TfL Coding Challenge

Overview of API

TfL maintains an open data REST API at https://api.tfl.gov.uk

Amongst the data available is the status of tube lines. An example of the data returned is shown below: -

GET http://api.tfl.gov.uk/Line/Mode/Tube/Status will return an array of the current statuses of all tube lines. An example entry for a line with no disruptions would be as follows: -


```
[
    {
        "$type": "Tfl.Api.Presentation.Entities.Line, Tfl.Api.Presentation.Entities",
        "id": "bakerloo",
        "name": "Bakerloo",
        "modeName": "tube",
        "disruptions": [],
        "created": "2018-03-14T17:44:30.943Z",
        "modified": "2018-03-14T17:44:30.943Z",
        "lineStatuses": [
            {
                "$type": "Tfl.Api.Presentation.Entities.LineStatus,
Tfl.Api.Presentation.Entities",
                "id": 0,
                "statusSeverity": 10,
                "statusSeverityDescription": "Good Service",
                "created": "0001-01-01T00:00:00",
                "validityPeriods": []
            }
        ],
        "routeSections": [],
        "serviceTypes": [
            {
                "$type": "Tfl.Api.Presentation.Entities.LineServiceTypeInfo,
Tfl.Api.Presentation.Entities",
                "name": "Regular",
                "uri": "/Line/Route?ids=Bakerloo&serviceTypes=Regular"
            }
        ],
        "crowding": {
            "$type": "Tfl.Api.Presentation.Entities.Crowding, Tfl.Api.Presentation.Entities"
        }
    },
]
```


An example entry for a disrupted line (in this case a planned closure) would look as follows: -


```
[
    {
        "$type": "Tfl.Api.Presentation.Entities.Line, Tfl.Api.Presentation.Entities",
        "id": "circle",
        "name": "Circle",
        "modeName": "tube",
        "disruptions": [],
        "created": "2018-03-14T17:44:30.937Z",
        "modified": "2018-03-14T17:44:30.937Z",
        "lineStatuses": [
            {
```

```
                "$type": "Tfl.Api.Presentation.Entities.LineStatus,
Tfl.Api.Presentation.Entities",
                "id": 0,
                "lineId": "circle",
                "statusSeverity": 4,
                "statusSeverityDescription": "Planned Closure",
                "reason": "CIRCLE LINE: Saturday 24 and Sunday 25 March, no Circle line
service throughout the line.",
                "created": "0001-01-01T00:00:00",
                "validityPeriods": [
                    {
                        "$type": "Tfl.Api.Presentation.Entities.ValidityPeriod,
Tfl.Api.Presentation.Entities",
                        "fromDate": "2018-03-24T04:30:00Z",
                        "toDate": "2018-03-26T01:29:00Z",
                        "isNow": true
                    }
                ],
                "disruption": {
                    "$type": "Tfl.Api.Presentation.Entities.Disruption,
Tfl.Api.Presentation.Entities",
                    "category": "PlannedWork",
                    "categoryDescription": "PlannedWork",
                    "description": "CIRCLE LINE: Saturday 24 and Sunday 25 March, no Circle
line service throughout the line.",
                    "created": "2018-01-10T09:34:00Z",
                    "affectedRoutes": [],
                    "affectedStops": [],
                    "closureText": "plannedClosure"
                }
            }
        ],
        "routeSections": [],
        "serviceTypes": [
            {
                "$type": "Tfl.Api.Presentation.Entities.LineServiceTypeInfo,
Tfl.Api.Presentation.Entities",
                "name": "Regular",
                "uri": "/Line/Route?ids=Circle&serviceTypes=Regular"
            }
        ],
        "crowding": {
            "$type": "Tfl.Api.Presentation.Entities.Crowding, Tfl.Api.Presentation.Entities"
        }
    },
]
```


Exercise

Task Overview

We would like you to build a simple single mobile application. This will show the current status of all tube lines.

The application that you build should show: -

- The status of all lines
- For each tube line the application should show: -
    - Line Name
    - Line Status

The results should display correctly on a mobile device. Specifically, the line statuses should display in a single column and should stretch depending on the viewport width.

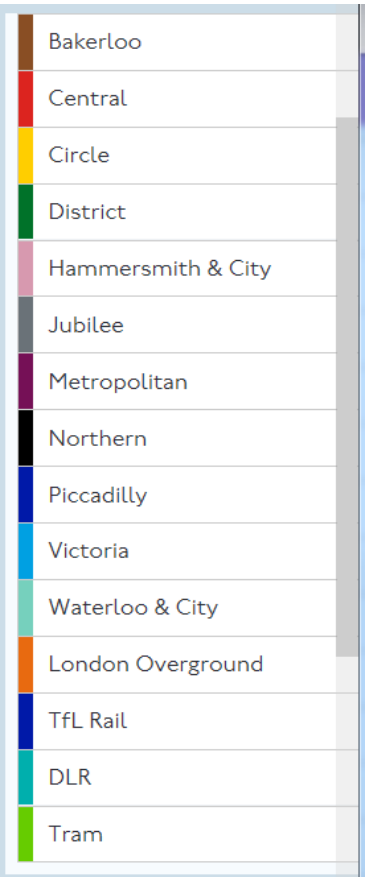

Figure 2: Single Column Mobile

Approach

- You should also consider accessibility e.g. voice over and text scaling, and landscape mode. As a UK government organisation everything TfL produces must be WCAG 2.1 AA Compliant.
- You may wish to use BDD and/or TDD in your answer.
- Please use Java or Kotlin (for Android developer role) or Swift (for iOS developer role)
- Your code should be submitted as either of the following: -
    - As a Zip File via email (stripped of all binaries and intermediate build objects (otherwise it will be blocked by our email system)
    - As a link to publicly accessible area such as a GitHub repository or DropBox.
- You should supply instructions in Markdown format in a file called “README.md”. These should contain details of: -
    - How to build the code
    - How to run the output
    - How to run any tests that you have written
    - any assumptions that you’ve made
    - anything else you think is relevant

- It should be possible to configure your application to use a different API key. You should ensure that yours are removed from the source code before you submit it and instructions are included in the readme file as how to change these.

Good luck and happy coding ☺