Backend Engineer Code Challenge

Introduction: Plushy Manufacturing

In the fictional company, Plushies, Inc, there are factories scattered all over Germany that manufactures stuffed animals and other plushies for children and adults alike. Each of the machines in these factories are equipped with sensors that will post their current status to a service that stores these results and makes the data available in other endpoints (defined below).

You are going to build this service.

Data

The metadata for the machines and parameters will be provided as attached / included CSV files.

Challenge

Build an API web service which provides the following features:

- Load machine and parameter data from the provided CSVs and store in the database.
- Store machine status events that are posted from machines directly. Payload is in the form:

```
{
  "machineKey": "filler",
  "parameters": [
    "aaa": 1,
    "bbb": 5.5
  ]
}
```

- Endpoint that exposes all machines and parameters, along with current value of each parameter. Expecting to see a JSON response that contains:
    - Machine metadata
    - Parameter metadata
    - Most recent parameter values
- Endpoint that exposes all machines and parameters, the same as above, but with average, median, min and max of each parameter over a variable number of minutes provided in the request.

The service should be available on port 8081

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Requirements

- This implementation must be completed in Java with Springboot and Maven
- There must be unit tests
- There should be an explanation of how to start up the application and get it running.

Assumptions

- The data for the machines is assumed to be in the CSVs
- Since there are so few data, and they are static, it is acceptable for this version to use an in-memory database.
- Security is not a concern, as the service is on the internal network and is assumed safe
- The audience for the documentation is technical, but not necessarily knowledgeable about the tools that have been used.