

README for RESTFUL API SERVICE

1) Guidelines:

- i) Run the SpringrestApplication.java in 'com.springrest.springrest' package as 'SpringBoot' App. : This will start the server on "http://localhost:8080"
- ii) Use the 'http://localhost:8080' along with the endpoint
'/stock/conversion?tickers=IBM,AAPL,MSFT¤cy=EUR EUR' to login
and get the converted quotes of the mentioned tickers.
For e.g.,
"http://localhost:8080/stock/conversion?tickers=AMZN,AAPL,MSFT,IBM¤cy=EUR"
- iii) For demonstration purposes, use any of the login credential stored in the
"user.properties" file. (You can change the name and password in the
"user.properties" file as per convenience).
For e.g., Username = name1
Password = password1
- iv) Recommended to wait for around 40 seconds before hitting a new 'GET'
request since Alpha vantage's free trial lets us hit 5 API requests within a
minute.

2) Design:

a) Packages and Classes (Brief High Level Overview):

- i) com.springrest.springrest : Main Package with SpringrestApplication.java
- ii) com.springrest.springrest.config :
 - (a) CustomUserDetailService.java : Used to retrieve username and password of each user (limited to: user1,user2,user3) from the 'user.properties' file in resource folder and send a 'UserDetails' Object to 'UserDetailsService' in UserConfig.java.

- (b) `UserConfig.java` : Used to Initialize Spring Web Security and configured 'Basic Authentication'.

iii) `com.springrest.springrest.controller` :

- (a) `QuotesController.java` : Controller to set endpoints with `RequestMapping("/stock")` and `GetMapping(/conversion)` and connect to 'Service' layer.

iv) `com.springrest.springrest.entities` :

- (a) `Stock.java` : It is a stock class which has all the variables, getters and setters defined for a stock that we will represent in our final converted stock quote. This class is extensively used by 'Service' Layer.

v) `com.springrest.springrest.services` :

- (a) `QuoteService.java` : Just a 'QuoteService' interface that is implemented by 'QuoteServiceImpl'.

- (b) `QuoteServiceImpl.java` : A class that implements 'QuoteService' and performs calculations on each stock to get the converted quotes. This class retrieves live 'stock quotes' and 'forex rates' using the Alpha Vantage API.

b) "User.properties" file in Resource folder: This file is set as following:

```
user1=name1:password1
user2=name2:password2
user3=name3:password3
api_key=NGJQ0XQB77YJGKB3
```

3) Specifications:

- i) If the number of tickers given is 1 or 2, then there is no added wait time.
- ii) If the number of tickers is 3 or more than that, then wait time is calculated as: (number of tickers X 8 Seconds) for the whole request.

4) Constraints:

- i) The Alpha Vantage allows only 5 API requests within a minute, so if there is a http error at times, then relaunch the server since it is most likely because of the number of API calls made exceeding the limit.