

# PROGRAMMING TASK - USER GUIDE

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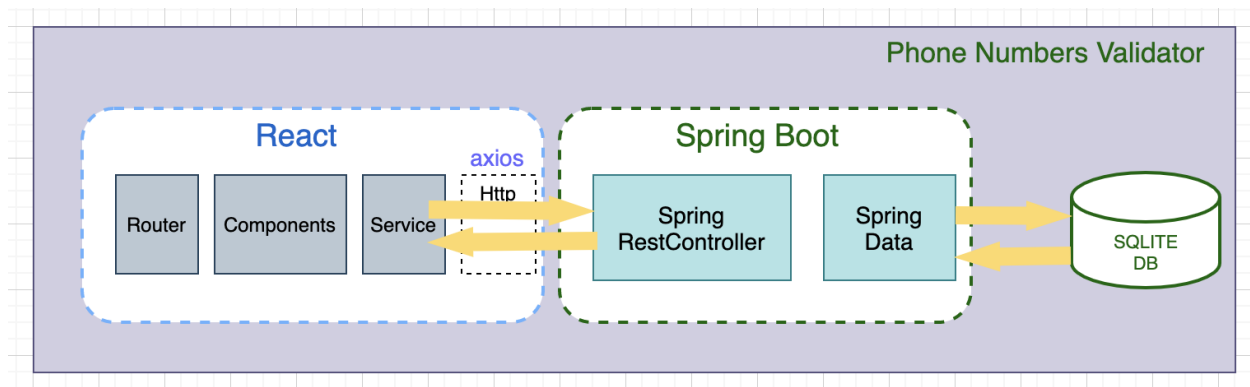
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# Introduction

This task has two implementations, Backend service and Frontend service.

The backend is implemented in the Spring boot framework and the Frontend is implemented in React.

## High-Level Architecture



- Spring Boot exports REST Apis using Spring Web MVC & interacts with Database using Spring Data.
- React Client sends HTTP Requests and retrieves HTTP Responses using Axios, showing data on the components. React Router is used for navigating pages.

## 1. Phone Number Validator-Backend

This task was done in Spring boot for Java and it's using Maven for dependency management.

### Repositories

To run and test the working of this solution, **git clone** the below public repositories from [here](#).

| Repository Name                  | Location  |
|----------------------------------|---|
| phone-numbers-validator-backend  | <a href="https://github.com/Bobiology/phone-numbers-validator-backend.git">https://github.com/Bobiology/phone-numbers-validator-backend.git</a> |
| phone-numbers-validator-frontend | <a href="https://github.com/Bobiology/phone-number-validator-frontend">https://github.com/Bobiology/phone-number-validator-frontend</a>         |

## Requirements

Before running this spring boot application, ensure the below have been installed and configured accordingly.

- Maven
- JDK 11+
- Docker (optional)

## Start the Application

- Git clone the repository below.  
<https://github.com/Bobiology/phone-numbers-validator-backend.git>
- Open a shell terminal & navigate to the root of the ***phone-numbers-validator-backend*** spring-project.
- While on the terminal issue the below command and hit Enter key:  
`mvn clean install`

```

phone-numbers-validator git:(main) * ls
Dockerfile HELP.md README.md app.log mvnw mvnw.cmd pom.xml sample.db src target
phone-numbers-validator git:(main) * ls -l
total 352
-rw-r--r-- 1 sakawabob staff 196 May 21 14:53 Dockerfile
-rw-r--r--@ 1 sakawabob staff 1424 May 16 11:58 HELP.md
-rw-r--r-- 1 sakawabob staff 1209 May 21 15:07 README.md
-rw-r--r-- 1 sakawabob staff 98723 May 21 16:38 app.log
-rwxr-xr-x@ 1 sakawabob staff 10284 May 16 11:58 mvnw
-rw-r--r--@ 1 sakawabob staff 6734 May 16 11:58 mvnw.cmd
-rw-r--r--@ 1 sakawabob staff 2166 May 21 14:50 pom.xml
-rw-r--r--@ 1 sakawabob staff 5120 May 16 22:05 sample.db
drwxr-xr-x@ 5 sakawabob staff 160 May 16 15:15 src
drwxr-xr-x 11 sakawabob staff 352 May 21 15:43 target
phone-numbers-validator git:(main) * mvn clean install

