

# Coding Assessment: JAVA

## 1 GUIDELINES

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You are required to develop a Java application which will address the requirement indicated below.

- Language: Java 1.8 or higher
- Submission: A zip folder contains project files and other documents mentioned in the assessment or a GitHub public repo
- Deadline: Refer to the email

## 2 ASSESSMENT DETAILS

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### 2.1 INTRODUCTION

“The Drone” is a new technology company which is working in the area of **drone-based delivery** for urgent package delivery in locations with difficult access. The company has **a fleet of 10 drones**. A drone is capable of delivering small load (payload) additionally to its navigation and cameras.

For this use case, the load is medications.

A **Drone** has:

- Serial Number (100 characters max)
- Model (Lightweight, Middleweight, Cruiserweight, Heavyweight)
- Weight Limit (1000 g Max)
- Battery Capacity (Percentage)
- State (IDLE, LOADING, LOADED, DELIVERING, DELIVERED, RETURNING)

Each **Medication** has:

- Name (allowed only letters, numbers, -, \_)
- Weight
- Code (allowed only uppercase letters, underscores and numbers)
- Image

Develop a **service exposing REST API** which allow clients to communicate with the drones.

The service should be capable of doing,

- Registering a drone
- Loading a drone with medication
- Checking loaded medications for a given drone
- Check drone availability for loading

- Check drone information (Battery)

\* You are allowed to make any assumptions in the design approach.

### **2.1.1 Functional Requirements**

- Prevent drone been overloaded than maximum capacity.
- Maximum capacity is based on drone model (Feel free to assign capacity for model in design).
- Prevent drone enter to LOADING state is the battery level is below 25%.
- Reduce battery percentage for each delivery after completion (Feel free to decide the percentage).
- A scheduler or any other mechanism to handle drone state transition.

### **2.1.2 Non-Functional Requirements**

- Input / Output data of APIs should be JSON.
- Your project must be buildable and runnable.
- Your project must have a README file with build/run/test instructions.
- If database is required, use in memory database type (Ex: H2).
- Any data required by the application to run must be preloaded in the database (Ex: reference data, dummy data).
- Junit tests are optional but advisable.
- Postman collection with APIs or document with curls to test the APIs.

### **2.1.3 Out Of Scope**

- Drone commination or any function related to real world implementation are out of scope.
- API authentication is out of scope. All APIs can be no auth.
- Design documents are not required.