

Code Challenge – API

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1. Purpose

The purpose of this document is to describe requirements, api contracts and solution approach.

2. Requirements

- a. Design API to consume tick values in the following format:

```
TIMESTAMP=|PRICE=5.24|CLOSE_PRICE=|CURRENCY=EUR|RIC=AAPL.OQ
TIMESTAMP=|PRICE=5.24|CLOSE_PRICE=|CURRENCY=EUR|RIC=IBM.N
TIMESTAMP=|PRICE=|CLOSE_PRICE=7.5|CURRENCY=EUR|RIC=AAPL.OQ
```

- b. Design API to lookup tick values for a specific RIC
- c. Only Authorized users to be allowed to access APIs
- d. If CLOSE_PRICE is set for a specific RIC, export all received tick values as csv file. Export should not happen in the same service of receiving.
- e. Use in-memory solution for persistence.

3. Solution

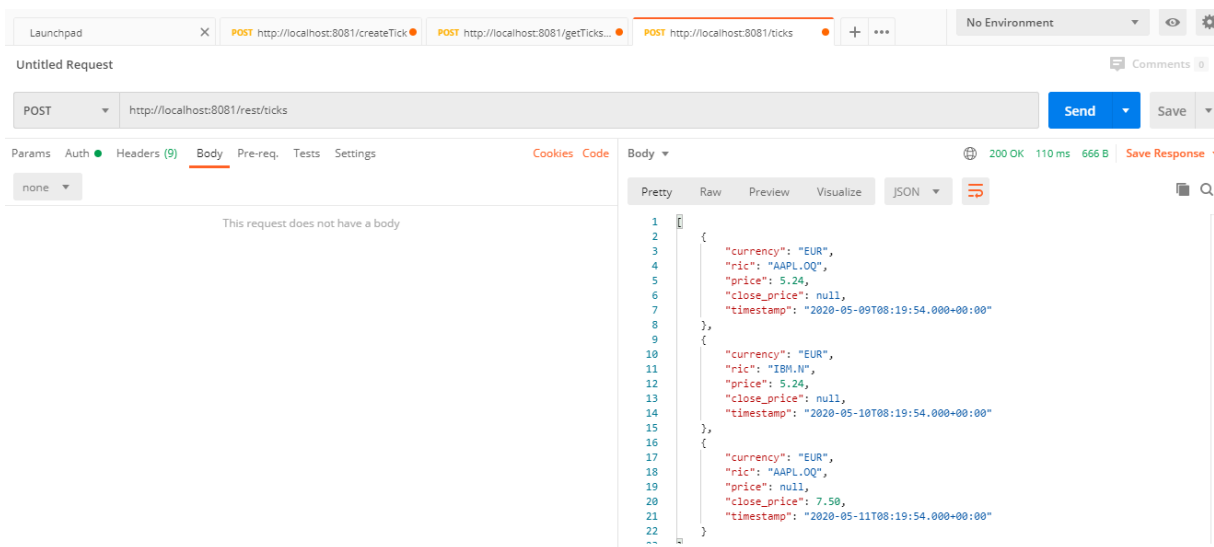
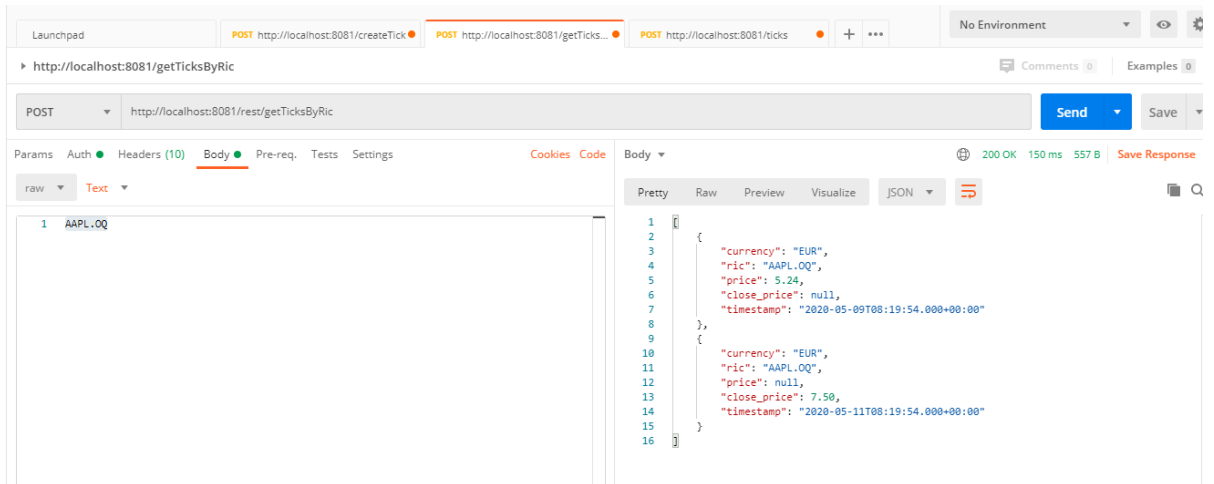
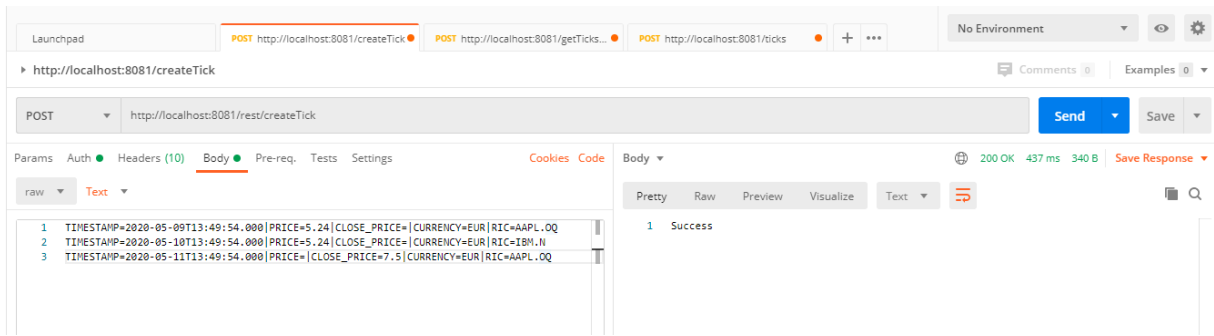
- a. In-memory solution – h2 db used.
- b. Tech Stack – Java 8, Spring Boot 3.0.0, Maven
- c. For Tick values consumption, **/rest/createTick** API is developed which accepts String as the request body in the following format. Each record is considered based on the new line in the request string. Timestamp format is `yyyy-MM-dd'T'hh:mm:ss.SSS`. Timestamp, Currency, RIC cannot be empty. Price or Close_Price are expected for each tick value record. On successful call, response is sent as "Success".

```
TIMESTAMP=2020-05-
09T13:49:54.000|PRICE=5.24|CLOSE_PRICE=|CURRENCY=EUR|RIC=AAPL.OQ
```

```
TIMESTAMP=2020-05-
10T13:49:54.000|PRICE=5.24|CLOSE_PRICE=|CURRENCY=EUR|RIC=IBM.N
```

```
TIMESTAMP=2020-05-
11T13:49:54.000|PRICE=|CLOSE_PRICE=7.5|CURRENCY=EUR|RIC=AAPL.OQ
```