```


- After a successful run, issue the command below to start the application.

```
mvn spring-boot:run
```

```
phone-numbers-validator git:(main) * mvn spring-boot:run
```

- The application will start on port **8081** by default. If another service is using that port, locate the **application.properties** file at '**src/main/resources/**' and assign the **server.port** property to a different port. *Remember to also change the same in the Frontend Application.*

```

phone-numbers-validator git:(main) ✗ mvn spring-boot:run
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.phone.validator:phone-numbers-validator >-----
[INFO] Building phone-numbers-validator 0.0.1-SNAPSHOT
[INFO] -----[ jar ]-----
[INFO]
[INFO] >>> spring-boot-maven-plugin:2.6.7:run (default-cli) > test-compile @ phone-numbers-validator >>>
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:resources (default-resources) @ phone-numbers-validator ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] Copying 1 resource
[INFO] Copying 0 resource
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:compile (default-compile) @ phone-numbers-validator ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] --- maven-resources-plugin:3.2.0:testResources (default-testResources) @ phone-numbers-validator ---
[INFO] Using 'UTF-8' encoding to copy filtered resources.
[INFO] Using 'UTF-8' encoding to copy filtered properties files.
[INFO] skip non existing resourceDirectory /Users/sakawabob/Documents/iLIFE/BIO/CAREER/JUMIA/phone-numbers-validator/src/test/resources
[INFO]
[INFO] --- maven-compiler-plugin:3.8.1:testCompile (default-testCompile) @ phone-numbers-validator ---
[INFO] Nothing to compile - all classes are up to date
[INFO]
[INFO] <<< spring-boot-maven-plugin:2.6.7:run (default-cli) < test-compile @ phone-numbers-validator <<<
[INFO]
[INFO] --- spring-boot-maven-plugin:2.6.7:run (default-cli) @ phone-numbers-validator ---
[INFO] Attaching agents: {}
18:36:32.632 [Thread-8] DEBUG org.springframework.boot.devtools.restart.classloader.RestartClassLoader - Created RestartClassLoader org.springframework.boot.devtools.restart.classloader.Restart
ClassLoader$62a5fa75

18:36:33.636 [restartedMain] INFO com.phone.validator.Application - Starting Application using Java 18 on Bobs-MacBook-Pro.local with PID 78787 (/Users/sakawabob/Documents/iLIFE/BIO/CAREER/JUM
IA/phone-numbers-validator/target/classes started by sakawabob in /Users/sakawabob/Documents/iLIFE/BIO/CAREER/JUMIA/phone-numbers-validator)
18:36:33.635 [restartedMain] INFO com.phone.validator.Application - The following 1 profile is active: "dev"
18:36:33.632 [restartedMain] INFO o.a.catalina.core.StandardService - Starting service [Tomcat]
18:36:33.632 [restartedMain] INFO o.a.catalina.core.StandardEngine - Starting Servlet engine: [Apache Tomcat/9.0.62]
18:36:33.637 [restartedMain] INFO o.a.c.c.C.[Tomcat].[localhost].[/] - Initializing Spring embedded WebApplicationContext
18:36:33.745 [restartedMain] INFO o.h.jpa.internal.util.LogHelper - HHH000204: Processing PersistenceUnitInfo [name: default]
18:36:33.762 [restartedMain] INFO org.hibernate.Version - HHH000412: Hibernate ORM core version 5.6.8.Final
18:36:33.824 [restartedMain] INFO o.h.annotations.common.Version - HCANN000001: Hibernate Commons Annotations (5.1.2.Final)
18:36:33.859 [restartedMain] INFO com.zaxxer.hikari.HikariDataSource - HikariPool-1 - Starting...
18:36:34.196 [restartedMain] INFO com.zaxxer.hikari.HikariDataSource - HikariPool-1 - Start completed.
18:36:34.207 [restartedMain] INFO org.hibernate.dialect.Dialect - HHH000400: Using dialect: com.phone.validator.dialect.SQLDialect
18:36:34.416 [restartedMain] INFO o.h.e.t.j.p.i.JtaPlatformInitiator - HHH000490: Using JtaPlatform implementation: [org.hibernate.engine.transaction.jta.platform.internal.NoJtaPlatform]
18:36:34.722 [restartedMain] INFO com.phone.validator.Application - Started Application in 2.085 seconds (JVM running for 2.257)
18:36:34.748 [restartedMain] INFO com.phone.validator.Application - ***** INTERNATIONAL PHONE NUMBERS VALIDATOR SERVICE *****

