Your task is to create a RESTful API service using Spring Boot to interact with the online finance API provided by Alpha Vantage (https://www.alphavantage.co/). The API should provide endpoints for retrieving stock quotes that are converted to Euros using the Alpha Vantage forex rates. The endpoints should require basic authentication for security purposes.

Requirements

Be sure to use a Spring Boot application with a controller/service pattern. Use Maven pom configuration to generate a WAR package for deployment on a J2EE server.

1. Use the Alpha Vantage API to retrieve stock quotes and forex rates.

Stock quote (IBM as example):

https://www.alphavantage.co/query?function=GLOBAL_QUOTE&symbol=IBM&apikey={API key from config}

Forex rate:

https://www.alphavantage.co/query?function=CURRENCY_EXCHANGE_RATE&from_currency=USD&to_currency=EUR&apikey={API key from config}

2. Implement an endpoint:

/stock/conversion?tickers=IBM,AAPL,MSFT&currency=EUR to retrieve stock quotes for a given list of symbols (up to five symbols). Use only **EUR** for currency for this exercise.

Add a custom calculation using the stock data and forex value to determine the Euro converted value of the "open," "close," "high," and "low" values. Add these values to the REST call.

Return a JSON list as below:

```
GET /stock/conversion?tickers=MSFT,F?currency=EUR

{
  "symbol": "MSFT",
  "open": 244.7800,
  "high": 245.2200,
  "low": 242.9100,
  "close": 243.7000,
  "volume": 18800908,
  "latestTradingDay": "2023-02-17",
  "previousClose": 244.4700,
  "change": -0.7700,
```

```
    "changePercent": -0.3150,

    "currency": "EUR",

    "rate":1.18,

    "convertedOpen": 206.9206,

    "convertedHigh": 207.3001,

    "convertedLow": 205.1764,

    "convertedClose": 206.0688

},

{

    "symbol": "F",

    "open": 112.7800,

    "high": 114.2200,

    "low": 112.9100,

    "close": 113.7000,

    "volume": 18800908,

    "latestTradingDay": "2023-02-17",

    "previousClose": 112.4700,

    "change": -0.7700,

    "changePercent": -0.3150,

    "currency": "EUR",

    "rate":1.18,

    "convertedOpen": 108.9206,

    "convertedHigh": 107.3001,

    "convertedLow": 109.1764,

    "convertedClose": 107.0688

}
```

3. Use Spring Security to support Basic Authentication to access API Endpoint, and input API key. Use user.properties resource file to store username / passwords. Example format:

```
1    user1=name1:password1
2    user2=name2:password2
3    user3=name3:password3
4    api_key=e8pJ2q398QjEd3Pex
5
```

4. Commit your code to a new Github project and e-mail a link to the project when completed.