- d. For fetching Tick values for a specific RIC, **/rest/getTicksByRic** API is developed which accepts String as the request body and RIC value is expected. Fetches all tick values as JSON response for the specified RIC in request.
- e. For fetching all Tick values, **/rest/getAllTicks** API is developed which fetch all tick values as JSON response.



- f. Basic authorization is configured where user details are from InMemoryUserDetailsManager and password is encoded using BCryptPasswordEncoder(8). Details of the credentials are as below.

Username = user

Password = password

Below screenshots are for reference.

Launchpad POST http://localhost:8081/createTick POST http://localhost:8081/getTicks... POST http://localhost:8081/ticks + ... No Environment

http://localhost:8081/getTicksByRic

POST http://localhost:8081/rest/getTicksByRic

Auth Headers (10) Body Pre-req. Tests Settings Cookies Code

TYPE: Basic Auth

The authorization header will be automatically generated when you send the request. [Learn more about authorization](#)

Username: user Password: password ☒ Show Password

Body: 200 OK 97 ms 557 B Save Response

```

1 {
2   "currency": "EUR",
3   "ric": "AAPL.OQ",
4   "price": 5.24,
5   "close_price": null,
6   "timestamp": "2020-05-09T08:19:54.000+00:00"
7 }
8
9 {
10  "currency": "EUR",
11  "ric": "AAPL.OQ",
12  "price": null,
13  "close_price": 7.50,
14  "timestamp": "2020-05-11T08:19:54.000+00:00"
15 }
16

