

# Take-Home Assignment (AfterShip)

## Use Case Context

Cloudleaf Inc is a supply chain visibility platform that allows customers to track their assets like shipments, machines, through sensors. Logistics is an application, from Cloudleaf, tracks shipments. One of the customer use cases is to get visibility of their PARCEL shipments shipped via different couriers such as FedEx, UPS, USPS, China Post, etc using the tracking number. We can integrate with third party shipment aggregators to solve this problem. We have identified <https://www.aftership.com/> is one of the shipment aggregators that has integrated with more than 700 couriers in the world. They expose REST APIs to register tracking numbers and check the status of a tracking number at any given point in time. Here is the [AfterShip API Reference](#). In this assignment, we are going to integrate with AfterShip APIs to track shipments from different couriers.

## Problem Statement

Allow the user to create and track a shipment using a tracking number. Create two APIs as follows:

1. API to create a shipment.
2. API to get the shipment details along with its status using the shipment ID. The customer should be able to know where his or her shipment is.

## Shipment Entity

```
{
  "id" : "6ale9bb8-8e30-11ea-bc55-0242ac130003",
  "origin": "990 S Hwy 395 S, Hermiston, OR 97838",
  "destination" : "3505 Factoria Blvd SE, Bellevue, WA 98006",
  "currentStatus": "InTransit",
  "trackingNumber": "9374889676091297266845",
  "courierCode" : "USPS"
}
```

## Input Constraints

Shipment Object has the following constraints:

1. Tracking Number is required and not blank.
2. Origin Address is required, and not blank.
3. Destination Address is required, and not blank.
4. Courier Code is required and it should be one of the allowed values: FedEx, UPS, USPS

## AfterShip Third-Party Service

- [AfterShip](#) is an aggregator service. It exposes APIs to register and track the shipments using tracking numbers.
- The related APIs are specified in <https://docs.aftership.com/api/4/trackings/post-trackings>.
- AfterShip has a free Plan, create a new account, and get the API Key to access their APIs.

## Testing

Sample Tracking numbers are given below for testing. If there are other active tracking numbers, please use them for testing as well.

Courier	Tracking Number
USPS	9374889676091297266845
	940011169900035246030
	9400111202527892033858

UPS	1Z445FY81320608602 1Z8Y8Y821331942794 1Z08835W0397010926 1Z8234X81300571974
FedEx	772015445935 771651048942

### Expectations and Evaluation Criteria

- Self-start Person: Are they able to understand the product requirements? Read the Third Party Service API documents?
- A working solution using a spring-boot java web application framework.
- Add proper validation and return status codes for the API.
- Usage of right data structures.
- Clean well commented, readable code. Use proper naming conventions.
- Proper logging.
- Write Unit Tests using Junit5. (API testing).
- Write API documentation.

### Important Notes

1. No UI is expected.
2. It's a simple REST API integration project. No security/authentication is expected for this API.