```

## Docker Image (Optional)

### a) Build Image

- To build a docker image from this project navigate to the root directory then issue the below command.

```
docker build -f Dockerfile -t phone-numbers-validator .
```

```

phone-numbers-validator git:(main) ✗ ls -l
total 352
-rw-r--r--  1 sakawabob  staff   196 May 21 14:53 Dockerfile
-rw-r--r--@  1 sakawabob  staff  1424 May 16 11:58 HELP.md
-rw-r--r--  1 sakawabob  staff  1209 May 21 15:07 README.md
-rw-r--r--  1 sakawabob  staff 118987 May 21 18:44 app.log
-rwxr-xr-x@  1 sakawabob  staff 10284 May 16 11:58 mvnw
-rw-r--r--@  1 sakawabob  staff  6734 May 16 11:58 mvnw.cmd
-rw-r--r--@  1 sakawabob  staff  2166 May 21 14:50 pom.xml
-rw-r--r--@  1 sakawabob  staff  5120 May 16 22:05 sample.db
drwxr-xr-x@  5 sakawabob  staff   160 May 16 15:15 src
drwxr-xr-x 11 sakawabob  staff   352 May 21 18:31 target
phone-numbers-validator git:(main) ✗ docker build -f Dockerfile -t bobiologist/phone-numbers-validator .

```



# Simulation

Interact with the API Using POSTMAN Client

**ENDPOINT:** <http://localhost:8081/customers>

**METHOD:** GET

The screenshot displays the Postman interface for a GET request to `http://localhost:8081/customers`. The request is successful, returning a `200 OK` status with a response time of `164 ms` and a size of `2.56 KB`. The response body is shown in JSON format, containing a list of customer objects and pagination metadata.

```
1 {
2   "content": [
3     {
4       "id": 0,
5       "countryName": "Morocco",
6       "countryCode": 212,
7       "phoneNumber": "6807989253",
8       "phoneStatus": "NOT_VALID"
9     },
10    {
11      "id": 1,
12      "countryName": "Morocco",
13      "countryCode": 212,
14      "phoneNumber": "698054317",
15      "phoneStatus": "VALID"
16    },
17    {
18      "id": 2,
19      "countryName": "Morocco",
20      "countryCode": 212,
21      "phoneNumber": "6546545369",
22      "phoneStatus": "NOT_VALID"
23    },
24  ],
25  "pageable": {
26    "sort": {
27      "unsorted": true,
28      "sorted": false,
29      "empty": true
30    },
31    "pageNumber": 0,
32    "pageSize": 20,
33    "offset": 0,
34    "paged": true,
35    "unpaged": false
36  },
37  "totalElements": 41,
38  "totalPages": 3,
39  "last": false,
40  "first": true,
41  "numberOfElements": 20,
42  "number": 0,
43  "sort": {
44    "unsorted": true,
45    "sorted": false,
46    "empty": true
47  },
48  "size": 20,
49  "empty": false
50 }
```

## 2. Phone Number Validator-Frontend

The UI is written in React and it is meant to complement the Phone Number Validator API by displaying the API contents in a user-friendly interface.