```

For Incorrect password,

Launchpad POST http://localhost:8081/createTick POST http://localhost:8081/getTicks... POST http://localhost:8081/ticks + ... No Environment

http://localhost:8081/getTicksByRic

POST http://localhost:8081/rest/getTicksByRic

Auth Headers (10) Body Pre-req. Tests Settings Cookies Code

TYPE: Basic Auth

The authorization header will be automatically generated when you send the request. [Learn more about authorization](#)

Username: user Password: passwo ☒ Show Password

Body: 401 Unauthorized 130 ms 493 B Save Response

```

1 {
2   "timestamp": "2022-10-31T07:57:49.907+00:00",
3   "status": 401,
4   "error": "Unauthorized",
5   "path": "/rest/getTicksByRic"
6 }

```

- g. For export tick values if Close_Price was set, a method to export file is called Asynchronously during the createTick so that it doesn't stop the createTick service while exporting the csv file. In the application.properties, filePath property is set for the extraction of the file in specified path. File name is concatenated as export_%RIC_Value%_%SystemTimeInMilliSecs%.csv

export_AAPL.OQ_1667184781989
 export_AAPL.OQ_1667186428807
 export_AAPL.OQ_1667186919278

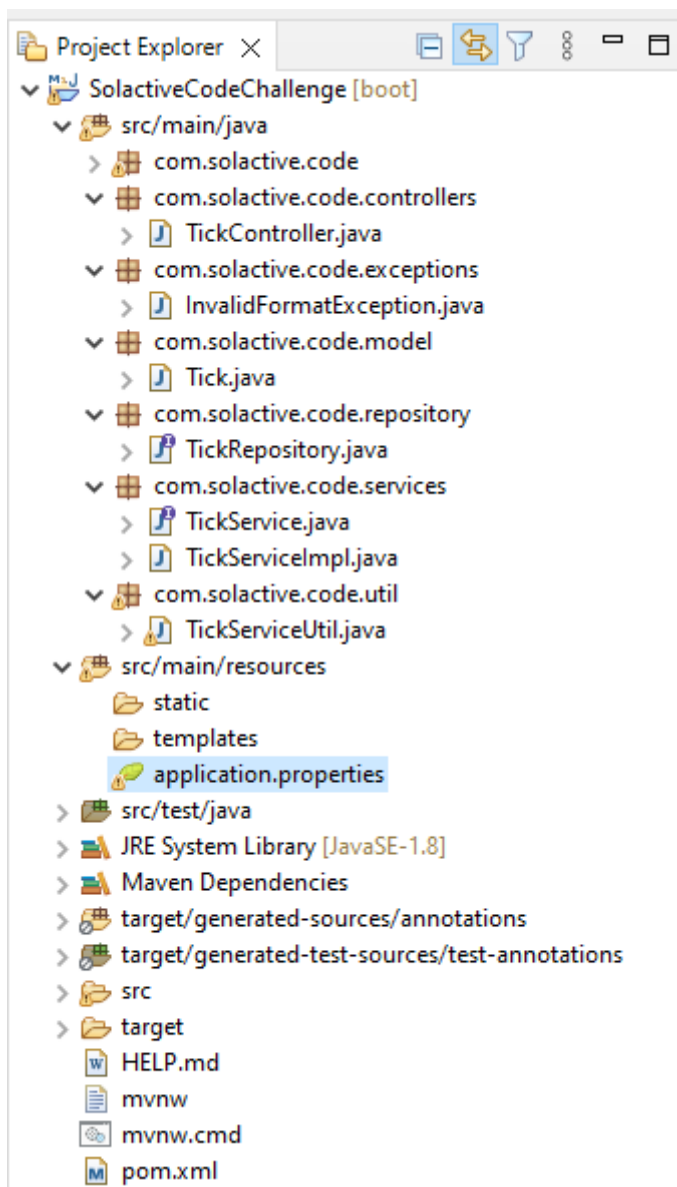
Microsoft Excel Comma Separated Values File
 Microsoft Excel Comma Separated Values File
 Microsoft Excel Comma Separated Values File

```

1 #h2 database
2
3 spring.h2.console.enabled=true
4 spring.h2.console.path=/h2
5
6 spring.jpa.hibernate.ddl-auto=create-drop
7 spring.jpa.show-sql=true
8
9 server.port=8081
10
11 filePath=D:\
12

