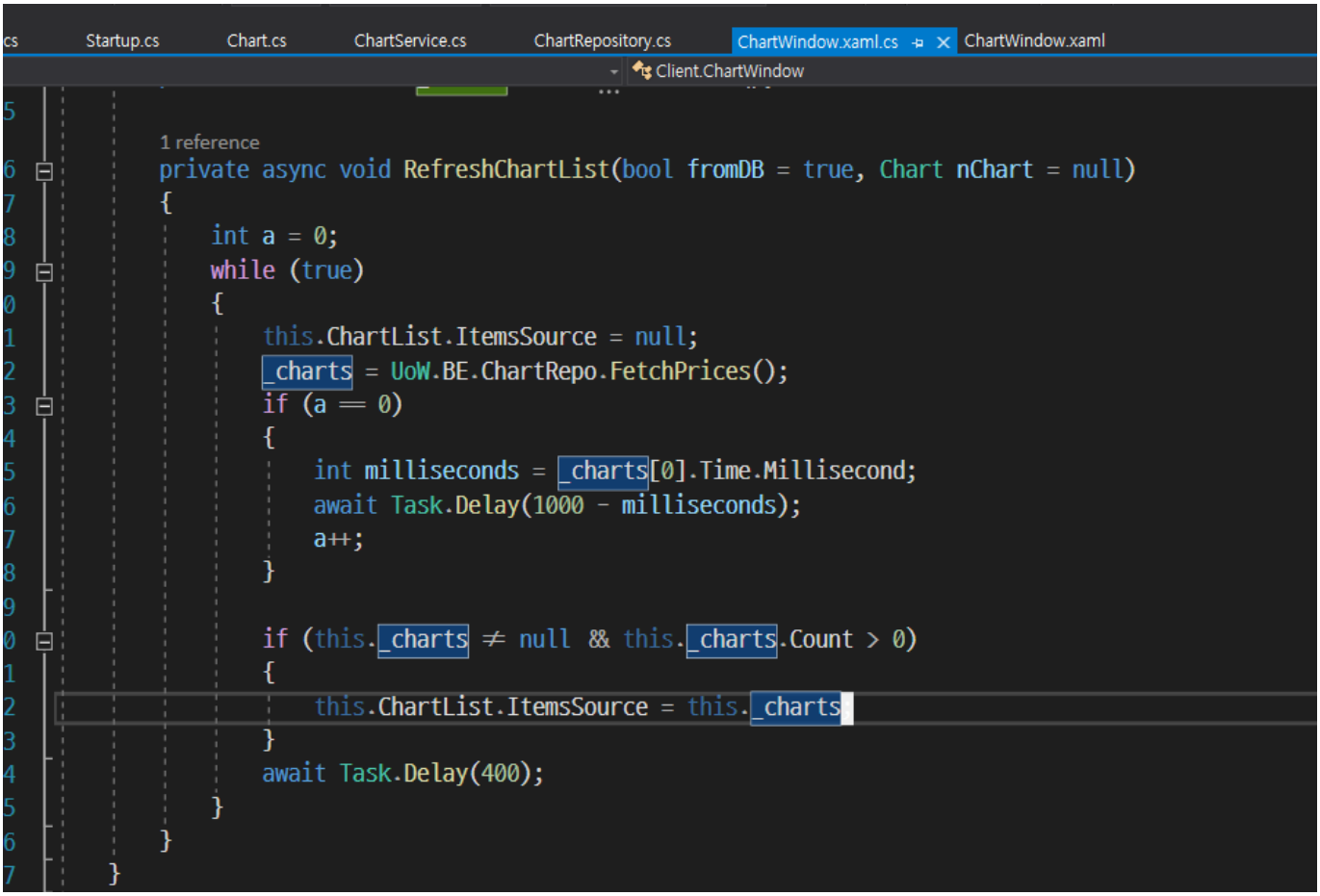
The code starts from the Server.Startup.cs

```
0 references
public Startup(IConfiguration configuration, IWebHostEnvironment env) {
    this._config = configuration;
    _env = env;
    List<Chart> charts = Chart.NewChartList;
    ChartService chartService = new ChartService();
    chartService.InitializePrices(charts);
}
```

When the NewChartList is called, it creates 3 different securities dummies in singleton.
Singleton design pattern is used to improve performance, avoid wasteful computation, and reduce program memory requirements.
The list is stored in charts then calls chartService.InitializePrices(charts).

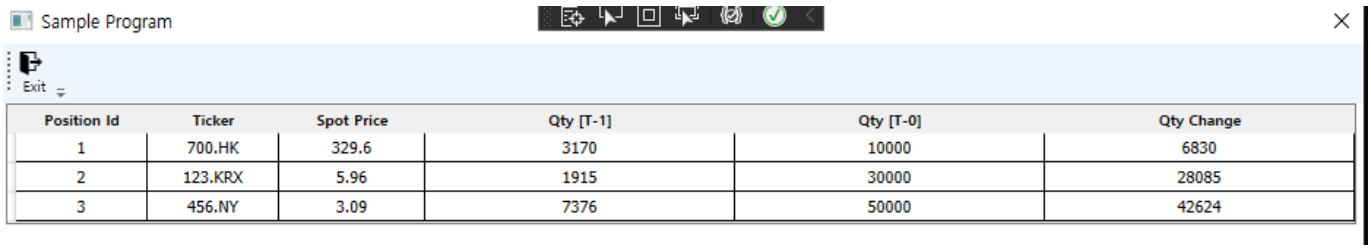


InitializePrices method runs a while loop every second and updates the quantities and displays the changes of quantities. The updates are stored in charts_, where it's declared as static so that any new client can fetch the same data.