### Requirements

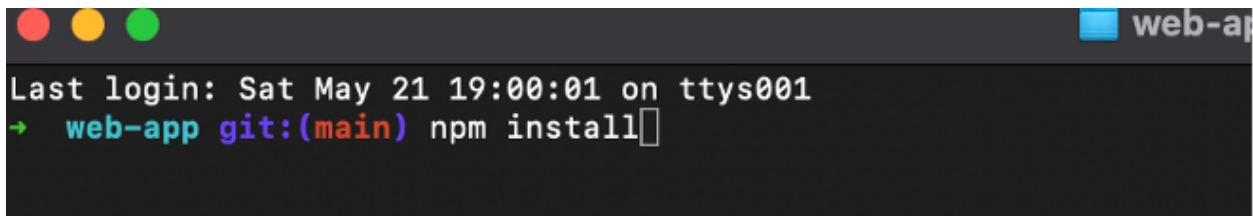
- NodeJS

### Starting the UI

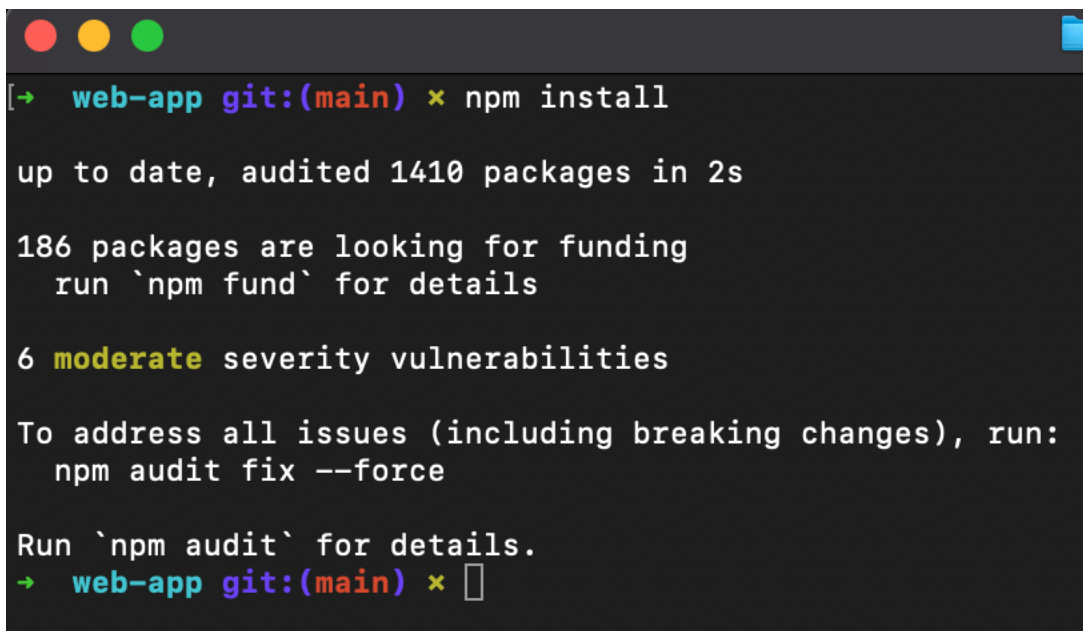
To start this UI, from the shell terminal, navigate to the root directory of the cloned project repo.

Type the below command and hit the ENTER key.

`npm install`



```
Last login: Sat May 21 19:00:01 on ttys001
→ web-app git:(main) npm install
```



```
[→ web-app git:(main) × npm install

up to date, audited 1410 packages in 2s

186 packages are looking for funding
  run `npm fund` for details

6 moderate severity vulnerabilities

To address all issues (including breaking changes), run:
  npm audit fix --force

Run `npm audit` for details.
→ web-app git:(main) ×
```



After a successful installation of dependencies, run the command below to start the UI.

`npm start`

The application will start on port 3000 by default.

On the browser type the below URL to access the UI.

'<http://server:3000>' => <http://localhost:3000> and hit the Enter key.

