REST API with Spring Entrance Evaluation

Nexlesoft Cooperation, Jun 2023

# OVERVIEW & PURPOSE

This is the entrance test for Backend. Have a good day and good luck :)

# REQUIREMENT

**Objective**

Your task is to create a spring-boot application that serves manages the Users of a company. We’ll store user objects in a mysql database, and access them (via something called JPA). Then we’ll wrap that with something that will allow access over the internet (called the Spring MVC layer).

The code must be clean, readable, and maintainable.

**Requirements**

* You will need to implement the following 4 APIs. For detail, you can view ***Reference 2***
  + Signup
  + Sign in
  + Sign out
  + Refresh Token
* The code does not need to handle creating related tables in MySQL. You can refer to the existing database which already has all the tables created. To access the database, refer to the section **Reference 1**
* Technologies: we’ll use [Spring Boot](https://spring.io/projects/spring-boot). Go to [Spring Initializr](https://start.spring.io/) and add the following dependencies to a project:
  + Web
  + Spring Data JPA
  + Spring Security and BCrypt
  + Spring Security JWT
  + Mysql
* The implementation is uploaded to github and send back to Nexle the repo link.
* It’s a plus if the code implementation is covered by some unit tests (e.g [Junit](https://www.baeldung.com/spring-boot-testing) or your preferable library)

# Reference 1: Database MySQL

* The mysql database has these tables
  + Users
    - id: int
    - firstName: varchar(32)
    - lastName: varchar(32)
    - email: varchar(64)
    - hash: varchar(255)
    - updatedAt: datetime
    - createdAt: datetime
  + Tokens
    - id: int
    - userId: int (ref to Users (id) table)
    - refreshToken: varchar(250)
    - expiresIn: varchar(64)
    - updatedAt: datetime
    - createdAt: datetime
* There’s a mysql server for development which you can access using the following info
  + IP: streaming.nexlesoft.com
  + Port: 3307
  + Username: test01
  + Password: PlsDoNotShareThePass123@
  + Database: entrance\_test

# Reference 2: APIs

## Sign up

* Relative path: /sign-up
* HTTP method: POST
* Inbound
* email
* password
* firstName
* lastName
* Outbound:
  + Response is an object which has these fields as shown in the following example

*{*

*"id": "<id of the user in the database>",*

*"firstName": "<user first name>",*

*"lastName": "<user last name>",*

*"email": "<user email>",*

*"displayName": "<firstName + last Name>"*

*}*

* + Response http code
    - 201 http code on success
    - 400 http code on validation error
    - 500 http code on internal error
* Validation
  + The api should validate if the email is available for the signup or not.
  + The api validate if the email in in correct email format or not.
  + Password must be between 8-20 characters
* Other requirements
  + The password must be encrypted using bcrypt before saving to the database

## Sign In

* Relative path: /sign-in
* HTTP method: POST
* Inbound
* email
* password
* Outbound:
  + Response is an object which has these fields as shown in the following example

*{*

*"user": {*

*"firstName": "<user first name>",*

*"lastName": "<user last name>",*

*"email": "<user email>",*

*"displayName": "<firstName + last Name"*

*},*

*"token": "<jwt token>",*

*"refreshToken": "<jwt refresh token>"*

*}*

* + Response http code
    - 200 http code on success
    - 400 http code on validation error
    - 500 http code on internal error
* Validation
  + The api validate if the email in in correct email format or not.
  + Password must be between 8-20 characters
* Other requirements
  + The token expires in one hour
  + The refreshToken expires in 30 days
  + The refreshToken once created, it must be saved in **tokens** table in database

## Sign out

* Relative path: /sign-out
* HTTP method: POST
* Inbound: none
* Outbound:
  + Response: none
  + Response http code
    - 204 http code on success
    - 500 http code on internal error
* Validation
  + None
* Other requirements
  + The Api should remove all the refresh tokens belong to the user account in refreshToken table.

## Refresh Token

* Relative path: /refresh-token
* HTTP method: POST
* Inbound
* refreshToken
* Outbound:
  + Response is an object which has these fields as shown in the following example

*{*

*"token": "<jwt token>",*

*"refreshToken": "<jwt refresh token>"*

*}*

In which

* + - token: is a new token which will expire in one hour
    - refreshToken: is a new refresh token which will expires in 30 days
  + Response http code
    - 200 http code on success
    - 404 if the supplied refreshToken in the inbound does not exist.
    - 500 http code on internal error
* Validation
  + The api validates if the refreshToken in the inbound exists or not.
* Other requirements
  + Invalidate the old refreshToken
  + None