**Tech Test**

The tech test is a programming exercise to evaluate the candidate technical skills and approach to software development. The candidate is expected to produce a solution in code that demonstrates they understand how to solve the problem using clear concise code.

**When completing the technical test please do:**

* Include instructions on how to run the code, preferably using Junit test cases.
* Keep it simple and cover all possible test scenarios.
* Don’t use any database. In memory DB or caching would do for completing this test.
* Upload source code at Github **private** repository and give access to username **ssib-maersk** and share the link.
* Use Java programming language, preferably Java 8, Spring Boot.

**Please don’t:**

* Build a UI - the focus of the test is on the technical solution and not the interface.

**Introducing My Energy**

In the city most houses have a smart meter installed that can save and send information about how much energy a house has used. There are three major providers of energy in town that charge different amounts for the power they supply.

* Day Night Energy
* Green Energy
* Power Energy.

My Energy is a new startup in the energy industry. Rather than selling energy they want to differentiate themselves from the market by recording their customers' energy usage from their smart meters and recommending the best supplier to meet their needs. You have been placed into their development team, whose current goal is to develop API’s which their customers and smart meters will interact with.

**Users**

To trial the new software 5 people from the company accounts team have agreed to test the service and share their energy data.

* John - Smart Meter Id: "**smart-meter-0**", current power supplier: Day Night Energy. Current Price Plan is "**price-plan-0**", with Unit Rate = 10.
* Dave - Smart Meter Id: "**smart-meter-1**", current power supplier: Green Energy. Current Price Plan is "**price-plan-1**", with Unit Rate = 2.
* Sam - Smart Meter Id: "**smart-meter-2**", current power supplier: Day Night Energy. Current Price Plan is "**price-plan-0**", with Unit Rate = 10.
* Anders - Smart Meter Id: "**smart-meter-3**", current power supplier: Power Energy. Current Price Plan is "**price-plan-2**", with Unit Rate = 1.
* Alex - Smart Meter Id: "**smart-meter-4**", current power supplier: Green Energy. Current Price Plan is "**price-plan-1**", with Unit Rate = 2.

**Overview**

My Energy is a new energy company that uses data to ensure customers can be on the best price plan for their energy consumption.

**API**

Create an REST API endpoint for

**Store Readings**

**Endpoint**

POST

/readings/store

**Input (Request Body)**

{

"smartMeterId": "smart-meter-0",

"electricityReadings": [

{ "time": 1579613461, "reading": 1.32 }

]

}

timestamp: Unix timestamp, e.g. 1504777098  
reading: Decimal number, KW reading of meter at that time, e.g. 0.0503

**Get Stored Readings**

**Endpoint**

GET

/readings/read/{smartMeterId}

smartMeterId: A string value, e.g. smart-meter-0

**Output**

[

{

"time": "2020-01-21T13:31:01Z",

"reading": 1.32

},

{

"time": "2020-01-26T13:31:01Z",

"reading": 1.52

}

]

**View Current Price Plan and Compare Usage Cost Against all Price Plans**

**Endpoint**

GET

/price-plans/compare-all/{smartMeterId}

smartMeterId: A string value, e.g. smart-meter-0

**Output**

{

"pricePlanComparisons": {

"price-plan-2": 215.49,

"price-plan-1": 430.98,

"price-plan-0": 2154.9

},

"pricePlanId": "price-plan-0"

}

“pricePlanId” is the current price plan associated with the meter id.

**View Recommended Price Plans for Usage**

**Endpoint**

GET

/price-plans/recommend/{smartMeterId}

smartMeterId: A string value, e.g. smart-meter-0

**Output**

[

{

"price-plan-2": 215.49

},

{

"price-plan-1": 430.98

},

{

"price-plan-0": 2154.9

}

]

The top most price plan is the recommended one.

**Assessment Criteria:**

Points you will be assessed on:

* Following the Operational requirements.
* A working solution which meets the requirements.
* Testing methods and coverage
* Design, Approach and Elegance of Solution.