## INTERNATIONAL PHONE NUMBER VALIDATION SERVICE - UI

| ID | COUNTRY NAME ↑↓<br>Filter by COUNTRY NAME | COUNTRY CODE ↑↓<br>Filter by COUNTRY CODE | PHONE NUMBER ↑↓<br>Filter by PHONE NUMBER | STATUS ↑↓<br>Filter by STATUS |
|----|---|---|---|-------------------------------|
|    | Enter COUNTRY NAME...                     | Enter COUNTRY CODE...                     | Enter PHONE NUMBER...                     | Enter STATUS...               |
| 0  | Morocco                                   | 212                                       | 6007989253                                | NOT_VALID                     |
| 1  | Morocco                                   | 212                                       | 698054317                                 | VALID                         |
| 2  | Morocco                                   | 212                                       | 6546545369                                | NOT_VALID                     |
| 3  | Morocco                                   | 212                                       | 6617344445                                | NOT_VALID                     |
| 4  | Morocco                                   | 212                                       | 691933626                                 | VALID                         |

5 Showing rows 1 to 5 of 41

<< < 1 2 3 4 5 > >>

## Simulation

To **sort**, click on any the name of the column of interest.

Sorting can be in ascending or descending orders.

**Countries sorted in Ascending order**

## INTERNATIONAL PHONE NUMBER VALIDATION SERVICE - UI

| ID | COUNTRY NAME ↑↓<br>Filter by COUNTRY NAME | COUNTRY CODE ↑↓<br>Filter by COUNTRY CODE | PHONE NUMBER ↑↓<br>Filter by PHONE NUMBER | STATUS ↑↓<br>Filter by STATUS |
|----|---|---|---|-------------------------------|
|    | Enter COUNTRY NAME...                     | Enter COUNTRY CODE...                     | Enter PHONE NUMBER...                     | Enter STATUS...               |
| 31 | Cameroon                                  | 237                                       | 697151594                                 | VALID                         |
| 32 | Cameroon                                  | 237                                       | 677046616                                 | VALID                         |
| 33 | Cameroon                                  | 237                                       | 6A0311634                                 | NOT_VALID                     |
| 34 | Cameroon                                  | 237                                       | 673122155                                 | VALID                         |
| 35 | Cameroon                                  | 237                                       | 695539786                                 | VALID                         |
| 36 | Cameroon                                  | 237                                       | 6780009592                                | NOT_VALID                     |
| 37 | Cameroon                                  | 237                                       | 6622284920                                | NOT_VALID                     |
| 38 | Cameroon                                  | 237                                       | 696443597                                 | VALID                         |
| 39 | Cameroon                                  | 237                                       | 691816558                                 | VALID                         |
| 40 | Cameroon                                  | 237                                       | 699209115                                 | VALID                         |

10 Showing rows 1 to 10 of 41

<< < 1 2 3 4 5 > >>

## Countries sorted in Descending Order

### INTERNATIONAL PHONE NUMBER VALIDATION SERVICE - UI

| ID | COUNTRY NAME ↑↓<br>Filter by COUNTRY NAME | COUNTRY CODE ↑↓<br>Filter by COUNTRY CODE | PHONE NUMBER ↑↓<br>Filter by PHONE NUMBER | STATUS ↑↓<br>Filter by STATUS |
|----|---|---|---|-------------------------------|
|    | Enter COUNTRY NAME...                     | Enter COUNTRY CODE...                     | Enter PHONE NUMBER...                     | Enter STATUS...               |
| 15 | Uganda                                    | 256                                       | 775069443                                 | VALID                         |
| 16 | Uganda                                    | 256                                       | 750306263                                 | NOT_VALID                     |
| 17 | Uganda                                    | 256                                       | 704244430                                 | VALID                         |
| 18 | Uganda                                    | 256                                       | 7734127498                                | NOT_VALID                     |
| 19 | Uganda                                    | 256                                       | 7771031454                                | NOT_VALID                     |
| 20 | Uganda                                    | 256                                       | 3142345678                                | NOT_VALID                     |
| 21 | Uganda                                    | 256                                       | 714660221                                 | VALID                         |
| 7  | Mozambique                                | 258                                       | 847651504                                 | VALID                         |
| 8  | Mozambique                                | 258                                       | 846565883                                 | VALID                         |
| 9  | Mozambique                                | 258                                       | 849181828                                 | VALID                         |

10 ▾

Showing rows 1 to 10 of 41

<< < 1 2 3 4 5 > >>

To **filter**, type in the text field below the column name of interest.

