

## Prerequisites

- Java 8 or higher

## Requirements

- **Gradle** or **Maven** as build tool, preferably with wrapper included
- Application can be built and run without any additional configuration needed, provide necessary commands for running it
- Feel free to design API as you wish - it can be REST API, CLI application, etc.
- Feel free to choose any 3rd party libraries you find useful

## What will be evaluated

- Completion of requirements
- Code quality & design
- Meaningful test coverage

## Description

Network deployment might consist of several devices.

Networking device might be of following types:

- **Gateway** - serves as access point to another network
- **Switch** - connects devices on a computer network
- **Access Point** - connects devices on a computer network via Wi-Fi

Typically, these devices are connected to one another and collectively form a network deployment.

Every device on a computer network can be identified by [MAC address](#).

If device is attached to another device in same network, it is represented via *uplink* reference.

## Task

Define and implement *Device API*, which should support following features:

- Registering a device to a network deployment
  - **input:** `deviceType`, `macAddress`, `uplinkMacAddress`
- Retrieving all registered devices, sorted by *device type*
  - **output:** sorted list of devices, where each entry has `deviceType` and `macAddress` (sorting order: `Gateway > Switch > Access Point`)
- Retrieving network deployment device by MAC address
  - **input:** `macAddress`
  - **output:** Device entry, which consists of `deviceType` and `macAddress`
- Retrieving all registered network device topology
  - **output:** Device topology as [tree structure](#), node should be represented as `macAddress`
- Retrieving network device topology starting from a specific device
  - **input:** `macAddress`
  - **output:** Device topology where root node is `device` with matching `macAddress`

Additional notes:

- Device may or may not be connected to uplink device

## Submission

- Provide URL to a public repository or send project files as ZIP archive