JAVA Programming Exercise

# Background

Our Application is an Angular 10 / Java micro services application using spring batch/boot that has dynamic GUI forms for one by one form completion and also the need for displaying lots of data in a tabular format with bulk actions and uses AG Grid for. We also use swagger to expose and document our APIs. There is focus on TDD and BDD so unit tests and automation are key. The other key aspect is performance of the application v’s 4000/5000 users and now over low bandwidth/latency links in people’s homes.

# Exercise

We are looking to do a short exercise where we see an example of your code and how you tackle coding problems. ***We are broadly looking for ~90 mins or so prep effort here.*** *Please use best practices for performance and code quality, and add some unit tests.* We would like to discuss why you went with the design choices you chose and what you would do if you had more time

The intent is for you to use whatever IDE/tool/libraries you want (including the specific ones below) , to try show your code running/demo it to us in a Skype/Zoom session during the interview, then walk through the code like you would day to day when solving a problem. You can have a falling unit test(s) and a pass one(s) as you would normally do in TDD.

Technology to Use: Java, Spring Boot, REST, Hibernate/JPA, SQL (as these are what we use day to day)

## Ask:

We have a list of NACE (Nomenclature of Economic Activities) data in a table format, as attached below:

|  |  |
| --- | --- |
|  | Sourced from: <https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_CLS_DLD&StrNom=NACE_REV2&StrLanguage> |

We want you to write a microservice with the following functions:

**(1)** **persists this data** in a table on a simple database (relational or no sql). We use Oracle but MariaDB etc are fine or other persistence method. Should be implemented as an endpoint eg putNaceDetails()

**(2) retrieves all the information** for a given NACE code, the data can be retrieved in any format you want though typically this is JSON. So below we call eg getNaceDetails(398481) and it returns the data:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Order** | Level | Code | Parent | Description | This item includes | This item also includes | Rulings | This item excludes | Reference to ISIC Rev. 4 |
| **398481** | 1 | A |  | AGRICULTURE, FORESTRY AND FISHING | This section includes the exploitation of vegetal and animal natural resources, comprising the activities of growing of crops, raising and breeding of animals, harvesting of timber and other plants, animals or animal products from a farm or their natural habitats. |  |  |  | A |

The microservice should also **(3) expose the REST API**, using Swagger library.

The project should be maven-based, with ability to build an executable jar. It should also have unit tests for java services and integration tests covering database operations.