### INTERNATIONAL PHONE NUMBER VALIDATION SERVICE - UI

| ID | COUNTRY NAME ↑↓<br>Filter by COUNTRY NAME | COUNTRY CODE ↑↓<br>Filter by COUNTRY CODE | PHONE NUMBER ↑↓<br>Filter by PHONE NUMBER | STATUS ↑↓<br>Filter by STATUS |
|----|---|---|---|-------------------------------|
|    | ETH                                       | Enter COUNTRY CODE...                     | Enter PHONE NUMBER...                     | Enter STATUS...               |
| 22 | Ethiopia                                  | 251                                       | 9773199405                                | NOT_VALID                     |
| 23 | Ethiopia                                  | 251                                       | 914701723                                 | VALID                         |
| 24 | Ethiopia                                  | 251                                       | 911203317                                 | VALID                         |
| 25 | Ethiopia                                  | 251                                       | 9119454961                                | NOT_VALID                     |
| 26 | Ethiopia                                  | 251                                       | 914148181                                 | VALID                         |
| 27 | Ethiopia                                  | 251                                       | 966002259                                 | VALID                         |
| 28 | Ethiopia                                  | 251                                       | 988200000                                 | VALID                         |
| 29 | Ethiopia                                  | 251                                       | 924418461                                 | VALID                         |
| 30 | Ethiopia                                  | 251                                       | 911168450                                 | VALID                         |

10 ▾

Showing rows 1 to 9 of 9

<< < 1 > >>

## Filtering using multiple columns

### INTERNATIONAL PHONE NUMBER VALIDATION SERVICE - UI

| ID                          | COUNTRY NAME ↑↓<br>Filter by COUNTRY NAME | COUNTRY CODE ↑↓<br>Filter by COUNTRY CODE | PHONE NUMBER ↑↓<br>Filter by PHONE NUMBER | STATUS ↑↓<br>Filter by STATUS |
|-----------------------------|---|---|---|-------------------------------|
|                             | ETH                                       | Enter COUNTRY CODE...                     | Enter PHONE NUMBER...                     | NOT                           |
| 22                          | Ethiopia                                  | 251                                       | 9773199405                                | NOT_VALID                     |
| 25                          | Ethiopia                                  | 251                                       | 9119454961                                | NOT_VALID                     |
| 10 Showing rows 1 to 2 of 2 |   |   |   |                               |
| << < 1 > >>                 |   |   |   |                               |

To navigate to the next page, click on the **next page marker(>)** or **page number** below the list page.

### INTERNATIONAL PHONE NUMBER VALIDATION SERVICE - UI

| ID                            | COUNTRY NAME ↑↓<br>Filter by COUNTRY NAME | COUNTRY CODE ↑↓<br>Filter by COUNTRY CODE | PHONE NUMBER ↑↓<br>Filter by PHONE NUMBER | STATUS ↑↓<br>Filter by STATUS |
|-------------------------------|---|---|---|-------------------------------|
|                               | Enter COUNTRY NAME...                     | Enter COUNTRY CODE...                     | Enter PHONE NUMBER...                     | Enter STATUS...               |
| 15                            | Uganda                                    | 256                                       | 775069443                                 | VALID                         |
| 16                            | Uganda                                    | 256                                       | 750306263                                 | NOT_VALID                     |
| 17                            | Uganda                                    | 256                                       | 704244430                                 | VALID                         |
| 18                            | Uganda                                    | 256                                       | 7734127498                                | NOT_VALID                     |
| 19                            | Uganda                                    | 256                                       | 7771031454                                | NOT_VALID                     |
| 20                            | Uganda                                    | 256                                       | 3142345678                                | NOT_VALID                     |
| 21                            | Uganda                                    | 256                                       | 714660221                                 | VALID                         |
| 7                             | Mozambique                                | 258                                       | 847651504                                 | VALID                         |
| 8                             | Mozambique                                | 258                                       | 846565883                                 | VALID                         |
| 9                             | Mozambique                                | 258                                       | 849181828                                 | VALID                         |
| 10 Showing rows 1 to 10 of 41 |   |   |   |                               |
| << < 1 2 3 4 5 > >>           |   |   |   |                               |

END