Recruiting Backend Engineer: Phone Number Lookup

Overview & Goal

The goal of this exercise is to create a standalone application exposing a REST/HTTP interface according to the requirements below.

Requirements

Create an `/v1/phone-numbers` endpoint that takes request parameters and returns information about a phone number.

Request parameters

phoneNumber

- in E.164 format: `[+][country code][area code][local phone number]`
- `+` is optional
- phone number is sequence of digits
- phones can spaces between country, area code and local phone number
  - any other space is invalid
  - any other character is invalid
- For example
  - `+12125690123` (valid)
  - `+52 631 3118150` (valid)
  - `34 915 872200` (valid)
  - `351 21 094   2000` (invalid)
- if `phoneNumber` is missing country code then user must provide `countryCode` parameter in ISO 3166-1 alpha-2 format.

countryCode

- in ISO 3166-1 alpha-2 format
- For example:
  - `US` (valid)
  - `MX` (valid)
  - `ESP` (invalid)

Response

success

`/v1/phone-numbers?phoneNumber=%2B12125690123`

Note: `+` is URL encodes as `%2B`

```
1  {
2    "phoneNumber": "+12125690123",
3    "countryCode": "US",
4    "areaCode": "212",
5    "localPhoneNumber": "5690123"
6  }
```

error

`/v1/phone-numbers?phoneNumber=631%20311%208150`

Note: `[space]` is URL-encoded as `%20`

```json
1  {
2    "phoneNumber": "631311208150",
3    "error": {
4      "countryCode": "required value is missing"
5    }
6  }
```

Please refer to write up requirements in FAQ section.

Criteria

We'll be evaluating your submission according to several criteria:

1. Was a reviewer able to run your code on their computer?
2. Does it provide expected response to well-formed inputs?
3. Does it handle errors for invalid inputs?
4. How readable is your submission?
5. How efficient is the code?
6. How well-structured is your submission?
7. How well-documented is your submission?
8. How well-tested is your submission?

FAQ

1. **What programming language should I use?**

   You are free to choose any programming language.

2. **Can I use an *ABC* library or a *XYZ* framework?**

   Yes, you are free to choose any framework or library you want.

3. **How long should I take to complete this?**

   Please don't spend more than two hours to create your submission. You can take as much time as necessary to design and research a solution.

4. **What should I include with my submission?**

   Please include a `README.md` with

   a. Explanation of how we would install and run your submission
   b. Explanation of your choice of programming language, framework, library.
   c. Explanation of how you would deploy to production.
      i. You are not required to deploy your submission.
   d. Explanation of assumptions you made
   e. Explanation of improvements you wish to make

5. **Should I include automated tests?**

   Yes, please provide automated tests with your submission.