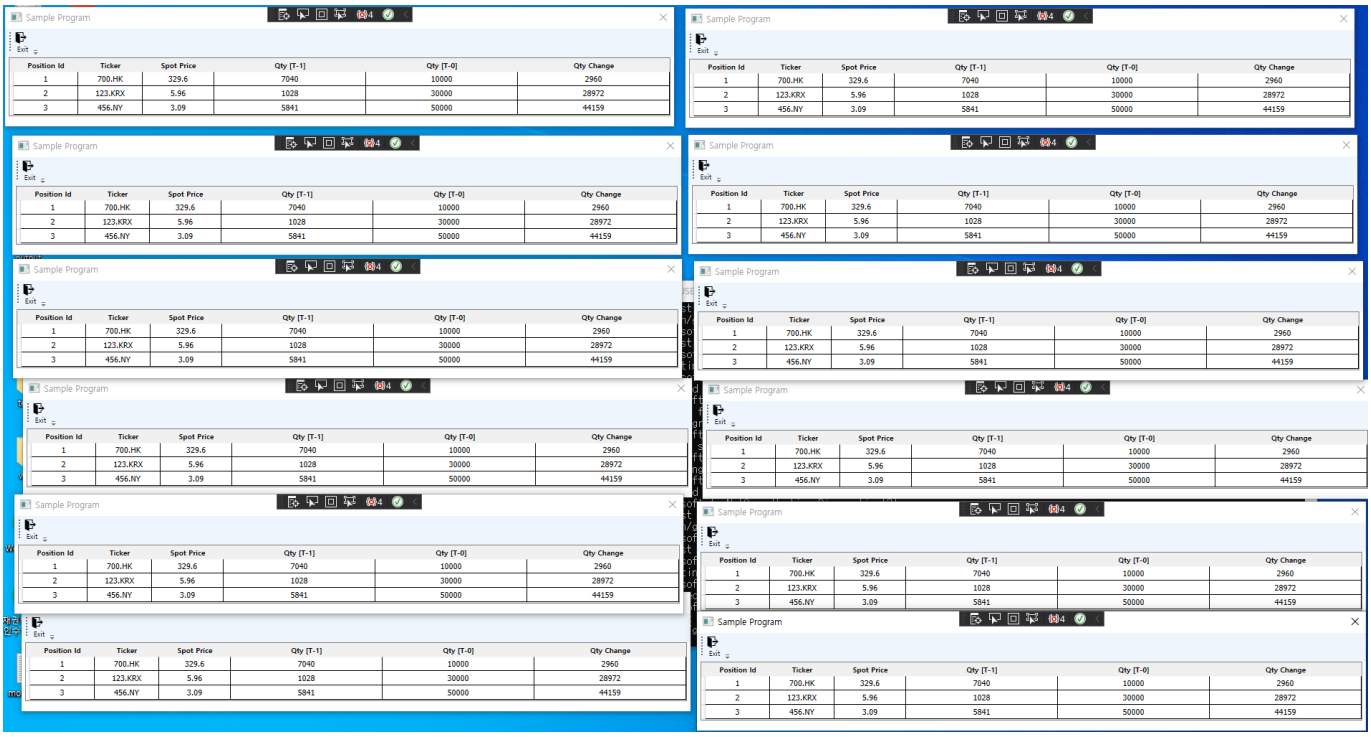
When the client is executed, RefreshCharList method is called to update the price. In order to sync the changes in prices from the server and update the prices with multiple clients, each client fetches DateTime from the server in millisecond. and waits until the millisecond reaches 00. This delay happens only once.

Then it renders the data in the window and refetches the newly update data from the server.



Position Id	Ticker	Spot Price	Qty [T-1]	Qty [T-0]	Qty Change
1	700.HK	329.6	3170	10000	6830
2	123.KRX	5.96	1915	30000	28085
3	456.NY	3.09	7376	50000	42624

In order to run a single client,
Either press F5 or
Right click on Server -> Debug -> Start New Instance
Then Right click on Client -> Debug -> Start New Instance



To run multiple clients,
Right click on Server -> Debug -> Start New Instance
Then Right click on Client -> Debug -> Start New Instance based on the number of clients the team wants to execute.
The screenshot displays 12 clients running at the same time.

Improvements

Theoretically, the clients should update the prices at the exact same time between other running clients because the DateTime is fetched from the server. The client delays to render the price until the DateTime reaches 00 milliseconds but each client renders and updates at a slight variation.

The RefreshChartList method contains a logic that delays for a second but this logic could have been taken out as an independent method to improve the readability.

In case the program doesn't run on your computer, try running Visual Studio 2019 as administrator.

I hope this document helps your team to understand the code.

Thank you for reading this and have a nice day.

Sincerely,
Moog