

Introduction

There are 3 questions to be completed

- 1) suffix with unit
- 2) json manipulation and bash scripting
- 3) ground plane detection

1) Suffix With Unit

You can write in any programming language that you prefer

Example:

```
suffixWithUnit(123) => 123
suffixWithUnit(1234) => 1.234 Kilo
suffixWithUnit(12345) => 12.345 Kilo
suffixWithUnit(1234567) => 1.234567 Mega
suffixWithUnit(12345678) => 12.345678 Mega
```

The function signature

```
string suffixWithUnit(double number) {
}
```

2) JSON Manipulation and Bash Scripting

There are 2 parts in this question

2a) JSON Manipulation

There are 2 JSON structure

- JSON_A
- JSON_B

Please convert `JSON_A` to `JSON_B` structure

You can write in any programming language that you prefer

JSON_A

```
{
  "locker_5_light": 1,
  "locker_5_unlock": 2,
  "locker_6_light": 1,
  "locker_6_unlock": 1,
  "locker_1_door": 1,
  "locker_1_item": 1,
  "locker_2_door": 1,
  "locker_2_item": 2,
  "locker_5_door": 1,
```

```

"locker_5_item": 5,
"locker_6_door": 1,
"locker_6_item": 1,
"locker_1_light": 0,
"locker_1_unlock": 1,
"locker_2_light": 1,
"locker_2_unlock": 1,
"locker_3_light": 1,
"locker_3_unlock": 1,
"locker_4_light": 1,
"locker_4_unlock": 1,
"locker_3_door": 1,
"locker_3_item": 3,
"locker_4_door": 1,
"locker_4_item": 0
}

```

JSON_B

```

{
  '1': {
    door: 1,
    item: 1,
    light: 0,
    unlock: 1
  },
  '2': {
    door: 1,
    item: 2,
    light: 1,
    unlock: 1
  },
  '3': {
    door: 1,
    item: 3,
    light: 1,
    unlock: 1
  },
  '4': {
    door: 1,
    item: 0,
    light: 1,
    unlock: 1
  },
  '5': {
    door: 1,
    item: 5,
    light: 1,
    unlock: 2
  },
  '6': {
    door: 1,
    item: 1,
    light: 1,
    unlock: 1
  }
}

```

2b) Bash Scripting

Given a folder with a path `json_data/`, inside this folder, it contains `10` json files of type `JSON_A`, please use the application that you write in `2a` to convert them from `JSON_A` to `JSON_B`

```

json_data
+ 0.json
+ 1.json

```

```
+ 2.json
+ 3.json
+ 4.json
+ 5.json
+ 6.json
+ 7.json
+ 8.json
+ 9.json
```

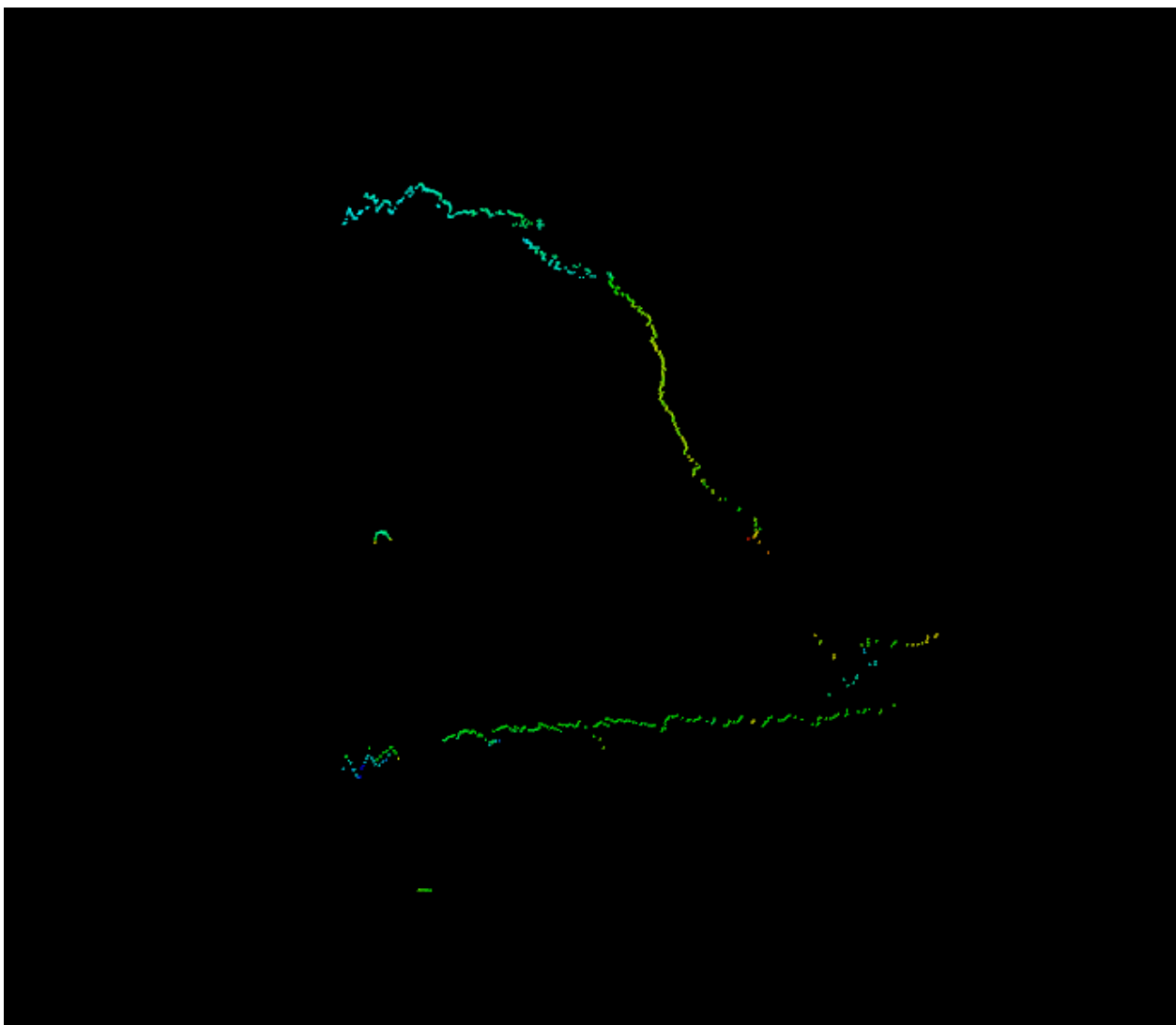
If the time to convert from `JSON_A` to `JSON_B` takes 10 seconds, how would you improve it?

You are **REQUIRED** to use `bash` or `shell` scripting to perform this task

3) Ground plane detection

You are given a point cloud data file `2d_pointcloud.txt`, which has space separated value format with the following header `x, y, z, intensity`

Below is the screenshot of the point cloud



Please write a function that returns a `boolean` (true or false), if the given point cloud is a ground plane or not

You can write in any programming language that you prefer