```

h. Below is the project folder structure for reference



i. Packaging

```
mvnw -java -jar SolactiveCodeChallenge-0.0.1-SNAPSHOT.jar



D:\Workspace\SpringBoot\SolactiveCodeChallenge>mvnw package
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.solactive:SolactiveCodeChallenge >-----
[INFO] Building SolactiveCodeChallenge 0.0.1-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] --- maven-resources-plugin:3.3.0:resources (default-resources) @ SolactiveCodeChallenge ---
[INFO] Copying 1 resource
[INFO] Copying 0 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.10.1:compile (default-compile) @ SolactiveCodeChallenge ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:3.3.0:testResources (default-testResources) @ SolactiveCodeChallenge ---
[INFO] skip non existing resourceDirectory D:\Workspace\SpringBoot\SolactiveCodeChallenge\src\test\resources
[INFO]
[INFO] --- maven-compiler-plugin:3.10.1:testCompile (default-testCompile) @ SolactiveCodeChallenge ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-surefire-plugin:2.22.2:test (default-test) @ SolactiveCodeChallenge ---
[INFO]
[INFO] -----
[INFO] T E S T S
[INFO] -----
[INFO] Running com.solactive.code.SolactiveCodeChallengeApplicationTests
12:05:10.479 [main] DEBUG org.springframework.boot.test.context.SpringBootTestContextBootstrapper - Neither @ContextConfiguration nor @ContextHierarchy found for test class [SolactiveCodeChallengeApplicationTests]: using SpringBootContextLoader
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
```

```

Hibernate: select t1_0.id,t1_0.close_price,t1_0.currency,t1_0.price,t1_0.ric,t1_0.timestamp from ticks t1_0
[INFO] Tests run: 4, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 7.165 s - in com.solactive.code.SolactiveCodeChallengeApplicationTests
2022-10-31T12:05:17.524+05:30 INFO 61136 --- [ionShutdownHook] j.LocalContainerEntityManagerFactoryBean : Closing JPA EntityManagerFactory for persistence unit 'default'
2022-10-31T12:05:17.526+05:30 INFO 61136 --- [ionShutdownHook] .SchemaDropperImpl$DelayedDropActionImpl : HHH000477: Starting delayed evictData of schema as part of SessionFactory shut-down'
Hibernate: drop table if exists ticks cascade
Hibernate: drop sequence if exists ticks_seq
2022-10-31T12:05:17.535+05:30 INFO 61136 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Shutdown initiated...
2022-10-31T12:05:17.540+05:30 INFO 61136 --- [ionShutdownHook] com.zaxxer.hikari.HikariDataSource : HikariPool-1 - Shutdown completed.
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 4, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- maven-jar-plugin:3.3.0:jar (default-jar) @ SolactiveCodeChallenge ---
[INFO]
[INFO] --- spring-boot-maven-plugin:3.0.0-SNAPSHOT:repackage (repackage) @ SolactiveCodeChallenge ---
[INFO] Replacing main artifact with repackaged archive
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 14.051 s
[INFO] Finished at: 2022-10-31T12:05:19+05:30
[INFO]

```

This PC > New Volume (D:) > Workspace > SpringBoot > SolactiveCodeChallenge > target

| | Name | Date modified | Type | Size |
|----|--|--------------------|---------------------|-----------|
| | classes | 10/31/2022 8:25 AM | File folder | |
| | generated-sources | 10/29/2022 7:19 PM | File folder | |
| | generated-test-sources | 10/29/2022 7:19 PM | File folder | |
| | maven-archiver | 10/31/2022 8:01 AM | File folder | |
| | maven-status | 10/31/2022 8:00 AM | File folder | |
| | surefire-reports | 10/31/2022 8:01 AM | File folder | |
| | test-classes | 10/31/2022 8:25 AM | File folder | |
| al |  SolactiveCodeChallenge-0.0.1-SNAPSHOT | 10/31/2022 9:16 AM | Executable Jar File | 46,582 KB |
| |  SolactiveCodeChallenge-0.0.1-SNAPSHOT.jar.original | 10/31/2022 9:16 AM | ORIGINAL File | 14 KB |